

Darius Meier

The Future of Work

Ethical Evaluation of the Change of Human Labor
in the Context of Advancing Automation



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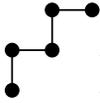
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Abstract

This dissertation examines how human labor has been changed by recent developments in automation from an ethical perspective. To that end, it demonstrates how living a life with human dignity is a universal moral imperative, grounded by the principle of vulnerability, and develops an ethical point of reference to analyze advancing automation based on the capabilities approach while extensively discussing the role of work as part of the framework. In that sense, the different aspects of work, along with its significance to receive sufficient financial income, are evaluated. As a result, a revision of the ten central human capabilities list is proposed, explained, and subsequently justified. The following overall assessment presents ethical opportunities and challenges, outlining how key developments of automation affect the different capabilities to live a dignified life when work is conducted more and more by machines. Furthermore, policy instruments frequently discussed regarding automation of human labor are assessed from an ethical perspective, later applied in a guidance for Swiss public policy. In that effort, this dissertation emphasizes the importance of an active social assistance scheme to provide humans a dignified life when the availability of work becomes scarce.

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List of abbreviations

Abbreviation	Definition
ADM	Automated decision-making
AI	Artificial intelligence
AIM	AI in medicine
AWS	Autonomous weapons systems
CDR	Corporate digital responsibility
CSR	Corporate social responsibility
CST	Catholic social teaching
DLT	Distributed ledger technologies
DQ	Digital intelligence
ESG	Environmental, Social, Governance
ETF	Exchange-traded funds
EU	European Union
FDA	US Food and Drug Administration
GDP	Gross domestic product
HDI	Human Development Index
IEEE	Institute of Electrical and Electronics Engineering
ILO	International Labor Organization
IT	Information technology
OECD	Organization for Economic Co-operation and Development
PwC	PricewaterhouseCoopers
R&D	Research & Development
RAS	Robot-assisted surgery

List of abbreviations

RAV	Regionale Arbeitsvermittlungszentren
RPA	Robotic process automation
TSR	Technological social responsibility
UBI	Universal basic income
UN	United Nations
UNDP	United Nations Development Program
US	United States
WEF	World Economic Forum
WHO	World Health Organization

1 Introduction

The principal aim of this dissertation research is to investigate how advancing automation is affecting human work and to consider the ethical impact of this. Although, to date, the effect of automation has mainly been felt with regard to low-skilled manual jobs in the industrial sector, the advent of digitalization and digital transformation has led to the development of new technologies that offer increased potential for automation, even for high-skilled jobs. This inevitably means that a larger proportion of individuals participating in the labor market may be affected by automation, which in turn raises considerable uncertainty over workers' employment futures and how they might be able to maintain a stable income given their levels of education and skills. They could face increasing pressure in jobs in which technology is able to completely substitute them, while cost optimization opportunities for employers and capital holders simultaneously expand.

Advances in automation may lead to a generally lower demand for paid labor, which has the potential to result in reduced access to jobs for increasing numbers of individuals. This, consecutively, could lead to higher levels of unemployment. Moreover, if more individuals are excluded from the labor market, then both economic and social inequality will also increase. This effect could be exacerbated as higher productivity will no longer translate to wage increases in light of an oversupply of workers eager to perform the remaining jobs. In such contexts, a redistribution from labor to capital would occur. The consequences of the advancing automation of human labor give rise to certain ethical issues with regard to paid work, including in relation to potential violations of human dignity (e.g., having a lack of financial resources to lead a life with human dignity) or social justice (e.g., increasing levels of economic inequality). Furthermore, the use of automation technologies may lead to a decrease in the numbers of humans working in public services or communication, and this lack of a human presence in certain critical functions of society and democracy could affect individuals' political rights, when for example information on political processes are growingly biased. Moreover, it is becoming increasingly common for automation technologies to harvest the private data of humans, which contributes to highly profitable business models based on

an unremunerated work on selfhood, as in the case of individuals posting information about themselves on social media.

The need to assess these implications from an ethical perspective led to the development of the primary research question for this project: *What is the ethical evaluation of the change of human labor caused by advancing automation?* This project therefore seeks to investigate both the ethical challenges and the opportunities presented by the automation of labor. Correspondingly, certain policy instruments such as a universal basic income must also be evaluated with regard to the impacts of automation technologies. The thesis is structured as follows. First, the key terms are critically reviewed and defined, which is essential for conceptual clarity from an ethical perspective. Second, the ethical point of reference, namely the ability to live a life with human dignity, will be introduced, explained, and justified on the basis of the capabilities approach framework. Third, an ethical evaluation of human labor automation will be conducted, highlighting the opportunities and risks of human labor automation. This includes an assessment of policy instruments from an ethical perspective. The final section applies the insights gained from the research to Swiss public policy, providing a general outlook, as well as an ethical guidance for policy- and decision-makers.

1.1 Research structure

From a structural perspective, each chapter is defined by one or more specific guiding questions and objectives that reflect the chapters' respective focal topics. In this first, introductory chapter, the research topics and question are detailed, and the research methodology is introduced. The second chapter defines and examines this research's most salient terms from an ethical perspective: human labor will be defined in accordance with the current state of research along with the automation of human labor, encompassing the role and definition of digital transformation. Chapter Three identifies, explains, and justifies the selected ethical point of reference—namely, human dignity. In adopting the capabilities approach, it may claim universality from an ethical perspective (i.e., it is independent from any specific religion, culture, or worldview) by justifying the principle of human dignity as a moral value and presenting the central human capabilities required to live a dignified life as well as the role that human work plays in this pursuit. Furthermore, the relevant subcategories of a life with

human dignity in the context of the capabilities approach—for instance, social justice, identity, or meaningfulness of work—will be elaborated and will contribute to defining and revising the existing capabilities approach as necessary. Based on the ethical point of reference, Chapter Four will offer an ethical assessment of how human labor has changed as a result of developments in automation, evaluating relevant opportunities and challenges from an ethical perspective that is aligned with the capabilities approach. Policy instruments will also be analyzed from an ethical perspective. The final chapter, Chapter Five, offers an outlook for the future, as well as ethical guidance for Swiss public policy based on the preceding assessment. It will demonstrate how the findings of this research project can inform Swiss public policy from an ethical perspective in the context of ethical issues arising in relation to the increased automation of human labor.

1.2 Scientific relevance

Various publications have highlighted the need for additional and targeted research in the field of ethics that addresses advancing automation to fill a gap in ethical research. The field stands to gain from this research by virtue of its contemporary relevance in terms of expanded applicability to the latest technological developments by incorporating a normative ethical approach as a proven methodological framework. Specifically, the ethical assessment of the increased automation of human labor, guided by an ethically justified ethical point of reference that can claim universality and generalizability, represents an evolutionary next step that highlights the perennial importance of ethics, irrespective of the era in question.

Ethically relevant issues such as economic inequality or impaired labor market access, also warrant further exploration as potential byproducts of digital transformation and should be included in the wider scientific agenda. Moreover, automation technologies affect how humans exercise their political rights by means of their influence on the ways in which humans can communicate with one another. From an interdisciplinarity perspective, the project encompasses topics that are of direct relevance to other fields by offering new ethical insights pertaining to advancing automation—for instance, by providing ethical guidance for researchers in informatics or robotics so that they may design automation technologies that best serve society's needs. Moreover, given that ethics may be applied to critically examine legal obligations, this research will support the opti-

mization of legal frameworks that are relevant to the impact of human labor automation.

1.3 Societal and practical relevance

Ethical issues arising from the automation of human labor are increasingly posing social, commercial, political, and economic challenges. For instance, there is an increasing obligation to confront the possible outcomes for individuals who have been made redundant as a result of automation (e.g., by automated checkout systems in supermarkets or artificial intelligence (AI) chat bots) as well as the wider implications for society and the economy if individuals are increasingly deprived of the human dignity associated with employment. Moreover, automation technologies may affect the operation of the rule of law as robots increasingly take over the work typically performed by human public servants, whereby the biases of those who create such technologies may be played out by these robots, thereby violating individuals' dignity. This research project's findings will be of value to different institutions, including businesses, international organizations, and governments, as they shape their own values, which they cannot define themselves owing to potential conflicts of interest associated with their role as employers seeking primarily to minimize the costs of human labor (including the public sector's objective of reducing government spending). This research project thus has the potential to help bridge the gaps between science and society, between theory and practice.

In the context of human labor, in particular, ethical issues can negatively affect social peace and cohesion. Therefore, the results of the present study may help to prevent societal instability. In particular, the ethical guidance outlined for public policy could help policymakers to employ adequate instruments in the context of human labor automation.

1.4 Overview of the current state of research

Several academic disciplines are concerned with the ethical considerations arising from the increased automation of human labor owing to the advent of digital transformation: in the field of computer science, for instance,

*Research Priorities for Robust and Beneficial Artificial Intelligence*¹ have highlighted the requirement for both computer scientists and ethicists to develop sufficient expertise to ensure that these technologies are ethically beneficial for society. While automation technologies such as AI might increase humanity's wealth overall², they may also lead to further economic inequality in ways that are ethically problematic³. Similar research results have highlighted potential adverse effects, such as unemployment, and have called for labor market reforms (e.g., educational reforms, apprenticeship programs, social safety nets, minimum wage) in anticipation of further developments in labor automation⁴. Moreover, findings suggest that approximately 47 percent of employment in the United States is at risk, indicating that paid jobs may become increasingly scarce in the future⁵. Despite the dwindling availability of paid employment opportunities, however, automation may also positively benefit humans from an ethical standpoint by relieving them of the need to perform repetitive tasks⁶, thereby reducing working hours for those who are employed⁷, and boosting work satisfaction⁸ by freeing up human workers to engage in more meaningful work⁹. In addition, it may reduce government spending, thereby alleviating the taxpayer's financial burden.

The capitalization effects of automation¹⁰ can also promote the creation of new jobs or even completely new industry sectors, as newly gained capital from automated work increases the demand for new goods and services. Similarly, lack of automation and the availability of human providers could become a selling point in burgeoning labor-intensive service sectors¹¹. To adapt to the future labor market and prevent unemployment, companies are called on to honor their social responsibility and take steps to upskill their employees, a call that has been widely supported in interdisciplinary

1 Russel et al. 2015: 106-109

2 Brynjolfsson/McAfee 2016

3 Brynjolfsson et al. 2014

4 Glaeser 2014: 75-80

5 Frey/Osborne 2017

6 Grace et al. 2018: 742; Makridakis 2017

7 Vermeulen et al. 2018

8 Ramamurthy 2021

9 Jajal 2018; Chui et al. 2015

10 Schwab 2016: 37-46

11 Lee 2016; Avent 2016

discourse¹² and by international organizations¹³ and international actors¹⁴. Automation consistently heightens educational and on-the-job skill requirements, particularly for middle-class workers¹⁵. Were human labor to be rendered superfluous by automation, the potential for conflicts regarding the distribution of wealth in society is tremendous and highly relevant from an ethical standpoint. Further findings support the expectation that automation will lead to a rise in productivity and output accompanied by a fall in demand for labor, resulting in lower wages¹⁶. This would anticipate income redistribution from labor to capital, dividing automation “winners” (capital) and automation “losers” (workers). Workers who are unable to obtain the requisite extra education or skills to improve their chances of securing new, higher-paying jobs would be left behind and pressured to accept lower salaries—another ethical question that must be addressed. Firms might further drive labor automation by “fissuring”, a practice whereby companies outsource full-time employment to independent outside contractors¹⁷, circumventing workers’ protection and weakening labor standards¹⁸. These ethical implications warrant detailed and dedicated analysis.

In terms of inequality, higher unemployment would likely widen the gap between the rich and poor in society, and scarcity of income tends to negatively impact human dignity¹⁹. To avoid such negative outcomes, the adoption of a human rights-based approach²⁰ to designing, developing, producing, and using automation technologies such as AI could help to address the ethical risks associated with digital transformation—particularly its core consequences of digital transformation and its associated ethical implications: ever fewer humans will directly participate in a more efficient and effective value chain²¹. Correspondingly, neither upskilling nor “downskilling” effects (whereby humans would simply do the remaining jobs

12 Kotsantonis/Serafeim 2020; Jesuthasan/Boudreau 2021; Panth/Maclean 2020

13 Soldi et al. 2016; OECD 2016; ILO 2020

14 WEF 2020

15 Autor 2015

16 Sachs 2019

17 Weil/Goldman 2016

18 Estlund 2017

19 Kirchsclaeger 2021

20 Kirchsclaeger 2021

21 Kirchsclaeger 2017

that have not been automated) should be considered as job creation²², and the additional value derived from robotic labor benefits only a few, posing an issue regarding social justice. Similarly, skills and education do not necessarily need to serve as effective protection against job automation, given the rapid pace at which technology is advancing²³. The negative social effects of unemployment have been thoroughly investigated²⁴, showcasing how an “unemployed identity” is often fraught with suffering caused by unhappiness, self-doubt, and isolation. In this context, conventional economic indicators, such as gross domestic product (GDP) per capita, might no longer be suitable for analyzing automation-based economies, as they fail to fully capture the benefits and costs of deploying these technologies²⁵. Consequently, new metrics of societal well-being that consider social justice-related factors, such as inequality and insecurity, would be required²⁶. Transparency regarding how the technology is used is also necessary²⁷ in terms of reducing biases which would be ethically beneficial. Another social justice issue concerns the power balance between capital holders and employees, as automation substantially diminishes the potency of strikes as a negotiation tool²⁸.

Several calls for legislative action²⁹ have aimed to determine where mandatory human decisions must be taken rather than allowing algorithms to decide, which would have a substantial impact on human labor. Moreover, one of the outlined “Three Pro-Human Laws of Robotics” states that “robots may replace human labor only to the extent that this is compatible with humans leading a meaningful life of dignity, culture and creative self-realization”³⁰.

Alternatively, the focus may be shifted to the technical governance of automation technologies, emphasizing the importance of human dignity as part of a conceptual governance solution for robots when human work is automated³¹. Similarly, robots could perhaps be equipped with moral deci-

22 Manzeschke 2019; Manzeschke/Brink 2020

23 Ford 2016

24 Hetschko et al. 2014

25 Mokyr 2014

26 Stiglitz 2020

27 Cath et al. 2018

28 Cimadamore et al. 2016

29 Krupiy 2020; Risse 2018

30 Thun-Hohenstein 2017: 29

31 Zardiashvili/Fosch-Villaronga 2020: 13

sion-making abilities³². This idea also relates to human work replacement in the healthcare sector, in which the importance of teaching robots to respect human individuals' autonomy has been acknowledged³³. Human dignity is also identified as a key concept³⁴ in determining how technology should be applied in the working environment (e.g., upskilling, personal data access), which is particularly relevant in light of the extreme pressure on companies to adopt automation technologies in the interest of remaining competitive³⁵. Various new approaches have been developed for the case of automation in the context of corporate social responsibility (CSR)³⁶. Several accounts concede that the task of developing and controlling AI applications ultimately still requires human input and a sense of societal responsibility—for example, where the possibility that political rights will be impacted arises³⁷. Corporate responsibility for algorithms may also be necessary in the deployment of new automation technologies that cause “technological unemployment”³⁸. Aside from early discussions regarding the ethics of deploying robots in the virtual world³⁹, the current level of digital transformation is historically unprecedented: for the first time in human history, technological innovation has led not to the facilitation of human work but rather to a direct substitution⁴⁰, even of intellectual work, and automation is threatening the very identity of human beings⁴¹. This also impacts the role that humans play in work processes, whereby the presence of fewer humans in the value chain could increase the dependency on machines that operate without human supervision. The COVID-19 pandemic provided another unparalleled boost for digitalization, and several publications have explored how such extreme events can accelerate work automation⁴².

As an outlook, practical ethical guidance for public policy based on the results of this research will be provided in the final chapter, with the aim

32 Wallach/Allen 2009

33 Beauchamp/Childress 2013; Vandemeulebroucke et al. 2018

34 Doolin/McLeod 2007: 156-173

35 Madakam et al. 2019

36 Sampath/Khargonekar 2018; Naqvi 2018; Hofstetter 2017; Lobschat et al. 2021

37 Borry/Getha-Taylor 2019; Clifton et. al 2020

38 Martin 2019

39 Ventimiglia 2001; Ventimiglia 2008

40 Kirchschaeger 2021

41 Hessler 2016

42 Chernoff/Warman 2020; Yoo/Sedik 2021; Siderska 2021

of confronting ethical issues using concrete guidelines, complementing the current state of research⁴³ with a specific focus on Switzerland.

1.5 Methodological approach

For this research, an ethical evaluation will be conducted within the framework of the capabilities approach, which encompasses the notion of human dignity. This ethical point of reference and the corresponding methodological approach are introduced, explained, and justified in Chapter Three.

1.6 Literature and sources

The sources used in this research project primarily include academic publications, policy papers from relevant stakeholders or organizations, and existing codes of ethics. In general, academic literature is prioritized in terms of the weight of the respective arguments.

43 Boston et al. 2010; Russel et al. 2015; Mitcham 2015; Risse 2018

2 Review and definition of key terms

In this chapter, the relevant ethical dimensions that have a bearing on the key terms of “human labor” and “automation” in alignment with the current state of research will be identified. Correspondingly, these dimensions can serve as a basis for further evaluation.

2.1 Human labor in an ethical context

Human labor can be defined as “the employment of the physiological functions of human life as a means”, emphasizing that “labor is a means, not and an end itself”⁴⁴. Another way would be to outline human labor as “any socially integrating activity which is connected with human subsistence (...) and which presupposes, creates, and recreates social relationship (...) in order to gain livelihood”⁴⁵. Other approaches have highlighted the ethical value of human labor, whereby work serves to facilitate human development in addition to survival and security and plays a key role in protecting human dignity⁴⁶. In the context of increasing the division of labor and the associated advancement of individuality, the preservation of human dignity becomes particularly crucial⁴⁷. For most of the working population⁴⁸, human labor is tied to an employee status that provides certain rights and benefits, such as minimum wage, protection from discrimination, unemployment insurance or worker’s compensation⁴⁹. The opportunity to work is further considered crucial to the maintenance of social peace as a source of stability that permits members of a community to contribute⁵⁰, an effect that has been subject to considerable discussion⁵¹.

44 Mises 2012: 131

45 Steiner 1957: 118-129

46 Liszcz 2017; Sison et al. 2016; Thistlethwaite 2009

47 Herdt 2019: 137-141

48 ILO 2021

49 Cherry 2016

50 Somavia 2015

51 Cramer 2015; Brueck et al. 2021

Labor can be characterized in various ways, including, for example, in accordance with skill level or the nature of the employee's relationship with their employer⁵². In a technical sense, labor may be defined as "any valuable service rendered by a human agent in the production of wealth, other than accumulating and providing capital or assuming the risks that are a normal part of business undertakings"⁵³. In that regard, labor is commonly seen as a human service that takes place primarily in an interhuman setting.

A further dimension that affects human labor from an ethical perspective is relationships with others and the common good. Anthropologically, human work may be defined as a universal experience⁵⁴, in that all societal organizations engage in work to ensure their subsistence. In this regard, the right to participate in the labor market is key, not only in terms of economic self-preservation, recognition, or interaction with nature, but also in terms of allowing gender gaps to be overcome from an ethical perspective. This includes socially necessary work, such as so-called reproductive activities and child-rearing, which have traditionally been categorized as women's work⁵⁵. In this sense, the ethical relation to the "other" (i.e., gender) is a characteristic feature of human labor and the opportunity to work as part of a good life. In the context of these types of work and activities, a considerable portion of human labor is not recognized as part of the labor market and thus fails to provide sufficient compensation.

To understand labor from an ethical perspective, employees require ethical awareness to elaborate principles that are relevant to define human labor. Members of society should be educated from an early stage as to how they might implement ethical sensitivity and reasoning in the workplace⁵⁶. In this context, the educational aspect contemplates a further ethical dimension of human labor, with a particular focus on identifying, for instance, injustices or practices that undermine the dignity of others.

From an ethical perspective, the quality of work should also be considered in addition to rather simply the quantity of available jobs in a given economy⁵⁷. For instance, aside from the sheer availability of work, labor should improve community living and generally protect the integrity of

52 Amadeo 2021

53 Encyclopedia Britannica n.d.

54 Keskuela 2018: 1-3

55 Gurtler/Smith 2005

56 Winstanley/Woodall 2000: 16-17

57 Arenas 2003: 94-95

nature. An illustrative decision would be to consider work as enabled self-fulfillment through service to others as part of an “ethical mysticism” that appreciates the importance of the connection between all living entities—human and non-human—equally⁵⁸. Respect, in the sense of “dignity toward the self and the ultimate purpose of the product or service”, is essential to understanding human labor from an ethical perspective⁵⁹. According to this interpretation, on the one hand, pride and self-esteem are highlighted when work is approached simultaneously as a quest for both meaning and one’s daily bread at the same time⁶⁰. On the other hand, respect may apply to public goods, including the environment. In this position, therefore, respect may be described as the minimum basis for “good work”. The discussion of the role of work is extended in the chapter Three on the ethical point of reference.

Undoubtedly, human labor has always been affected by contemporary factors, and its nature is influenced by technological advancement, as reflected, for instance, in the shift from physical to mental labor⁶¹. The utilization of knowledge (i.e., having the right specific mental skills) for access to human labor has become more salient⁶², and the question of which skills will be relevant in the context of new technologies is subject to considerable debate⁶³. A preliminary consensus on this question has highlighted the importance of social skills, as human labor will increasingly be conceived by non-automatable work.

To summarize, from an ethical perspective, human labor is affected by various dimensions, predominant among which is the focus on work’s qualitative aspects and characteristics. First, the protection of human dignity and the ability to live a life with human dignity are crucial to various concepts, in addition to securing survival, which, in most cases, is dependent on access to the labor market. Second, effects on others, such as the environment, and labor that takes place outside the traditional labor market—for example, reproductive work—constitute another ethical dimension. Third, the educational aspect of work, when it comes to accessing education regarding ethical issues as well as to gaining human develop-

58 Schweitzer 1981

59 Arenas 2003: 105

60 Terkel 1997

61 Cordes 2009; Fleishman/Reilly 1992

62 Witt 1997; Green et al. 2003; Atack et al. 2004

63 Danuser/Kendzia 2019; Panth/Maclean 2020: 3; Andrew/Higson 2008; Gehrke et al. 2015

ment, are further dimensions that indicate what a life with human dignity might look like. The role that work plays in fostering dignity will be further evaluated in Chapter Three.

2.1.1 Work vs. labor

While the terms have been used differentially in earlier literature (e.g., the use of the term “labor” in the context of Marxist theories), work (i.e., an activity, such as a job, in which a person invests physical or mental effort, typically for remuneration⁶⁴) and labor (i.e., the physical, mental, and social effort used to produce goods and services in an economy⁶⁵) are often perceived as the same activities⁶⁶. Given that the terms have become increasingly interchangeable in the current context of digital transformation, they are treated as synonymous in the present research project to avoid confusion with respect to the various theoretical traditions, which may influence how the terms are elaborated in the research. This is rendered more relevant, by the fact that the natures of paid labor and paid work are currently undergoing a process of transformation owing to advancing automation. In this sense, this research focuses primarily on paid or remunerated work; however, other types of work (e.g., unremunerated work exploited and encouraged by automation technologies, such as work on selfhood in social media) and the ways in which automation technologies impact how human work is performed will also be explored. Historically, it is likely that most work has gone unpaid or unremunerated, preventing the laborers in question from living dignified life, as the example of slavery illustrated.

2.1.2 Ethical vs. economic perspectives

It is important to clearly distinguish between economic and ethical perspectives on human labor. From a macroeconomic standpoint, the creation of new jobs—any jobs, regardless of their nature—is interpreted as a healthy economic sign. If jobs can be created, irrespective of the product or service, the consequences for individuals, the ecosystem, society, and the economy

64 Cambridge Dictionary n.d.-a

65 Amadeo 2021

66 Arendt 2010

are considered to be progressing⁶⁷. Efficiency is a crucial aspect of human labor. From a microeconomic perspective, the single-minded pursuit of efficiency jeopardizes justice or human dignity⁶⁸. This is also relevant in terms of the more general ethical considerations regarding digital transformation, given the predominant interest in efficient labor in the recent past⁶⁹.

The incorporation of moral concerns in work as opposed to exclusively considering self-interest is also crucial to distinguishing between the economic and ethical perspectives⁷⁰. Differentiation between “physiological” employment and the ethical value of human labor addresses the self-actualization needs of human beings⁷¹, which do not receive sufficient attention when analyzed purely from an economic perspective. An exclusive focus on physiological needs omits prosocial behavior from the analysis as well as issues such as the unemployed or working poor, who are forced to take part in economic practices that may have harmful effects on themselves and others.

2.1.3 Human labor as a control authority when deploying technology

With the increasing automation of human labor and the use of automation technologies, fewer humans are directly involved in the critical institutions that oversee social cohesion and the living together. This has led many to query how these technologies will be applied when humans are no longer working in democratically relevant services, such as government services or the media. In this regard, the automation of human work has resulted in increased dependency on these automation technologies, with algorithms determining what actions will be taken and how information is to be distributed⁷². For instance, the deployment of algorithms without human supervision by humans and without transparency could endanger the political rights of certain individuals by discriminating against certain groups as a result of opaque biases in terms of public services. Additionally, as human labor becomes less important in communication, algorithms increasingly determine in an automated fashion what information citizens

67 Arenas 2003: 94

68 Eecke 1998: 144-145

69 Kirchsclaeger 2021

70 Arenas 2003: 98-105

71 Maslow 1987

72 Cetina Presuel/Martínez Sierra 2019

and individuals receive, whereby the distribution mechanisms are also subject to decisions taken by algorithms rather than working humans⁷³. Both examples highlight ethical threats that must be analyzed, as human supervision is eliminated by automation of human work.

Human labor is one of the key terms used in this research. However, it requires further clarification in the context of the ethical point of reference. To sum up the discussion in this chapter and the different perspectives and approaches, *human labor* will be initially defined as *the use of physiological and cognitive functions to access the necessary resources for a dignified life—with equal respect toward all living entities, both human and non-human—and serving as a key facilitator of human flourishing as well as contributing to critical work processes associated with social cohesion*. The various components of this definition will be further probed in the discussion of the ethical point of reference in Chapter Three and complemented with an evaluation of the specific role that this definition of human work plays in pursuing a life with human dignity in light of the ethical point of reference.

2.2 Automation of human labor

The following section discusses, defines, and clarifies the key terms of “automation of human labor” and “digital transformation” from an ethical perspective, in line with this research objectives and in line with the current state of research. Subsequently, specific topics that relate to these terms’ ethical dimensions will be explored. It is important to clarify these terms for multiple reasons. *First*, most terms in the technology field and pertaining to technology-based changes are coined by marketing experts seeking to introduce the next generation of cutting-edge technology⁷⁴. Whether a given term is sufficiently descriptive to permit ethical evaluation and in what sense must be determined. *Second*, the environment in which new technologies are used and advertised is associated with a conceptual imprecision that typically requires additional attention so that developments may be assessed from an ethical perspective. This chapter clarifies the terms “automation” and “digital transformation” by addressing other terminologies, such as “artificial intelligence” or “robotics”, which are frequently used in connection with advancing automation. Only after this process can the

73 Drunen et al. 2019

74 Metzinger 2019

relevant ethical dimensions be identified and aligned with the ethical point of reference and its principles regarding human dignity.

2.2.1 Clarification of the term automation

The increased automation of work processes is among the major consequences of digitalization when new sources of technology are introduced⁷⁵ precipitating “fundamental changes”⁷⁶ in everyday life, the economy, or society at large as a byproduct of digital transformation⁷⁷. Correspondingly, objects, phenomena, and realities connected to digitalization practices, including automation, are aspects of digital transformation, though they may not be digital as such but rather products or results of digital processes⁷⁸. Automation in its purest form “entails the elimination of human manual labor through the use of automatic devices” and “eradicates various forms of labor and makes certain types of professions obsolete”⁷⁹. The extent of automation’s potential as an aspect of digital transformation and its impact has been widely discussed⁸⁰, including the assumption that automation is even being increasingly substituted for intellectual work. Additionally, different approaches have been adopted to delineating the prevalent technological areas within automation, such as AI or robotics⁸¹. Additionally, automation technologies have largely taken over the critical role when it comes to social cohesion and the living together, resulting in a lack of human supervision, as discussed above.

In light of these considerations and in service of the research objective, *automation* will be defined as *digital technology that eliminates paid human labor to strive for efficiency leading to ever fewer humans directly participating in a more efficient and effective value chain and, in addition, substantially influencing the nature of the remaining human work*. This definition does not exclude any emerging, “cutting edge” digital technology, but it distinguishes “automation” from terms such as “artificial intelligence” or “robotics” (which are largely subject to marketing biases or conceptual imprecision), by clearly stating that all digital technologies that are bound

75 Betz et al. 2016; Hess et al. 2016; Moore 2015

76 Gong/Ribiere 2021: 9

77 Pousttchi 2020; Veldhoven/Vanthienen 2019

78 Ohly 2019: 25-29

79 Bard et al. 2020: 15; Grosz et al. 2016

80 Arntz et al. 2016; Heath 2016; Larsson 2020; Acemoglu/Restrepo 2019

81 Zande et al. 2020; Muro et al. 2019; Kurfess 2005; Hofmann et al. 2019; Nof 2009

to automation are required to be included in the ethical analysis. Furthermore, this definition encompasses the social phenomena that occur as a result of digital transformation, highlighting the use of digital technologies. The consequences of this development and definition merit an extended ethical evaluation in light of this thesis' ethical point of reference, which is concerned with facilitating life with human dignity.

2.2.2 Clarification of digital transformation

Digital transformation is widely considered an umbrella term⁸² that encompasses multiple technology-based changes, including digitalization, automation, robotization, or the use of AI⁸³. The process of digitization—the “conversion of text, pictures, or sound into a digital form that can be processed by a computer”—is typically regarded as a presumptive step towards digitalization, which is defined as the “adaptation of a system, process etc. to be operated with the use of computers and the internet”⁸⁴. They share etymological roots: “digit” refers to conversion into a sequence of digits, whereas “digital” denotes the signals or data expressed as series of the digits 0 and 1, and their activities are closely associated with each other⁸⁵.

Technology-based shifts prompt further questions as to how a fair social and economic system might be shaped, focusing on the distribution of financial means and equal participation in the labor market to guarantee physical survival, a life with human dignity, and peaceful coexistence⁸⁶. Digital transformation is subject to increased interaction between humans and machines and a high presence of social networks in daily life, which also promotes the technologization and robotization of ideas and concepts. Those social developments must be carefully analyzed from an ethical perspective. Therefore, in line with this research's aims, the term *digital transformation* will be defined as *an umbrella term covering all technology-related digital changes relevant in the context of human labor*.

82 Kirchsclaeger 2021

83 Mičić 2017; Tang 2021; Spremic 2017

84 Oxford English Dictionary n.d.-c; n.d.-b

85 Bloomberg 2018; Oxford English Dictionary n.d.-a; Mergel et al. 2019; Gong/Ribiere 2021; Tilson et al. 2010

86 Kirchsclaeger 2021: 103

3 Human dignity as ethical point of reference

3.1 Identification and overview

To ethically analyze and assess developments, such as the changes in human labor that occur in the context of digital transformation, guiding ethical principles and norms are required as instruments embedded in a suitable framework. While several discussions have aimed at establishing new ethical principles in the era of technology-based changes, this would not be appropriate for the present analysis. First, the claim to universality would likely be compromised, as technology-based developments are subject to constant modification with unforeseen implications. As such, this would require that new ethical values be adjusted continually in response to digital transformations, amounting to a permanent short-term revision cycle. Second, ethical frameworks based on principles that have been established over multiple decades and centuries are suitable for informing newer developments, as their usability has been confirmed independently from the contemporary state of technology by approaching humanity or human needs from an ethical standpoint. Moreover, they have robust theoretical foundations.

This chapter introduces, explains, and justifies the ethical point of reference within which the main research question will be addressed. First, the examination of various ethical approaches that led to the selection of the capabilities approach which aims to define a life with human dignity will be detailed. This will be followed by a discussion of human dignity, providing a short history of the term and highlighting the challenges associated with its specification. Subsequently, the principle of human dignity will be justified as a moral value that can claim universality from an ethical perspective by fulfilling the principle of generalizability. The capability theory and the capabilities approach will then be introduced discussing frameworks of a normative approach to human welfare. In addition, the approach's applicability to analyzing technological developments and addressing relevant ethical questions will be demonstrated. In that context, the ten central human capabilities that the capabilities approach encompasses will be specified with a discussion of the role that work plays in human dignity by

incorporating the predominant normative religious-ethical views and other relevant perspectives.

Previous studies have applied other methodological frameworks to analyze the impact of new technologies in the context of automation from an ethical perspective, depending on the specific area assessed⁸⁷. Some have been based on critical-rational ethics⁸⁸ and have included a principle-guided rational basis for ethics⁸⁹. Critical-rational ethics claims that its principles are rationally justifiable⁹⁰. Therefore, “ethical principles are rationally justified if they are generally endorsed by, that is to say acceptable to, all affected persons, given their full equality and effective self-determination”⁹¹. From an ethical perspective, technology’s treatment of human beings is particularly salient here. One potential approach from a critical-rational ethics standpoint would be to prevent technology from considering humans as a means, which would make them vulnerable⁹², but only as an end⁹³ based on Immanuel Kant’s categorical imperative⁹⁴.

Additional ethical frameworks applied in the context of automation have explored predominantly utilitarian approaches, focusing on the consequences of machines’ actions⁹⁵ or virtue ethics approaches, which examine technology’s potential for moral learning through practice and self-updating⁹⁶. A purely utilitarian approach was discounted on the grounds that its purpose of achieving the “greatest happiness of the greatest number”⁹⁷ relativizes the universality of human rights⁹⁸, which are based on an “overlapping consensus”⁹⁹. This could result in advocating the majority’s “happiness” at the expense of a minority’s “unhappiness”, promoting only the satisfaction of preferences¹⁰⁰. It also risks reducing morality to a

87 Steinmann et al. 2016; Gruat 2015; McKie 2004; Burls et al. 2011; Martin et al. 2019

88 Decker 2008; Serafimova 2020; Gonzalez 2015; Mitcham 2015

89 Meyer 2017

90 Johnson/Cureton 2021

91 Koller 1992: 75

92 Harvard Business Review Staff 2003

93 Duewell 2010: 77

94 Kant/Weischedel 1982: 61

95 Anderson/Anderson 2007; Leung 2017; Karnouskos 2020

96 Howard/Muntean 2017; Consoli 2008; Coeckelbergh 2021

97 Bentham 1988

98 Gibbard 1984: 92; Heard 1997; Demenchonok 2009

99 Valadier 2014: 265

100 Nussbaum 2011: 50-51

simple cost–benefit analysis¹⁰¹, which may also relativize the equality of all humans’ rights. Furthermore, the principle of utility as such would be aligned with the pursuit of an efficiency-driven digital transformation regardless of the individual human, which leads to fundamental distress or even disregard for human dignity of all humans¹⁰² as a result of advancing automation¹⁰³. Additionally, it may focus primarily on utility, which would avoid the valuational issue by merely identifying valuation with utility in the form of happiness or desire-fulfillment¹⁰⁴.

The utilitarian approach has largely manifested in the GDP metric, and four problems arise in relation to the use of this metric to measure national quality of life, making it less democratic¹⁰⁵. First, the aggregation across lives through GDP (per capita) leads to the neglect of people at the bottom of the social ladder. Second, the terms “satisfaction” or “pleasure” in the utilitarian approach suggests singleness and commensurability, whereas real life, by contrast, is based on diversity and incommensurability. Third, preferences are not “hard-wired: they respond to social conditions”¹⁰⁶. These adaptive preferences occur when the person initially wanted something that they no longer desire. Fourth, the utilitarian approach sees satisfaction as a goal; however, satisfaction is a state or condition that ensues from activity or action taken¹⁰⁷. It is not in itself an activity.

Further ethical approaches that were discarded in the present research are resource-based approaches that urge the equal allocation of basic resources on the understanding that wealth and income are all-purpose resources¹⁰⁸. Several objections arise in relation to implementing approaches that focus predominantly on distribution. First, “income and wealth are not good proxies for what people are actually able to do and to be”¹⁰⁹. Each individual’s needs with respect to resources are likely to differ. Second, wealth and income are not suitable proxies for the ability to function in many areas¹¹⁰. For instance, stigma and discrimination may persist, even if wealth and income are completely equalized. Third, certain benefits, such

101 Serafimova 2020: 8

102 Kirchsclaeger 2021: 114-115

103 Helbing 2019: 47-50

104 Sen 2008: 30

105 Nussbaum 2011: 51-52

106 *ibid.*: 43

107 *ibid.*: 55

108 Nussbaum 2011: 56

109 *ibid.*: 57

110 *ibid.*: 58

as religious freedom or freedom of speech, are not considered by such approaches.

The capabilities approach may be characterized as a species of human rights approach¹¹¹, as the capabilities it encompasses overlap with the human rights recognized in the Universal Declaration of Human Rights of 1948 and cover the same terrain of so-called first-generation rights, encompassing political and civil rights, and so-called second-generation rights, which include economic and social rights. In this sense, the capabilities approach “supplements the standard human rights approaches”¹¹². Furthermore, protection of human dignity is a key aspect of both the capabilities approach and human rights¹¹³, and both serve as “side-constraints” on the ways in which social goals must be pursued, with the idea of a “social minimum that any political society must secure”¹¹⁴. In that respect, states can pursue their conception of the social good on condition that they do not violate citizens’ opportunities to freely exercise their capabilities. The capabilities approach is also more specific than the language of human rights, which can be considered to be overly vague and unhelpful¹¹⁵. The capabilities approach also includes the relationship with non-human animals and nature¹¹⁶ in the framework.

Securing the minimal preconditions for a good society may permit the violation of certain individual rights, such as property rights, which may cause a clash between capability satisfaction and efforts to promote capabilities¹¹⁷. Counter to this, however, is the argument that rights should be more closely understood in terms of capabilities, which would be more easily accepted and realized, based on the assumption that the inherent interpersonal pluralism of the capabilities approach overcomes the potentially too rigid and stale concepts of rights-talk¹¹⁸.

The capabilities approach offers close links with deontological perspectives¹¹⁹, agreeing with the Kantian idea that “social welfare should never be pursued in a way that violates people’s fundamental entitlements”. More-

111 Nussbaum 2011: 62

112 *ibid*: 63

113 Brooks 2012: xv

114 Nussbaum 2012

115 Brooks 2012: xv

116 Nussbaum 2006b; Nussbaum 2011

117 West 2012: 194

118 Sen 2012

119 Nussbaum 2011: 94

over, the capabilities approach embraces political liberalism. Generally, the capabilities approach has been identified as suitable for analyzing the impact of changes caused by advancing automation from an ethical perspective as “for many people, these capabilities are actualized and developed in the context of daily work or based on being employed and earning sufficient wages” and “if we take employment out of the equation, there must be alternative structures in place to ensure that people (...) still have the ability to actualize and develop the capabilities that are critical to living a human life with dignity”¹²⁰.

To best serve the research interests, therefore, *human dignity*—specifically, the definition of a life lived with human dignity based on the capabilities approach—has been identified as the optimal ethical point of reference for the ethical assessment. In addition to being justifiable as a moral value (see Section 3.2), the principle of human dignity represents an integral part of the Universal Declaration of Human Rights¹²¹, and the dignity of every human being must be respected and protected. Furthermore, the International Labor Organization (ILO)¹²² states in its Philadelphia Declaration that “labor is not a commodity” and “all human beings (...) have the right to pursue both their material well-being, and their spiritual development in conditions of freedom and dignity, of economic security and equal opportunity”. This gives an indication as to the relevance of human dignity in the context of evaluating labor, notably in terms of recent changes caused by digital transformation and automation¹²³. Owing to the representative nature of these declarations, involving the commitment of all member states of the United Nations, they exemplify a global moral compass¹²⁴. Therefore, human dignity can serve as an ethical point of reference characterized by universal consensus, practical orientation, and the ability to be enacted as positive law¹²⁵, on condition that the term and its associated framework are sufficiently defined. In addition, human dignity can serve as a key facilitator to bridge the gaps between different ideological actors to promote and “adapt” human rights¹²⁶.

120 Nokelainen et al. 2018: 19

121 UN 1948

122 ILO 1944: 1-2

123 Torresen 2018; Cruddas 2020; Arkin et al. 2012

124 Huppenbauer 2017: 53; Muerbe/Weiss 2018: 103; Frick 2017

125 Kirchsclaeger 2014: 1

126 Kirchsclaeger 2016b: 188-190

Of course, this methodological framework is not the only option; other ethical principles and approaches could also help to find ethical guidance in the context of advancing human labor automation, as discussed above. The following sections will demonstrate that, for this specific research area, the normative validity of this ethical point of reference can be ethically justified, which constitutes the main reason for its selection.

3.1.1 Short history of human dignity

The roots of the human dignity concept may be traced back to classical antiquity and Cicero's *dignitas romana*¹²⁷, which drew on a concept known to Greek philosophy with emphasis on the sociopolitical aspects of personal action within the community. There, the substance of dignity is constituted by the dignity with which a person establishes and lives out their life in society¹²⁸.

Contemplating the evolution of the recent past, beginning with the UN Declaration of Human Rights, additional documents produced throughout in recent decades have enshrined human dignity as the foundational concept of human rights law and the “ultimate value” that lends coherence to human rights¹²⁹. Examples include the Vienna Declaration of the 1993 World Conference on Human Rights, the 1996 International Human Rights Covenants¹³⁰, and the Bonn Basic Law of 1949¹³¹. However, these official commitments to dignity are new to human history, given that dignity has traditionally been attributed primarily to an elite group. This is still implicit in the definition offered by the *Oxford English Dictionary*¹³², which defines the term as “the state or quality of being worthy of honor or respect” or “a high rank or position”. In this context, human dignity was a rather hierarchical distinction applied to a few individuals rather than a universal principle of equality¹³³ and, in premodern times, was used to denote characteristics such as personal authority or majesty¹³⁴, which, for instance, is

127 Rosen 2012

128 Nussbaum 2009

129 Hasson 2003: 83

130 Donnelly 2013: 28

131 Huber 2015: 9

132 Oxford English Dictionary n.d.-d

133 Brennan/Lo 2007: 44

134 Englard 1999

still inherent in the word “dignitary”¹³⁵. Modern notions of dignity include the upwards equalization of rank and attempt to extend to all humans the dignity and respect that were formerly the preserve of the nobility¹³⁶. The global acknowledgment of human dignity from a cosmopolitan standpoint whereby “everybody matters”¹³⁷ is a relatively new phenomenon.

Past grave contraventions or violations of human dignity have rendered this principle particularly pertinent, forming new values by virtue of the emotional force that it carries¹³⁸. This is a development that may occur independently of any specific religious background or tradition and that promotes a universalistic fundamental feature that is highly relevant in the context of globalization, particularly in light of the global interweaving of communication opportunities¹³⁹. These new possibilities highlight how the violation of basic rights may be perceived in all other locations, a strong indicator of how values are also becoming increasingly globalized or universalized, in addition to the more conventionally known characteristics of globalization such as internationalization of trade and capital. Human rights and globalization may be said to go hand in hand, given the strong need for globally recognizable or universal norms, as actions nowadays are of global reach and thus facilitate universal awareness of human rights¹⁴⁰. Every generation must nonetheless reinvigorate the recognition of the human right to equal dignity, as demonstrated by the various crimes that are committed in the aftermath of publicly known cruelties. For instance, the violent crimes perpetrated in Hitler’s Germany did not prevent subsequent generations from pursuing ethnic cleansing in crumbling Yugoslavia, demonstrates that awareness of the universality of the right to human dignity requires continuous reinforcement¹⁴¹. However, loss of civilian life and gruesome revelations of the treatment of minorities appear to have promoted the concept of human dignity at the international level and its endorsement¹⁴², particularly from the Second World War to the present day. This development reveals how discussions regarding how the principle of human dignity might best be enacted have become more universally salient.

135 Cambridge Dictionary n.d.-b

136 Waldron 2012

137 Appiah 2006: 144

138 Joas 2000

139 Huber 2015: 7-12

140 Kant/Malter 2008: 40-46

141 Heitmeyer 2016

142 Chalmers/Ida 2007: 157-158; Eckert 2007: 41-51

3.1.2 The specification challenge of the term human dignity

Definitions of the term “human dignity” have been at times controversial¹⁴³ and ambiguous. Various aspects warrant further exploration: the concept of dignity as a position of high rank or membership of an elite group may be classified as “social dignity”, whereas the “virtue of dignity” denotes an attitude that contributes to good moral or ethical temperament¹⁴⁴. This suggests that human dignity refers to a “special moral worth and status had by a human being”. In this regard, it is essential that the term be further narrowed down and specified, particularly given the gravity of allegations that an individual’s human dignity has been violated¹⁴⁵. For instance, human dignity may be understood as *inherent* and *permanent* to every human being and impossible to take away or acquire, which stands in contrast to perceptions of human dignity as *contingent* or *limited*. In addition, in the context of human dignity violations, further clarification is warranted. Whereas “expressive dignity” describes a human behavior, “esthetic dignity” relates to an entity’s external appearance and should be distinguished from ethical understandings of human dignity. Furthermore, it is important to recognize that not all moral mistakes automatically constitute violations of human dignity, as this would diminish the term’s weight in ethical debates.

Regarding the practical orientation of human dignity, it is helpful to refer to the minimum preconditions required for a life of dignity in the contemporary world, whereby human rights and human dignity are considered as mutually co-constituting one another¹⁴⁶. In this context, human rights could be seen as justified by its creation of human beings able to live a life of dignity.

Human dignity is frequently regarded as the basis for human rights¹⁴⁷, and appeals to human dignity and human rights have saved countless lives in the past and created options for political power and de-legitimization of unjust power. Therefore, human dignity can help distinguish between right and wrong in difficult situations¹⁴⁸. In essence, this requires agreeing on a “minimum core” of human dignity, whereby an individual’s intrinsic worth as a human being must be recognized and respected by others, and

143 Kirchsclaeger 2013: 280-290; Sandkuehler 2015; Schaber 2012

144 Meyer 2002: 196-197

145 Schaber 2004

146 Donnelly 2013: 132

147 Duewell 2010

148 Naudé 2008

some forms of treatment by a state or authority prove to be inconsistent¹⁴⁹, as the state exists for providing toward individual human beings, not vice versa. Human dignity generally requires further specification to determine its optimal practical orientation, which is essential, given that it is too important to risk obscuring it with vagueness¹⁵⁰.

The use of human dignity as a reference point has also been controversial throughout time, as different arguments have been raised as to whether human dignity can claim universality as an ethical principle. One of the most common arguments against this notion stems from cultural relativism, which doubts whether the principle is interculturally valid during the current era of globalization in light of its strong affiliation with the European culture and its Judeo-Christian roots¹⁵¹. The essence of human dignity, as conceived within the biblical framework, is detailed in Genesis 1.27–1.28 with the words, “so God created man in his own image, in the image of God created He him, male and female created He them”, which marks the understanding of dignity as attributable to the placement of humans above of the rest of His creation, thereby implying that we as humans are worthy as we are loved and honored by God¹⁵².

According to this Judeo-Christian perspective, dignity may be understood as universal¹⁵³. However, Genesis 2.7 proclaims: “therefore the Lord God formed man from the slime of the earth”, leading Pope Innocent III in the twelfth century to designate man as “an element having lesser dignity than others”. In this context, and throughout the majority of Christianity’s history, this understanding has been tended to predominate over the optimistic interpretation that highlights humans’ likeness to God—the *Imago Dei*¹⁵⁴. Human dignity was thus perceived very differently within the Christian tradition prior to the 20th century. This relativizes the argument that the very concept of human dignity should be discarded in light of its Judeo-Christian origins and Western perceptions, as the concept’s understanding within this tradition has varied considerably over time. Examples of debates within the Western context include various intellectual movements, such as the humanism of the Italian renaissance, Spanish scholasticism, and

149 Neumann 2000

150 Bedford-Strohm 2010: 211

151 Hoeffe 2002: 111

152 England 1999: 1908

153 Donnelly 2013: 124-132

154 Puffer 2017

the German Reformation, that gave rise to a more inclusive conception of human dignity¹⁵⁵.

Human rights, therefore, were historically obliged to prevail against resistance from the Christian church, and the Judeo-Christian roots of the concept of human dignity remained largely in the background. The 1960s and 1970s witnessed a breakthrough and a new commitment to human rights on the part of the church in tandem with the affirmation that human dignity is inherent to all human beings, based in part on the Second Vatican Council¹⁵⁶ between 1961-1965. The various contributors to the Universal Declaration of Human Rights in 1948 included authors of secular, Christian Arab, or Chinese origin, and so the formulation highlights a broad merging of background ideas and may be presented as a “value generalization”¹⁵⁷. This argument stands in strong opposition to the culturally relativistic view; however, the universalistic claim can only be accepted if human rights address themselves self-critically and do not claim cultural superiority as such¹⁵⁸.

Christian ethics and human dignity constitute a class of “late romance”¹⁵⁹ as a result of the profound mistrust of human rights and human dignity in the context of enlightenment period. This was largely attributable to the reluctance toward secularization and the open anti-enlightenment rhetoric that was predominantly observed in European churches in the 18th and 19th century. Ecumenical thinking after the Second World War began to support theoretical paradigms that centered human rights as an embodiment of human dignity, supported by arguments drawn from the Bible¹⁶⁰.

Modern conceptions of human rights are also generally more “radical”¹⁶¹ than those of premodern Judeo-Christian traditions, as every human being is now regarded as entitled to the same fundamental rights. The notion of eurocentrism in human rights thus represents a misunderstanding, because the assertion that God created humans in His image is not based on a particular doctrine that would distinguish between Jews and Christians. Rather, this position holds that no human being’s dignity may be touched,

155 Huber 2015: 11

156 Huenermann et al. 2005

157 Joas 2012: 251-264

158 Huber 2015: 13-15

159 Bedford-Strohm 2010: 213-214

160 Smit 2007: 352

161 Huber 1994: 52-55

contradicting the clearly expressed skepticism¹⁶² that frames the universalism of human rights as a luxury for the established.

Another counter-argument raised against the notion of human dignity concerns its vagueness from a conceptual perspective. This stems, in many cases, from the high-level notions found in many legal documents that have framed the international human rights regime¹⁶³. A further argument in the same vein criticizes the use of multiple different philosophical discussions and approaches to positively justify the term¹⁶⁴ of human dignity, which generates numerous possibilities and nonetheless struggles to delineate a satisfactory inclusive definition.

The definition of human dignity must thus be firmed up, including the argument as to why all human beings are entitled to human dignity, i.e., to live a life with human dignity to claim universality. The applicability furthermore needs to be justified in the context of the advancing automation of human labor, i.e., the framework should be appropriate for analyzing technological changes from an ethical perspective.

3.2 Justification of human dignity as a moral value

In light of the different approaches toward human dignity and the challenges outlined above, it is appropriate here to justify and demonstrate the moral validity of the principle of human dignity. To this end, a negative justification path will be outlined below, as this approach has already been proven useful in the justification of moral values in other contexts, highlighting a “via negations”, which distinguishes the human from the inhuman¹⁶⁵. Specifically, the principle of vulnerability will be used to this end¹⁶⁶.

The justification of human dignity from a philosophical perspective finds its main challenge in the principle of generalizability¹⁶⁷. If not fulfilled, this can restrict the circle of addressees and run counter to the universal character of human dignity. As several approaches exclude certain groups

162 Spaeman 1988: 709

163 Beitz 2013

164 Schaber 2004; 2012

165 Rommel 2020: 56

166 Kirchsclaeger 2016a

167 Kirchsclaeger 2016a: 201

of people as a result of the principle's positive definition and justification of the principle of human dignity, any potential for discrimination must be excluded, and high sensitivity to possible discriminatory elements in the theoretical discussion of human dignity emerges as salient¹⁶⁸. A negative justification approach may operate free from discrimination, as it is not obliged to specify any characteristics or abilities that entitle an individual to human dignity. Rather, the negative approach to human dignity is based on the violations of human dignity that people suffer or may suffer, and which must be stopped and prevented.

The justification path through the principle of vulnerability¹⁶⁹ claims that vulnerability affects all humans and highlights how they differ from others and that people grant human dignity to one another on the basis of the principle of vulnerability. Therefore, people do not possess human dignity because of their vulnerability but rather because people come to terms with their vulnerability and its relevance and become aware of the “first-person perspective” and their own and all people’s “self-relationship” and recognize this as part of the human condition. Because they recognize the vulnerability of all people encompassing the “first-person perspective” and the “self-relationship”, human beings assign each other human dignity to one another as fellow human beings.

In sum, based on the principle of vulnerability¹⁷⁰, human dignity is inherently justified without any need to argue on the basis of which characteristics all human beings deserve respect—that is, which characteristics constitute human beings as human beings. Moreover, this foundation of justification may be linked to violations that have occurred in the contexts of different religions, cultures, traditions, civilizations, and worldviews, because the principle of vulnerability offers diverse and multilayered points of connection. Finally, this foundation of reasons *ex negativo* is compatible with both religious and secular conceptions of human dignity. For these reasons, the principle of human dignity is generalizable and universal based on the principle of vulnerability, which demands that the dignity of each and every human being be respected.

168 *ibid.*: 202-203

169 Kirchsclaeger 2016a: 203-206

170 Kirchsclaeger 2016a: 206

3.3 The capabilities approach

In light of the above justification of the principle of human dignity based on the principle of vulnerability, it may be concluded that humans are inherently entitled to dignity and that this excludes other species, such as animals, at least from a similar understanding of dignity. Therefore, humans may be assumed to have a special status, and consequently, their dignified life is a moral imperative. This leads onto the below discussion concerning what features or capabilities are required to realize this imperative.

The capabilities approach will be discussed below in a bid to define more specifically what a life befitting that dignity requires. The framework will be introduced in detail, and its usefulness for the subsequent ethical evaluation will be demonstrated. In the final section of this chapter, the ethical point of reference will be justified. In general, the capabilities approach may be summarized as follows: “The purpose of global development, like the purpose of good domestic national policy, is to enable people to live full and creative lives, developing their potential and fashioning a meaningful existence commensurate with their equal human dignity”¹⁷¹.

3.3.1 Introduction

The various capability theories typically cohere around two normative claims: first, that the freedom to achieve well-being is of primary moral importance and second, that well-being should be understood in terms of people’s capabilities and functionings¹⁷². Capabilities are defined as “doings” and “beings” that people may achieve if they so choose; their opportunity to do or be such things—for example, well-nourished, relieved of pain, educated, or well-traveled. Functionings are those capabilities that have been realized. Whether a human being can convert means such as resources or public goods into a functioning—that is, whether the person has a particular capability—crucially depends on certain personal, sociopolitical, or environmental conditions. These conditions are called “conversion factors”. Capabilities may also be represented by real or substantive freedoms that have been cleared of any potential obstacles, in contrast to

171 Nussbaum 2011: 185

172 Robeyns/Byskov 2021

mere formal rights and freedoms. A chosen (or realized) functioning vector entails a combination of different kinds and amounts of functionings¹⁷³, and an individual's capability is defined as a set of functioning vectors with a set of commodities (goods and services), resources (income, time or assets), and utilization abilities, given external conditions consisting of social institutions, including market prices, and the individual's other characteristics and natural or historical circumstances. These are things that "he or she has a reason to value"¹⁷⁴. This value-laden definition builds the normative criterion for determining which functions are valuable¹⁷⁵. Functioning is an "active realization of one or more capabilities"¹⁷⁶, where capability denotes the opportunity to select. For instance, a person who is starving and another who is fasting have the same type of functioning whereby their nutrition is limited, but they do not have the same capability, in that the fasting person can simply choose not to fast, while the starving person has no such choice.

Capability theories encompass a broadly inclusive range of dimensions, social relations, and personal constraints that prioritize individual value of life, freedom as a potential capability set, and "conversion abilities of individuals and of the social world itself"¹⁷⁷. They position themselves between resourcism and utilitarianism¹⁷⁸. Resources, goods, and services are important only insofar as people can use them and so they function in a certain way. However, to focus on resources is misleading, as some persons may require more resources to attain the same level of functioning as others¹⁷⁹. Mere resource compensation for differences in conversion factors is thus insufficient to promote the capability, as, for example, political rights may be instrumental in an individual's failure to achieve a certain level of functioning. Therefore, crucial to all of the various capability theories is the definition of basic or central capabilities. Amartya Sen's capability theory typically refrains from selecting lists of capabilities, preferring to remain open for different uses in public and democratic deliberation¹⁸⁰. By contrast, adopting a more evolutionary approach, Martha Nussbaum argued

173 Sen 1993, cited in Gotoh 2021: 7

174 Sen 2011: 231

175 Claassen 2014: 251

176 Nussbaum 2011: 25

177 Rawls 2003, cited in Gotoh 2021: viii

178 Claassen 2014: 3

179 Sen 1990; Pogge 2002; Anderson 2010

180 Sen 2011

that it is necessary to define these capabilities to devise a theory of justice that can justify action-guiding and, additionally, serve a critical function¹⁸¹. This capability theory of justice has become known as the “capabilities approach”¹⁸² and is associated with “greater philosophical satisfaction”¹⁸³.

This approach can serve as a comparative quality-of-life assessment in theorizing about social justice¹⁸⁴. It regards each individual as an end and considers not only the total or average well-being but also the opportunities available to each and every person, while focusing on choice and freedom and maintaining a pluralist approach to values. Nussbaum’s approach further encompasses the notion of human dignity and political entitlements. Although Sen acknowledged the importance of human dignity¹⁸⁵, he did not center it in his theoretical framework.

Different frameworks based on capability theory have been employed for the development of different concepts and normative theories within development ethics, political philosophy, or public health ethics¹⁸⁶. In this research, the term “capabilities approach” will be used in line with Nussbaum’s theory and as a pluralistic term, as this emphasizes that “most important elements of people’s quality of life are plural and qualitatively distinct” as well as that “aspects of individuals lives cannot be reduced to a single metric without distortion”¹⁸⁷. It constructs a theory of basic social justice that incorporates the notions of human dignity, threshold, and political liberalism¹⁸⁸. To a certain extent, it is aligned with Rawls’ approach to political justice, the idea of political liberalism¹⁸⁹ in which individual freedom plays a crucial role. The approach is a “political doctrine only, and on that aspires to be the object of an overlapping consensus”¹⁹⁰ and capabilities are not “just residing abilities inside a person but also the freedoms or opportunities created by a combination of personal abilities and the political, social, and economic environment”¹⁹¹. Historically, the approach

181 Nussbaum 2003

182 Wells 2022

183 Brooks 2012: xii

184 Nussbaum 2011: 18-25

185 Claassen 2014

186 Robeyns/Byskov 2021

187 Nussbaum 2011: 18

188 *ibid.*: 19

189 *ibid.*: 89

190 *ibid.*: 93

191 *ibid.*: 20

has been influenced by philosophical views focused on human flourishing or self-realization¹⁹². Moreover, the approach holds that all human beings in a given nation should pursue the same political goal—namely, that “all should get above a certain *threshold* level of combined capability, in the sense not of coerced functioning but of substantial freedom to choose and act”¹⁹³.

The capabilities approach incorporates “moral philosophy into development economics”¹⁹⁴ into its comparative and normative versions. Ethical norms and standards of justice are incorporated and regarded as a baseline for what makes a minimally just society. It focuses on development as part of public policy¹⁹⁵ rather than GDP. In that regard, the approach takes into account that the judgment of states purely on the basis of economic growth omits crucial dimensions and considerations; for instance, economic growth itself delivers no improvements on health and education when no direct state action is taken accordingly.

Generally, the approach is not a theory on human nature, nor does it calibrate norms from innate human nature¹⁹⁶. Rather, it is “evaluative and ethical from the start”, asking “among the many things that humans might develop the capacity to do, which are the ones that a minimally just society will endeavor to nurture and support?” In that sense, the capabilities approach focuses on opportunities open to each person¹⁹⁷ and offers an alternative to GDP by incorporating important values. All nations experience struggles to ensure human dignity as well as equality and justice.

From a political standpoint, the capabilities approach focuses on the capabilities themselves as appropriate goals rather than the functionings, because this allows space for human freedom¹⁹⁸ rather than insisting that governments must *make* people do certain things, such as lead healthy lives or practice religion. A policy that promotes health, for instance, differs from one that promotes health capabilities in that only the latter honors a person’s lifestyle choice. Exceptionally, the government shall promote functionings rather than capabilities when it comes to treating people with

192 *ibid.*: 23

193 *ibid.*: 24

194 Nussbaum 2011: 77

195 *ibid.*: 12-13

196 Nussbaum 2011: 28

197 *ibid.*: 14-16

198 Nussbaum 2011: 25-26

respect and non-humiliation¹⁹⁹. In that sense, the “government must treat all people respectfully” and this “exception is made because of the centrality of notions of dignity and respect in generating the entire capabilities list”²⁰⁰ (see more below).

Basic, internal, and combined capabilities are distinct from one another, and a decent society has two overlapping yet different tasks. It might be able to provide an environment that produces more internal capabilities but that might limit the opportunities for people to function in alignment with these capabilities²⁰¹. Nussbaum refers to “substantial freedoms” as *combined capabilities*²⁰², which concern freedom of choice and action in the specific political, social, and economic situations in which the individual finds themselves. Such capabilities should be distinguished from *internal capabilities*, which represent a person’s characteristics, including their health, bodily fitness, perceptive skills, etc. *Basic capabilities* comprise the innate equipment that humans require to develop more advanced capabilities, such as the ability for practical reasoning and imagination²⁰³.

One of society’s tasks is to promote the development of internal and basic capabilities through education, the provision of resources to enhance physical and emotional health, and support for family care and love, among other provisions. One example of an issue in that regard would be a system in which people might be capable of free speech but find themselves in an environment that represses public debates on political matters.

Because combined capabilities are defined as internal capabilities along with the social, political, or economic conditions in which functioning can be chosen, it is impossible to conceptualize a society that generates combined capabilities without producing internal and pre-existing basic capabilities²⁰⁴. This distinction can be a useful heuristic in diagnosing a given society’s achievements and shortcomings. Combined capabilities typically affect the public policy discussion surrounding the promotion of internal capabilities and making available the external institutional and material conditions²⁰⁵. All types of capabilities are relevant to the present research;

199 *ibid.*: 26

200 *ibid.*: 26

201 Nussbaum 2011: 21

202 *ibid.*: 21

203 Nussbaum 1999: 44

204 Nussbaum 2011: 22-23

205 Nussbaum 1999: 44

however, the focus lies on the *central* capabilities that define a dignified life as regards the below ethical evaluation.

In applying and fostering the capabilities approach, it is crucial to enrich the definition of the ten central human capabilities²⁰⁶ in terms of the role that labor plays in human dignity with additional input, for example, from religious–ethical perspectives. Human capabilities are ethical categories that are ultimately and intrinsically valuable²⁰⁷, as shall be discussed below.

3.3.1.1 Influence on policy and practice

The capabilities approach has also been conceptualized to give ethical guidance for policy: “The nation has a moral role that is securely grounded in the capabilities approach as it gives central importance to people’s freedom and self-definition”²⁰⁸.

Capability theories have hitherto been applied in different frameworks, particularly through the exploration of ethical issues in economic contexts and are “characterized by critically examining actual institutions and norms and by incorporating ethical concerns including relational norms with other people and public judgments for the social world into economic analyses”²⁰⁹. Moreover, they have been used by philosophers, social scientists, and legal scholars for descriptive, evaluative, and prescriptive purposes²¹⁰.

Applications of the capability theory have also helped shape global institutions—for example, by serving as the intellectual foundation of the United Nations Development Program (UNDP), represented in an annual Human Development Report²¹¹. In that regard, the standardized usage of the different human capabilities allows comparisons across nations and regions²¹², also when assessing and evaluating technology applications²¹³.

In terms of labor market policies, capability theories have been applied in studies examining the role of work—for example, in relation to guidance for labor market policies, as an alternative to traditional indicators, such as

206 Nussbaum 1999: 41-42

207 Oosterlaken/Hoven 2012: 5-6

208 Nussbaum 2011: 114

209 Gotoh 2021: 8

210 Claassen 2014: 250

211 Oosterlaken/Hoven 2012: 6

212 Nussbaum 2011

213 Oosterlaken/Hoven 2012: 7

GDP or the unemployment rate²¹⁴, by focusing on the development of individuals' actual freedom to choose jobs or activities that they have reason to value. They have also been used to help orient labor law from a normative perspective²¹⁵. Moreover, they have been implemented in analyses of social policy dimensions in place of the economic indicators mentioned above and thus have served as a holistic tool for interdisciplinary analyses of various issues, including educational policies²¹⁶. In that respect, education represents one of the key policy issues in the research agenda within capability theories, including the capabilities approach. This is grounded in its central role in improving opportunities and developing judgment in the use of the defined capabilities²¹⁷.

Furthermore, capability theory frameworks have been used to assess certain welfare-to-work policies²¹⁸. In that regard, they can provide a critically different conceptualization of the purpose and principles of work and welfare-related public policy by providing an alternative to neo-liberal hegemony in the field of employment and work policies²¹⁹.

3.3.2 Human dignity in the capabilities approach

3.3.2.1 Defining a life with human dignity

Although the concept of dignity may initially seem vague, the mere act of focusing on the concept of a life lived with dignity makes a difference to this²²⁰ from a policy standpoint, as opposed to focusing, for example, on satisfaction. Respect is also a particularly important concept relative to dignity as part of the approach. Claims to human dignity may be denied in different ways; for evaluative purposes within the framework, however, they may be reduced to two types, corresponding to the notions of internal capability and combined capability. In that regard, "social, political, familial, and economic conditions may prevent people from choosing to function in accordance with a developed internal capability. Bad conditions

214 Bonvin 2012

215 Del Punta 2019

216 Abbatecola et al. 2012

217 Nussbaum 2004

218 Buss/Dahmen 2012; Bonvin/Farvaque 2007; Bonvin/Orton 2009

219 Orton 2011: 352

220 Nussbaum 2011: 30

can stunt the development of internal capabilities. In both cases, basic human dignity remains, the person is still worthy of equal respect”²²¹.

A life lived with human dignity, according to the capabilities approach, is closely related to the idea of active striving²²² and is a close relative of the basic human or central capability inherent in the person who pursues it. Human dignity, in this regard, is equal to all agents from the beginning, and all deserve equal respect from laws and institutions. Equability occupies an essential place in the theory. However, equal dignity does not imply that all central capabilities should be equalized, and treating all people as equal may not entail equalizing the living conditions of all.

In general, the capabilities approach focuses on the protection of areas of freedom so central that their removal makes a life not worthy of human dignity²²³. In terms of a direct policy approach, international leaders should focus on enabling lives that are worthy of human dignity rather than driving national economic growth²²⁴. Although, formally, human dignity can be a founding principle of national constitutions, for example, people’s lives can still be marked by inequality and deprivation. Therefore, a theoretical approach is required to aid their struggles or at least incite public debate by drawing attention to them. The capabilities approach respects individuals as dignified human beings with entitlements equal to those of others²²⁵ and acknowledges that “dignity is an intuitive notion that is by no means utterly clear. If it used in isolation, as if it is completely self-evident, it can be used capriciously and inconsistently”²²⁶. Therefore, it is not used as an intuitively self-evident and solid foundation for a theory that would be built upon it; rather, it is used as a tool. According to the capabilities approach, “dignity is one element of the theory, but all of its notions are seen as interconnect, deriving illumination and clarity from one another”²²⁷.

221 *ibid.*: 31

222 Nussbaum 2011: 31

223 Nussbaum 2011: 31

224 *ibid.*: 1

225 *ibid.*: 13

226 *ibid.*: 29

227 *ibid.*: 30

3.3.2.2 The ten central human capabilities

The capabilities approach defines an ample *threshold* level of ten central capabilities that are required as a bare minimum to ensure that an individual's life is characterized by human dignity. A widely shared understanding of the government's task, it follows that a decent political order must secure for all citizens at least a minimum threshold level of the ten central capabilities, whereby the government is tasked with enabling citizens to pursue a dignified and minimally flourishing life. The ten capabilities are as follows²²⁸:

1. *Life*. Being able to live to the end of a human life of normal length; not dying prematurely, or before one's life is so reduced as to be not worth living.
2. *Bodily Health*. Being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter.
3. *Bodily integrity*. Being able to move freely from place to place; to be secure against violent assault, including sexual assault and domestic violence; having opportunities for sexual satisfaction and for choice in matters of reproduction.
4. *Senses, Imagination, and Thought*. Being able to use the senses, to imagine, think, and reason—and to do these things in a "truly human" way, a way informed and cultivated by an adequate education, including, but by no means limited to, literacy and basic mathematical and scientific training. Being able to use imagination and thought in connection with experiencing and producing works and events of one's own choice, religious, literary, musical, and so forth. Being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech, and freedom of religious exercise. Being able to have pleasurable experiences and to avoid non-beneficial pain.
5. *Emotions*. Being able to have attachments to things and people outside ourselves; to love those who love and care for us, to grieve at their absence; in general, to love, to grieve, to experience longing, gratitude, and justified anger. Not having one's emotional development blighted by fear and anxiety. (Supporting this capability means supporting forms of human association that can be shown to be crucial in their development.)

228 Nussbaum 2011: 32-34

6. *Practical Reason.* Being able to form a conception of the good and to engage in critical reflection about the planning of one's life. (This entails protection for the liberty of conscience and religious observance.)
7. *Affiliation.*
 1. Being able to live with and toward others, to recognize and show concern for other humans, to engage in various forms of social interaction; to be able to imagine the situation of another. (Protecting this capability means protecting institutions that constitute and nourish such forms of affiliation, and also protecting the freedom of assembly and political speech.)
 2. Having the social bases of self-respect and non-humiliation; being able to be treated as a dignified being whose worth is equal to that of others. This entails provisions of non-discrimination on the basis of race, sex, sexual orientation, ethnicity, caste, religion, national origin and species.
8. *Other Species.* Being able to live with concern for and in relation to animals, plants, and the world of nature.
9. *Play.* Being able to laugh, to play, to enjoy recreational activities.
10. *Control over one's Environment.*
 1. *Political.* Being able to participate effectively in political choices that govern one's life; having the right of political participation, protections of free speech and association.
 2. *Material.* Being able to hold property (both land and movable goods), and having property rights on an equal basis with others; having the right to seek employment on an equal basis with others; having the freedom from unwarranted search and seizure. In work, being able to work as a human, exercising practical reason and entering into meaningful relationships of mutual recognition with other workers.

Capabilities reside first and foremost with individuals; they apply only derivatively to groups, and the capabilities approach promotes the principle of *each person as an end*²²⁹. The goal is to produce capabilities for each and every person and to prevent the use of some groups as a means to the capabilities of others or society as a whole. This impacts policy, as the unit is not considered in other terms—for example, families or groups; rather, the aim is to promote the capabilities of each member of that family or

229 Nussbaum 2011: 35

group. All capabilities must be secured and protected in distinctive ways. In that regard, “good policy in the area of each of the capabilities is policy that respects an individual’s practical reason”²³⁰. The threshold should represent an “aspirational but not utopian level, challenging the nation to be ingenious and to do better”²³¹.

3.3.2.3 Human flourishing and human dignity

The concepts of human flourishing²³² and human dignity²³³ are both central to the capabilities approach and are considered preferable in the application of the framework to utility-inspired psychological research on subjective well-being or “happiness”. The notion of a flourishing life derives from the Aristotelian tradition, whereas the concept of human dignity is mainly associated with Kant. Dignity is a critical element of human flourishing²³⁴ and can inform discussions of human rights-related issues.

In general, flourishing provides an illuminating aspirational framework with which to approach human development and obligations. The metaphorical concept of flourishing has a long history, having originated in Aristotelian ethics as “*eudaimonia*”. It can also be translated figuratively as “well-being”, “self-fulfillment”, or “happiness”²³⁵, whereby an individual prospers on account of having multiple goods and employing developed human capabilities. Flourishing is thus a desirable condition of life, whereby an individual’s life goes well in an environment that fosters their growth and health²³⁶. In the context of human flourishing, work has traditionally been regarded as an activity that is merely instrumental or of extrinsic value, or perhaps even an impediment to flourishing²³⁷. However, flourishing can be framed in a significantly different light when conceptualized in relation to the concept of meaningful work. There have been various critiques of the term’s usefulness, which consider it to be bound to unhelp-

230 *ibid.*: 39

231 *ibid.*: 42

232 Bussi/Dahmen 2012: 92

233 Nussbaum 2006a

234 Kleinig/Evans 2013

235 Kleinig/Evans 2013: 540

236 Veltman 2016: 1-2; Paul et al. 1999

237 Applebaum 1992

ful relativism²³⁸, at risk of oppositional moral hazard, or unable to give all individuals equal consideration²³⁹.

There are various reasons that may explain the connection between human flourishing and human dignity. Flourishing refers to the ways in which humans can develop and live well during their lifetimes; such flourishing is socially construed for the most part, and achieved only if certain social norms and conditions are fulfilled²⁴⁰. One essential aspect that enables flourishing is being treated with dignity—for instance, avoiding constant humiliation—although dignity, as such, is insufficient for flourishing. In this sense, the recognition of human dignity, configured not only as the expressed capacity to accept the moral status of other humans but also as a social environment in which moral norms and attitudes exist, is an essential element in human flourishing. Although recognition of human dignity is not an absolute requirement for human flourishing, without such recognition, humans' ability to flourish is likely to be severely restricted. This includes a judgment that has both subjective and objective components²⁴¹. Consequently, the concept of flourishing is directly connected to dignity, and both concepts play significant roles in the capabilities approach, which defines a life lived with human dignity as one that is, at the very least, “minimally flourishing”.

3.3.2.4 Applicability to technology

It has been argued that any new technologies must have properties that support “morally desirable features”²⁴² such as supporting human development and that motivate political choices from a moral perspective so that people have the valuable human capabilities required to live a dignified life. Capability theories have become a framework by which to analyze the impact of new technologies, particularly in light of their relevance to “capability expansion”²⁴³. As such, various specific technology applications, such as

238 Harman 1983

239 Pogge 2002

240 Kleinig/Evans 2013: 556-559

241 Nussbaum 2011

242 Hoven 2012: 30

243 Oosterlaken 2009: 94

robot-facilitated health care²⁴⁴, sustainable end-use energy planning²⁴⁵, or the use of technology in education²⁴⁶ have been considered.

The development of new normative frameworks has also made use of aspects of capability theory, for instance in terms of “responsible innovation”²⁴⁷. Such frameworks are concerned with future-of-work aspects, including technological unemployment and universal basic income. The aim here is to develop AI technologies that are “governed by an inclusive and deliberate societal judgment”²⁴⁸. This specific framework was initially developed to analyze technology applications such as health-care robotics or social media and the platform economy. Achievements in the capabilities approach in areas such as health, education, participation, and empowerment are key to ensuring that technology can improve individuals’ lives: “information and communication technologies (ICTs) alone cannot improve people’s lives; ICTs need to occur within broader strategies that are tailored to make the most use of these tools and techniques in order to reap their potential benefits for human development”²⁴⁹.

Other perspectives based on capability frameworks include considerations of technical objects’ abilities to “enable capabilities directly and affect other inputs in the attainment of valued capabilities”²⁵⁰, where these objects are “a new class of conversion factors”. The approach can also challenge us to “co-design technologies with users in a way, that expands the freedom of the user to live the life they themselves value”²⁵¹. In a given application, producers and consumers must be supported in their decision-making in a fair-trade value chain. The availability of this capability framework to guide technology is essential, as not all technology investment has a positive impact on development²⁵². The capabilities approach can also help to alter local scenarios and individuals’ circumstances through the appropriate deployment of technology with the aim of making social, economic, or cultural improvements, for instance, by strengthening political rights of individuals.

244 Coeckelbergh 2012

245 Mathai 2012

246 Chigona/Chigona 2010

247 Santoni de Sio et al. 2021: 1

248 *ibid.*

249 Hamel 2010: 32

250 Haenssger/Ariana 2018: 99

251 Kleine et al. 2012: 42

252 Coelho et al. 2015

Different approaches have adopted Sen's version of capability theory as a basis for further analysis, benefiting from its greater flexibility and versatility²⁵³ compared to Nussbaum's version. However, as Sen's approach does not define specific capabilities, its use runs the risk of undermining the relevant ethical relevance and focus, as outlined by Nussbaum's version, which emphasizes social justice and human dignity. Nevertheless, the above-mentioned example of how the capability framework has been used demonstrates how focusing on capabilities rather than other metrics, such as those purely relating to quantitative indicators, is a proven method in the analysis of technology, which includes the assertion that technology can serve as a conversion factor for the attainment of capabilities.

3.3.3 Social justice in the capabilities approach

Social justice can be defined as “the view that everyone deserves equal economic, political and social rights and opportunities”²⁵⁴; it can be used to explore the enablement of a just societal order by discussing factors such as differences in the distribution of wealth, freedom, or fair privilege chances²⁵⁵. The definition offered by the UN²⁵⁶ frames social justice “as the principle that all persons are entitled to ‘basic human needs,’ regardless of differences such as economic disparity, social class, gender, race, ethnicity, citizenship, religion, age, sexual orientation, disability, or health”. This view incorporates “the eradication of poverty and illiteracy, the establishment of sound environmental policy, and equality of opportunity for healthy personnel and social development”²⁵⁷.

The principle of social justice makes demands of the executives and authorities of a state but also of civil society, fellow citizens, or the private sector²⁵⁸. In the context of advancing automation, one example of a social justice issue might be the growing economic inequality that arises as a result of increases in productivity alongside a diminished availability of paid jobs²⁵⁹. Such a situation has consequences for equal opportunities

253 Haenssger/Ariana 2018

254 National Association of Social Workers 2005

255 Glatzel 2000: 148

256 UN 2020

257 Anyoun 2016

258 Nothelle-Wildfeuer 1999: 86-343; Jost/Kay 2010: 1122-1125

259 Manzeschke 2019; Kirchschaeger 2021; Autor 2015; Hessler 2016

when the transfer of income from workers to capital that is triggered by the capitalization effect of automation expands the privileges of capital holders²⁶⁰. Another consequence might be reduced bargaining power among employees as automation facilitates their replacement and strikes are no longer an effective pressuring tool²⁶¹; this relates to the dimension of political rights.

3.3.3.1 Social justice and human dignity

The very keystone of social justice is the recognition of the dignity of all human lives²⁶². All political governments must thus assume equality to be a prioritized principle that is crucial to their proper functioning. Equality does not eliminate diversity, because the most common phenomenon affecting all humanity is difference, whether genetic, physical, or mental, and every human possesses the privilege of being unique.

The preamble to the Universal Declaration of Human Rights²⁶³ also situates human dignity as the basis of justice: “whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world”. In that regard, social justice can be regarded as being derived from human dignity and human rights²⁶⁴. Therefore, human dignity is fundamental to concepts of justice, as it is from dignity that rights can be derived, and rights and dignity together can be considered the basis of justice.

The interconnectedness of the principles of dignity and justice can of course be controversial, as it is notoriously difficult to link substantial moral principles; however, their interrelatedness may be found in various dimensions²⁶⁵. In light of this, one fruitful approach might be to focus on the sense of justice or sense of dignity that includes a certain degree of that which one might consider to be just²⁶⁶. In that regard, human dignity

260 Sachs 2019; Schwab 2016

261 Stefano 2018; Anderson/Macedo 2017; Cimadamore et al. 2016

262 Masferrer/García-Sánchez 2018: 4

263 UN 1948

264 Zuckert 2007

265 Pritchard 1972: 299-300

266 Rawls 1963: 281

should be afforded a prominent place in any formulation of the principle of justice.

Moreover, combating poverty and global inequality is closely related to the idea of living a life with human dignity; the former cannot happen without the latter. One's economic position is largely connected to their ability to exercise certain rights, and juridical and economic development are intertwined²⁶⁷; these issues have also been covered by the Human Development Index (HDI), which is, as mentioned, based on the capability theory. Issues relating to social justice also arise when people desire that they be treated as equal, irrespective of their socioeconomic background or the family they were born into, for instance²⁶⁸.

A lack of financial resources has a clear correlation with the right to equality and human dignity²⁶⁹. If equality is denied to humans who lack food, shelter, or access to health services, it necessarily follows that equality cannot be achieved. Humans who are denied access to basic social and economic rights are denied the opportunity to live their lives with human dignity.

The principle of social justice may be recognized as an aspect of human flourishing when equal treatment has to be enforced as part of a specific working culture²⁷⁰ or in terms of leadership at work; it is closely related to an inclusive environment²⁷¹. In the context of poverty, improving living conditions as an element of social justice may be considered closely associated with granting humans the dignity that is their right. Correspondingly, providing people living in poverty with the opportunity to live dignified lives may be essential to the pursuit of global justice by extending greater inclusivity to the poor²⁷². In addition, "humanity's technological-economic capacities now easily suffice for the avoidance of all severe poverty"²⁷³. These reasons would support the notion that human dignity should serve as a guiding principle for promoting global justice in relation to technology and its development.

Human dignity and social justice are likewise linked in the practical dimension of human labor. This is the case, for example, with regard to

267 Februar 2004: 53-54

268 Hicks 2011: 114-126

269 Swartz 2011: 9

270 Kleinig/Nicolas 2013: 547

271 Pless/Appel 2012

272 Pogge 2008

273 Pogge 2014: 482

vulnerable low-waged workers who are particularly at risk of becoming the victims of unequal power at the hands of corporate enterprises²⁷⁴. In this regard, lives and livelihoods could be unjustly regulated when corporates find ways to shift the risks of undocumented employment onto immigrant workers themselves, for instance. This highlights how the dignity of human beings can be violated by illustrating how workers could be exposed to poor working conditions, low wages, and a lack of access to medical services.

Another illustrative example of how these two principles are interconnected is wage equity²⁷⁵. The receipt of a stable, sufficient salary and other benefits covers the necessities of life and good health, including housing, food, or prospects for career advancement. Therefore, economic inequality in terms of wages relates to human dignity of workers. From a practical perspective, crowd work may illustrate how technology affects the recognition of human dignity as well as social justice, when microtasks are distributed among different so-called low-waged “crowd micro workers”²⁷⁶. These platforms can fail to provide appropriate financial recognition for work performed and have been criticized and connected to a call for obligatory minimum remuneration. This would be a key requirement for encompassing dignity as a condition for decent work²⁷⁷.

3.3.3.1 The capabilities approach: An approach to social justice

The capabilities approach to social justice involves questioning the requirement for a life worthy of human dignity²⁷⁸. Respect for human dignity requires that “citizens be placed above an ample specified threshold of capability”, which serves as the basic claim of social justice²⁷⁹.

The capabilities approach is thus “concerned with entrenched social injustice and inequality, especially failures that are the result of discrimination or marginalization”²⁸⁰. Key duties in terms of global justice are assigned to institutions²⁸¹, which, however, must be thin and decentral-

274 Stuesse 2010: 112-113

275 Ung et al. 2021

276 Berg et al. 2018

277 Rosenfield/Mossi 2020

278 Nussbaum 2011: 32

279 *ibid.*: 36

280 Nussbaum 2011: 19

281 *ibid.*: 120-122

ized. International treaties and other agreements are helpful in imposing norms on the community of nations. Simultaneously, corporations and non-governmental organizations can be instrumental in promoting human capabilities in regions in which they are active. Nevertheless, this diverse feature of the approach can capture more because it is more attentive to the particulars of a given situation while acknowledging that the individual—rather than the state—requires that an ethical perspective be adopted²⁸². In that regard, the approach can be applied depending on the political environment. Moreover, the approach covers wider issues than resource-based evaluations, including personal agency, which provides an improved perspective on issues relevant to global justice²⁸³.

Capability theories envision a pluralistic and public conception of justice that is tied to democracy and public reasoning²⁸⁴, with the aim of “design[ing] society’s economic and political institutions in such a way that adequate material and social resources are available to everyone in order to possess and exercise a set of basic capabilities that go to make up a decent life”. In this respect, depending on the capability, distribution principles may become increasingly relevant to obtaining social justice in society, as may be illustrated when people are adequately nourished (i.e., nutrition) or afforded the ability to avoid common or preventable illness (i.e., health care). Moreover, social responsibility should be emphasized over individual merit and achievement. In that context, a social safety net for citizens would be required to realize these capabilities—for example, unemployment benefits, minimum-wage legislation, or health insurance.

Such a view would also be fundamentally opposed to certain forms of liberalism wherein freedom is understood as non-interference and individuals are free from interference on the part of the state, the law, or their fellow citizens²⁸⁵. Capability theories, however, take the stance that freedom entails possessing different capabilities to achieve valuable functionings, whereby the state can act for redistributive purposes and provision of public goods so that the maximum conditions for basic capabilities can be realized for all citizens. In this regard, a society may be said to have failed if it permits its citizens to grow up in poverty and suffer from capability shortfalls and deprivation, which is additionally counted as a failure to treat

282 Feldman 2012: 477

283 Robeyns 2012

284 Alexander 2010: 2

285 Alexander 2010: 4

all members of a society as equal. Capabilities-promoting interventions are thus aligned with the approach under the purview of a fair rule of law and in compliance with human rights. Consequently, the fight against poverty, famine, and societal failure can be more effectively won when people's entitlements are supported and economic and political forces are recognized as causes of malfunction, based on the normative benchmark of the capabilities approach.

The capabilities-oriented understanding of social justice²⁸⁶ represents the evolution of the non-utilitarian understanding of the theory of justice²⁸⁷, whereby “the requirements of justice are better understood on the basis of an inquiry into the plural components of the human good and making certain basic capabilities part of the public conception of justice”²⁸⁸. Furthermore, it would “overcome” the issue of the existence of different needs and preferences and acknowledge that equality in resources alone can undermine equality in other respects—for instance, for an individual with disabilities who requires additional support²⁸⁹. To resolve this issue, it is thus crucial to recognize that we must ensure the capabilities of others and that capability satisfaction for one individual may require different resources from those required by another person. Such issues that arise from equality of resources can thereby be countered. Welfare inequality can also be overcome, as the capabilities approach focuses on essential capabilities that are independent, for example, of specific expensive tastes. In this sense, although the thresholds for capability satisfaction will probably differ from one group to the next, capabilities are sufficiently resilient and robust.

In sum, the concept of a life lived with human dignity has a strong social justice component and this is reflected in the capabilities approach. The facilitation of conditions that serve to convert the capabilities entailed in living with human dignity into functioning supports the aim of pursuing social justice, as the provision of and access to work could serve as a facilitator. Other aspects of social justice could include discussions about unpaid work such as child rearing. Regarding the relationship between capabilities and social justice, the theories synthesize multiple relevant criteria, such as resources, opportunities, or individuals' subjective states²⁹⁰. It may further

286 Alexander 2010

287 Rawls 1999

288 Anderson 2010: 52

289 Brooks 2012: xiv

290 Austin 2018

be justified given that “a capability metric is superior to any subjective metric because only an objective metric, such as capability, can satisfy the demand for a public criterion of justice for the basic structure of society”²⁹¹. Therefore, the present research’s methodological approach, which is grounded in Nussbaum’s capabilities approach, encompasses aspects of social justice.

3.3.4 Discussions on the justification of the capabilities approach

The most common critique of the justifiability of the capabilities approach originates from a “resourcist perspective” and argues that, in terms of social justice, the framework cannot “conceivably deliver at least one candidate public criterion of social justice that would be as clear and as workable and as plausible as the leading resourcists criterion” based on Rawls’ two principles²⁹². Counterarguments to this critique mainly highlight the fact that this view “insists that questions of justice only concern the institutional structure of society”, whereas “capability theorists support the inclusion and social practices as possible sources of injustice”²⁹³. In addition, the objections are not useful as “the resourcist approach, by refusing to commit itself to a theory of the human good, deprives itself of the ability to put forward good, enduring reasons for the proposed list of resources to share (primary goods), and lays itself open to the objection that the consensus on what the primary goods are, is only the consensus of an intellectual, well off minority”²⁹⁴.

The approach’s ten central capabilities have also been criticized with respect to the security of their grounding in human dignity²⁹⁵ and whether this conception of dignity is sufficiently theorized²⁹⁶. For this reason, this ethical point of reference has grounded human dignity from a moral perspective (see above) as “moral obligations cannot form part of Nussbaum’s political conception of dignity and thus would need to be independently defended”²⁹⁷.

291 Anderson 2010: 81

292 Pogge 2002: 216

293 Oosterlaken 2013: 205

294 Berges 2007: 23

295 Claassen 2014

296 Formosa/Mackenzie 2014

297 *ibid.*: 882

Furthermore, the “list debate” has frequently been raised in terms of the values attached to human agency²⁹⁸—for instance, in terms of the capabilities that should be used. However, it has also been argued that “the capability approach, with its stress on dignity and its list-approach, is ‘universalist’ enough, yet at the same time it also leaves plenty of room for interpretation in particular contexts”²⁹⁹.

Likewise, the emphasis on individuals’ capabilities has been criticized as being overly individualistic at the expense of groups and social structures³⁰⁰. In terms of measurement³⁰¹, critics have highlighted that capabilities are generally not measured based on quantitative metrics³⁰². This is also relevant to the different policy environments across nations³⁰³. Regarding measurement-related critiques, policy decisions have frequently been taken, as, for example, in court decisions, in a “discursive form of analysis that has evolved which seems appropriate for (...) questions involving a threshold level of fundamental entitlement”³⁰⁴. In that sense, “the notion of a life in accordance with human dignity is one of the most fertile ideas used in worldwide constitutional jurisprudence”³⁰⁵. The capabilities approach moves through areas of life that are influenced by public policy, whereby the protection of the defined basic entitlements is an essential requirement of life with human dignity. In addition, multiple frameworks based on the capability theory have been applied in evaluative and prospective analyses³⁰⁶, aiming to go further than merely measuring economic situations in terms of traditional indicators, such as GDP, and have proven effective in measuring well-being³⁰⁷. With the 10 central human capabilities, the approach represents itself as a “political-ethical theory”, extending the original welfare economic theory’s applicability³⁰⁸.

To conclude, different perspectives have been leveraged to justify the capabilities approach³⁰⁹. Moreover, the capabilities approach as it pertains

298 Oosterlaken/Hoven 2012: 5-6; Crocker 2008

299 Coeckelbergh 2012: 80

300 Robeyns 2005; Stewart 2005

301 Comim et al. 2008: 7

302 Comim 2008: 157

303 Alkire 2005

304 Nussbaum 2011: 62

305 *ibid.*: 78

306 Alkire 2008

307 Drèze/Sen 2013

308 Claassen 2014: 240-241

309 e.g., Berges 2007; Anderson 2010; Nussbaum 1999

to the present research offers a more specific definition of what is required to live a life that aligns with the justified principle of human dignity, which has been grounded above from a moral perspective. In that sense, the facilitation of a life lived with human dignity is regarded as a universal moral obligation, supported by the capabilities approach for evaluative purposes and complemented by the role of work in dignity, as discussed below. Nevertheless, the ethical evaluation will highlight certain policy implications.

3.4 The significance of work in human dignity

Work plays an essential role in the discussion on living a life with human dignity with respect to how capabilities are “actualized and developed in the context of daily work”³¹⁰. Therefore, the significance of work in relation to human dignity warrants further discussion and specification to enrich and complement the ten central capabilities: “The list of central human capabilities is a very general one and can be further specified in many different ways”³¹¹. Furthermore, it is open-ended and subject to ongoing revision and rethinking³¹². For instance, employment options must be made available, including the consideration of adequate workplace relationships as part of respecting human dignity³¹³. Moreover, critics have claimed that the ten capabilities include an “insufficient discussion of labor”³¹⁴.

Normative religious-ethics views on work and how it facilitates a life with human dignity will be discussed below, along with other perspectives, to determine how the ten central human capabilities might be improved and refined. Moreover, the role of identity and meaningfulness will be examined in relation to the role that work plays in a dignified life. Finally, the implications of these views will be outlined and potential critiques of the crucial role of work will be discussed.

310 Nokelainen et al. 2018: 19

311 Nussbaum 2011: 101

312 *ibid.*: 108

313 *ibid.*: 39

314 Weidel 2018: 74-79

3.4.1 Religious-ethics views on work for a life with human dignity

3.4.1.1 Catholic social teaching (CST)

At the end of 2019, over 1.34 billion people worldwide identified as being of the Catholic faith, representing about 17.7 percent of the world's population³¹⁵ and exhibiting a global growth rate of around 1.12 percent compared with the previous year. Although not all Catholics will inevitably share exactly the same moral principles, the figure nonetheless provides an idea of the breadth and depth of the influence that Catholic social teaching (CST)³¹⁶ wields over a substantial portion of the world's population. Moreover, as detailed below, CST has also influenced the work of the ILO and the United Nations (UN).

CST has championed human dignity since at least the Second Vatican Council between 1962 and 1965³¹⁷. Pope Paul VI recognized the dignity of the person in society with a focus on common goods and socialization and characterized the nature of human dignity within the CST, as not an abstract or ethereal reality but rather as understood within the concrete conditions of personal, social, economic, and political life³¹⁸. The conditions of human dignity are further demonstrated by human rights, and human rights and duties are clarified by the comprehension of the human person³¹⁹. This demonstrates that the central concerns of CST cohere around the dignity of the human person and the welfare of the community.

CST defines several conditions of human dignity in the charter of rights included in *Pacem in Terris*³²⁰. It states, for instance, that true freedom must safeguard the dignity of the human person. Furthermore, humans have the right to engage in economic activities appropriate to their degree of responsibility. In addition, the worker is entitled to a wage that aligns with the precepts of justice. This entails an amount that is sufficient in proportion to the available funds to allow them and their families a standard of living that is consistent with human dignity.

Overall, as stated in *Pacem in Terris* 35, a society may be considered “well-ordered, creative, and consonant with human dignity” when it is

315 Glatz 2021

316 Sison et al. 2016: 503-506

317 Loretan 2015; Huntington 1991

318 Hollenbach 1979: 65-59

319 Clark 2014: 12-25

320 Catholic Church 1963

founded on truth. This truth, among others, advocates the elimination of all traces of racial discrimination and recognition that all humans are equal in dignity and a sense of superiority toward others is not rooted in nature. The government, moreover, must not rule by means of threats, intimidation, or promise of reward but rather must provide sufficient incentive to work for the common good, as to do otherwise would violate the dignity of free and rational human beings. Therefore, safeguarding citizens' dignity should be a primary concern for government.

There are other implications mentioned in *Pacem in Terris* 122, highlighting the economic evolution of under-developed countries, whereby richer states are obliged to support poorer countries to also provide their citizens with conditions conducive to human dignity, an obligation that is directly linked to global justice.

Pope Paul VI's encyclical *Populorum progressio*³²¹ further emphasizes the importance of ongoing education for a life with human dignity. This encompasses education for justice and solidarity to affirm the unity of mankind and to work on behalf of that affirmation. Human development (i.e., education) is an essential aspect of becoming fully human and constitutes considerably more than mere survival. In this regard, work can never be reduced to a mere means of subsistence. These efforts must be planned and coordinated and should promote both economic and social progress by enhancing human capabilities, including the ability to acknowledge the dignity of others. Regarding education, there is also a "functional" interpretation of the image of God that relates to the distinction between "basic dignity" and "full dignity", whereby basic dignity cannot be lost and is inalienable while full dignity may be developed through education, including the capability to exercise reason and freedom of choice³²².

Certain business principles have been developed based on CST to provide further guidance as to the role of work in human dignity. These specify that business should honor the dignity of the person in God³²³ through work and aim to extend the shareholder-centered ethic of much of current business-thinking with a person-centered ethical approach to business administration. The principles relevant to work shall be discussed below.

The principle of *making a living* specifies that business should not be understood in the cold abstractions of shareholder-value but rather in the

321 Catholic Church 1967

322 Ferrero/Sison 2014

323 Sandelands 2015; Novak 1996

“warm flesh and blood of our personal lives and in the revelatory light of faith”³²⁴. Business should be a matter of heart and emotional nearness, characterized by personal human work, not in distance of reason by being abstract and detached from itself. Aligned with the image of God, we come into our humanity at work, and making a living is equivalent to making a life in God. This stands in opposition to the understanding that humans are for work, that they are a mere instrument of shareholder interests and that they are answerable to these interests. In this regard, the opposite is the case from a CST perspective: work is for humans, and humans have a right to be in God through work. As such, businesses have a responsibility to honor the right to work. Business is not merely material or worldly but also involves spiritual and other-worldly elements and should thus provide for the divine well-being of all whose lives it affects.

Another principle derived for business is *the weight and the glory*, whereby business must help people to build their lives by creating conditions under which they can grow and develop in relationship to God. Pope John Paul II said that business can and must not take a stand against making a profit, which is also relevant for its well-being; however, it must also take a stand for making human lives, which is far more important and necessary. In essence, the business of business is to serve man, and the business of man is to serve God³²⁵.

The *universal destination of goods* principle specifies that “every person must have access to the level of well-being necessary for his full development”³²⁶. This principle has two key aspects: while on the one hand, private property is required as the ground upon which humans can make lives for themselves, on the other hand, it recognizes that earth and its resources are God’s gift to all human beings to share and enjoy³²⁷. It includes the right to property and capital but does not classify it as unlimited—rather, it should be constrained to such a level that goods can be shared among humanity. For business, this means that the right to accumulate wealth and own private property is accepted but only as long as the significance of the human vocation to work and person development in and from their work is recognized³²⁸.

324 Sandelands 2015: 168-175

325 Lewis 2017

326 Pontifical Council for Justice and Peace 2004

327 Sandelands 2015: 172

328 Calvez/Naughton 2002: 10-11

The *principle of subsidiarity* describes the idea that every social activity should help members of the social body in a social manner and never destroy or absorb them³²⁹. It insists that responsibility should rest at as local a level as possible, while acknowledging that some issues, such as federal labor law, cannot be handled locally. This principle suggests that businesses' social activity must recognize the profound worth of the local employees of the enterprise³³⁰. This requires that workers be treated as autonomous and independent-minded subjects who participate in the creative will of God and equates workers' value with what they produce rather than with who they are³³¹. Additionally, workers must not only be paid a living wage but should receive enough remuneration to support their family. Wages must also be adapted to the person's needs and way of life, with particular respect for families and consideration of gender and age. The need for self-expression and self-development is also covered by this principle.

The *principle of participation* provides for "activities by means of which the citizen, either as an individual or in association with others, whether directly or through representation, contributes to the cultural, economic, political, and social life of the civil community to which he belongs"³³². This entails free and independent human beings created in the image of God, who have a right to actively share in all profits of enterprises in a way that is properly determined and promoted³³³, which sends a strong message toward shareholder capitalism. This principle further calls for a the right to contribute to determining working conditions, as the future and children of the affected workers are directly influenced by the working environment.

Overall, the CST regards human dignity as based in God's image³³⁴ and the human being must thus be treated and as an end "for its own sake". The ability to participate in society and to be part of the "common good" are important components of a life lived with human dignity. Acceptance and respect on an individual basis for all human beings who have the freedom to create is also important. In that regard, the CST strongly considers human work to be fundamental to living a life with human dignity. Work can also express and increase human dignity, as individuals can express

329 Pontifical Council for Justice and Peace 2004

330 Calvez/Naughton 2002: 8

331 Sandelands 2015: 173

332 Pontifical Council for Justice and Peace 2004

333 Sandelands 2015: 173

334 Sison et al. 2016: 3

themselves as free and rational persons through work³³⁵. According to *Laborem Excerens*³³⁶, work is primarily the kind of human activity that aims to produce and procure the necessary means of life; however, it is not regarded as a purely instrumental activity but rather has a value “of its own”³³⁷. Rather than a simple economic activity, work is a “good thing for man—a good thing for his humanity” and “corresponds to a man’s dignity” The focus lies on the human person who is called to work, having been created in the image and likeness of God. In this context, “work bears a particular mark of humans and of humanity, the mark of a person operating within a community of persons”. Because humans are made in the image of God, they are subject to work owing to their capability to behave in a planned and rational manner and to exercise self-determination and to their tendency toward self-realization. Moreover, self-realization and human labor share an integral connection as part of human dignity. Work is always undertaken for the human person, rather than the human person being for work³³⁸.

The notion of freedom foster the assumption that humans produce and procure the means of life by means of free activities³³⁹, which imbues human labor with a distinct dimension of value. Even through activities aimed at creating a certain product, humans express themselves as free and rational. Therefore, human productive action alone has greater value than the item produced, as the action has a special dignity as the embodiment of free and rational agency. Success in this dimension does not depend on the product but rather depends on whether the action includes the appropriate use of human freedom. In this regard, all human work constitutes an occasion to exercise justice, charity, and involvement in the activity of God, and the ultimate goal of human work is participation in community of persons, human and Divine.

Human dignity and dignity of work are closely intertwined³⁴⁰. As Pope Francis tweeted in 2015, “where there is no work, there is no dignity”. This has practical implications for work and may be concluded with the help of the notion of *opus humanum*, whereby work is elevated into an object

335 Lott 2012

336 Catholic Church 1981

337 Lott 2012

338 Clark 2014: 27

339 Lott 2012

340 Sison et al. 2016

of dignity with a scope that has been widened to include both manual and intellectual work. CST³⁴¹ mainly perceives work as a duty rather than a right when approached from a biblical perspective (Genesis). However, from the perspective of human relationships with others, work is simultaneously a duty and a right, particularly where the right to earn a wage is concerned. Work is aimed at transforming an individual's environment while also allowing them to achieve fulfillment. Thereby, the personal or subjective dimension is invariably prioritized over objective dimensions or things. This leads to the conclusion that the worker with their individual skill set or knowledge base is more valuable than the external or material outcomes of their labor. Therefore, human beings should not be reduced to mere economic or mechanical resources or units of labor force.

The intrinsic and inherent quality of human dignity extends not only to all human beings but also to their actions, including their work. This applies to all labor irrespective of its nature, and everything they do exerts a social impact. In that regard, the consideration of one's own contributions to the common good and welfare of the community is required in a coordinated, collective, and shared effort. All these implications culminate in the "right to work", which is necessary to contribute to the common good of the human family while developing self-control³⁴². Work guarantees subsistence, which also affects one's family. The duty to work must also be complemented by the right to rest³⁴³. In this regard, work also includes the requirement to be able to provide for one's family and not only for the individual.

To summarize the Thomist perspective "it is by means of freedom that the peoples of the earth will have been brought to a common will to live together"³⁴⁴. This emphasizes the importance of liberty, which respects the meaning of dignity of the people. If they are aware of their communal dignity despite their diversity, they will also desire political unification. Nonetheless, they must want it and be sufficiently persuaded of their liberty and their dignity to pursue a pathway that will be tough and that will require sacrifices, as "living together" also means "suffering together"³⁴⁵. Dignity is thus not attached exclusively to the individual but also radiates on the peoples themselves, and thus to being-together, either in nations,

341 *ibid.*

342 Aquinas/Hibbs 1999; Rugani 2018

343 Sison et al. 2016: 12

344 Maritain 1998: 206

345 Maritain 1998: 207, cited in Valadier 2014: 268

or for the future, in a global society. In that regard, contributing to the common good—particularly through work—is crucial.

The CST genuinely rejects the subjectivist and relativist notion of work, which would affirm individuals' absolute freedom to choose their commitment and goals, even where this might allow for the experience of satisfaction in dehumanizing work³⁴⁶. In this context, meaningful work is another key aspect of CST, which enshrines a holistic, comprehensive, and coherent account of the idea. By exploring the conditions that relate to human dignity and work, the CST can offer guidance for meaningful work by recognizing that a person cannot be separated from their work, which is closely related to the meaning of life. This entails acknowledging that work has subjective and objective dimensions, which are interconnected, and calling for social and economic organizations of work to protect workers' rights so that work can contribute to flourishing and fulfillment.

Failure to recognize the dignity of work and priority of labor is a characteristic of "economism", according to John Paul II in *Laborem Exercens*. In this sense, "economism" considers human labor solely for economic purposes and views human workers merely in terms of their productive potential, whereby human labor is merely another element in an economic process. This suggests that human labor is akin to a mere commodity, with greater or lesser economic value and bought and sold on the market.

In this sense, CST is supportive of the human good and advocates resisting attempts to consider the economy in a way that detracts from the "activity" of labor. The particular dignity of labor should always be kept in sight, beyond its productive effects, with an emphasis on the basic rights of human workers as the ultimate standard for an acceptable economic system³⁴⁷. This emphasis of the rights and dignity of labor against all forms of "economism" thus represents the view that work is constitutive for a life with human dignity owing to its good nature as such. This also includes solidarity with the weak and oppressed and emphasizes the basic rights of workers, which may often go overlooked for the sake of profit and material gain.

Conclusively, CST regards work as central to human dignity, as various other capabilities are strongly related or dependent on work. This is most succinctly evident in the concept of having a "right to work", which highlights the ground that work lays for income as well as other features, such as

346 Tablan 2015

347 Lott 2012

being creative or self-development. In that sense, the tweet by Pope Francis mentioned above adequately summarizes the CST position “where there is no work, there is no dignity”. Other concerns of CST in terms of work, such as education and dignity in the workplace, are already inherent in the ten central human capabilities.

3.4.1.2 Protestant ethic

There are an estimated 750 million to 1 billion Protestants worldwide³⁴⁸, representing approximately 36 percent of the world’s Christian population³⁴⁹. The influence of the Protestant ethic on human labor can be observed historically, particularly with respect to the foundations of modern capitalism³⁵⁰. It has evolved primarily as the perception of hard work as a path toward both immediate and future rewards³⁵¹ and has been closely associated with capitalism. This constitutes sufficient grounds to more closely examine the meaning of human labor from a Protestant perspective, particularly when in relation to human dignity. The discussion below encompasses several Protestant views: unlike the Catholic church, the Protestant faith has no centralized authority that speaks for all churches, and similarly, it has no internationally authorized documents³⁵² that universally suit the diverse nature of the multiple strands of Protestantism found across cultures and nations.

Nonetheless, specific Protestant contributions to the discourse on human dignity may be identified³⁵³. Freedom is central to the concept of work and moreover represents a human condition³⁵⁴. Christian freedom and human dignity are inter-related and can be traced back to the Reformation, which is widely regarded as the fundamental initiation toward the modern conception of human rights. The concept of “communicative freedom”³⁵⁵ aims to bridge the gap between individualized and overly communitarian understandings of freedom. Fundamental to the Protestant understanding

348 Brown/Palmer 2009

349 Liu 2011

350 Kaesler/Weber 2013

351 Porter 2010

352 Ziebertz/Ziebertz 2016: 52

353 Huber 2008; Huber/Toedt 1978

354 Fourie 2010: 250-260

355 Fourie/Huber 2012

is the experience of liberation in considering human dignity to be inalienable.

Protestant theology considers human rights to be an extension of the biblical understanding derived from the definition of human dignity offered in Genesis 1.26f, which recounts that God created humans as special beings in God's own likeness³⁵⁶. Another evolving factor of human dignity in the Protestant perspective is the emphasis on education and access to education as elements of human dignity in the pursuit of justice of enablement (*Befähigungsgerechtigkeit*), which may be associated with the capabilities approach³⁵⁷. Education cannot be reduced to the acquisition of work-related competencies but rather emphasizes the importance of education to meet human needs and individual interests rather than merely considering economic constraints.

Education is an important factor not only for human dignity but also for social justice³⁵⁸, as justice is a guiding norm or value for all Christian ethics and a central topic throughout the Bible. It can also be considered guidance for secular ethics, particularly regarding the equitable treatment of all people and the principle of equality itself. Educational justice is also related to intergenerational justice, as it largely affects children and youth if equality is not met.

Within the Protestant tradition, the moral duty to support one's family evolved largely from the tradition's individual-moral dimension rather than from the perceived importance of the family as a social institution³⁵⁹ itself. Here, the Protestant individual perspective differs fundamentally from the CST, being more closely aligned with libertarianism and emphasizing the economic and financial logics that characterize the social dimension rather than a system of ethics³⁶⁰. This also influences the concept of "economic humanism", which calls on an economic order to respect and promote dignity in human life³⁶¹. Qualities such as self-discipline, a sense of justice, honesty and fairness, public spirit, and respect for human dignity are defined as ethical standards that people must already possess upon entering the market³⁶².

356 Schweitzer 2016: 1-7

357 Nussbaum 2006a

358 Schweitzer 2016: 5

359 Spieker 2010

360 Felice 2010: 280

361 Roepke 2009

362 Roepke 1982: 370-376

Nevertheless, early Protestant teaching with *Freedom of a Christian*³⁶³ already exhibited a deep and distinctive understanding of human dignity, equality, and liberty³⁶⁴. The essence of dignity from this perspective may be found in the connection between human depravity and human sanctity. It describes a divine fulcrum that keeps depravity and sanctity in balance. In this regard, Luther's early teaching may be considered a "Protestant *Dignitatis Humanae*"³⁶⁵. One key consideration here is the essence of human equality that lies in our radical calling as God's prophets, with divinely assigned vocations to discharge. Another is human liberty, which is regarded as a divine means of keeping individuality and community in balance. The vocational aspect is particularly important for Protestantism, and Protestant ethics give greater value to non-religious life by regarding each person as called by God to whatever vocation they had, worldly or religious. This imbued work with dignity in new ways.

Of the different Protestant perspectives, Calvinism³⁶⁶ considers the worshipful nature of work as part of an intrinsic dignity. Calvinism posits that work attitudes help to define societies; therefore, basic perceptions regarding work are important not merely for understanding societies but also for their practical impact on how most humans experience life. From the perspective of Calvinist Protestant work ethics, values relating to hard work, thrift, and efficiency signify the individual's election of eternal election.

Several characteristics may be generally applied to Protestant Reformers' ethics based on Calvinist ideas regarding work³⁶⁷. First, work has an intrinsic dignity, with a direct link from the dignity of work to the dignity of Christ. Second, work is associated with vocation, which may be defined in this context as a "a certain kind of life, ordained and imposed on man by God, for the common good"³⁶⁸. Another concern by Protestant theology is the demand for a "humanization of work" whereby economic growth shall be reflected in qualitative criteria³⁶⁹ and will encompass items such as reduction of unemployment, work and health, and reduction of working

363 Luther 2018

364 Witte 2019

365 Catholic Church 1965, cited in Witte 2019: 157

366 Pennings 2008

367 Pennings 2008

368 Perkins/Pickering 1603

369 Ziebertz/Ziebertz 2016: 52

time. Humans are generally regarded as people in community with others and in partnership with God³⁷⁰.

Other perspectives in the Protestant tradition to Christian humanism, in which social ethical thought plays a fundamental role³⁷¹, distinguishing between individual and social rights that bear a certain relation to CST, wherein the individual's responsibility also invariably relates to the social dimension. Diverging positions³⁷², however, perceive the Bible as lacking an essential interest in the situation of work. Work, for instance, may be regarded as a simple necessity, with the argument that those who are not prepared to work should not eat or that work has no specific value given that the Bible never refers to it as a vocation. Work, according to this interpretation, contributes to humans' divided, separated, and indifferent condition. Work itself is perceived thereby as an alienating factor, irrespective of social or economic conditions or ideology. This specific Protestant position holds that "work is simply part of the order to which we are subject—no more" and when work produces joy or is meaningful, it is important to recognize that this is an exceptional event, a grace, a gift of God for which we must give thanks.

Departing from Calvinist views, Puritan ethics in general heavily emphasize the dignity of labor as a consistent theme through the writings of Luther, John Cotton, Jonathan Edwards, Joseph Bellamy, or Samuel Hopkins, among others³⁷³. Ordinary work in this tradition was singled out to demonstrate the subordinate quality of all worldly activity to a creation whose true value is discerned in the image of spiritual piety that God brought to his creations. Sustaining this piety requires not only a spiritualization of work but also an aesthetic conviction that the individual in God's calling was made for the sake of creation rather than the other way round. This yielded the conclusion that no calling was more or less than another and so all occupations were equal before God and work was thus sanctified. In this sense, although the Protestant Reformation may be considered a crucial development for the birth of modern capitalism³⁷⁴, the idea of work as a value and a vocation itself remained part of Protestant ethics³⁷⁵.

370 Renaud 2017: 493

371 Rosmini 1993

372 Ellul 2000: 99; 103

373 Constantin 2017: 561

374 Weber 2013

375 Serratelli 2016

Work must leave room for contemplation and fellowship³⁷⁶. The wealth that work generates should be held in trust, and neither ownership nor profit is intrinsically evil. These features can be humanly fulfilling and good when they are not exploitative and are part of a mutually beneficial circulation of goods and services, aimed at building community and serving the common good. Hence, there exists an obligation to hold corporations responsible for society.

In sum, most Protestant views highlight the importance of work for human dignity, particularly in terms of a vocational understanding. Creation furthermore plays a key role, and work has a specific dignity as a fundamental aspect of human existence³⁷⁷. In addition, education may be regarded as a key to work and dignity.

3.4.1.3 China

With around 1.44 billion inhabitants, China is the world's largest country by population size³⁷⁸. It has a dynamic history with respect to human labor and is among the largest economic powers in the world today³⁷⁹. Therefore, the Chinese perspective will be discussed in the following with a focus on Confucian ethics, which also affect nations such as Hong Kong and Taiwan.

The Confucian ethic espouses a considerable esteem for education and self-development and holds that dignity is tied to an individual's education level³⁸⁰. In this regard, prestigious jobs may be regarded as a measure through which dignity may be secured in what is a highly conditional perspective on dignity as something that is hard-earned. Dignity may also be lost when expectations in the social system are no longer met, which may happen in the short term or even overnight. Further conditions and criteria are applied to define dignity in China based on Confucian ethics—for instance, in terms of material objects, such as designer clothes, or the ability to host a lavish wedding.

Chinese culture considers dignity as something that must be achieved by a higher income or prestige. The same principle applies to the role of work

376 Herdt 2021: 42

377 Junge 2011: 5

378 Koop 2021

379 Yueh 2013

380 Koehn/Leung 2008: 486-488

and considers “traditional” Chinese work ethics based on collectivism and altruism³⁸¹ rather than emphasizing individualism or individual rights. This Chinese approach has been marked by a mindset of utilitarian tradition that emphasizes the maximization of collective interests at the expense of minority interests, thereby disregarding individual rights and justice.

The individual work ethic in the Chinese traditional sense has been largely overruled by collectivistic interests. The same relates to discussions around basic legal individual freedoms that might also affect human dignity, such as religious freedom or equality³⁸². According to the “traditional” Chinese understanding, work is considered important for living a life with human dignity from a merely instrumental perspective, when defining an individual’s status as “dignified”. Respect for personal dignity, as understood from the individual and universal perspective, does not play a crucial role in contemporary Chinese politics either³⁸³. Nevertheless, from a collectivistic standpoint, work has always played a key role throughout history.

3.4.1.4 Islam

Islam represents the world’s second most popular religion after Christianity, with approximately 1.8 billion affiliates³⁸⁴. Furthermore, it is currently the fastest growing religion and is expected to become the most populous on a global level in the coming decades.

The Qur’an states that human dignity is not earned by meritorious conduct but rather that it is an expression of God’s favor and grace, pertaining to the equality of mankind as seen through the eyes of the Creator³⁸⁵. It is considered the basic right of all human beings to live a life of dignity, complemented by peace and comfort and the freedom to pursue what brings one happiness and perfection through all lawful means, which additionally includes creation and enjoyment of beauty, good health, and a clean environment for a dignified lifestyle³⁸⁶.

381 Cooke et al. 2019

382 Halliday/Liu 2021

383 Pils 2016

384 Lipka/Hackett 2017

385 Kamali 2002: 3

386 *ibid.*: 8

In terms of justice, the Qur'an may be interpreted as specifying that all people are equally entitled to benefit from universal resources, because no human can rule over the universe³⁸⁷. No nation, group of nations, class, or subdivision of *Homo sapiens* can claim more resources than another. This advocates for humans' shared responsibility to protect the environment and fight pollution and natural calamities as part of a common and equal humanity, irrespective of race, color, or religion³⁸⁸. It calls for equality in human rights, rights to justice, equality in terms of protection of the law, respect for education and employment, and enjoyment of basic liberties. Social justice from the Islamic perspective is defined as the aggregate of all conditions that enable the development of human capacity for the fulfillment of the general welfare and progress of the community as a whole³⁸⁹. Consequently, the absence of social justice deters the individual's ability to attain their fullest potential owing to the lack of freedom and dignity. Further Islamic sources from the legal, philosophical, and sociopolitical traditions incorporate in their definitions of social justice the struggle against oppression, inequality, and the promotion of dignity, all of which are broadly compatible with international human rights frameworks.

Islamic writings, such as the Qur'an or Sunnah, frame harmonious employer–employee relationships as a form of moral suasion³⁹⁰ analogous to the ILO labor standards, further discussed below. In that context, Islam encourages the state to contribute to the regulation of the labor market, and, furthermore, these moral persuasions serve as forceful legal rulings with the belief in the hereafter. Islam, like the other Semitic religions, regards worldly efforts and actions as worthy of award or punishment in the afterlife.

The concept of dignity in work is expressed in Islam as follows: “a laborer deserves to be respected because he earns his livelihood by his sweat”³⁹¹. Thus it is based on the notion that the Prophet insisted on a share in all work performed—that is, he never considered any lawful work to be beneath his dignity³⁹². Moreover, work is useful not only for fulfilling the needs of the stomach but also for maintaining honor and human dignity³⁹³.

387 Kamali 2002: 38

388 *ibid.*: 45-47

389 Reda 2016: 201

390 Ahmad 2011

391 Alazhari/Alazhari 2017

392 Shia Studies' World Assembly 2021

393 Azislam n.d.

As such, it possesses an intrinsic value, and dignity also implies the potential for growth in the context of a specific job or work.

Islamic provisions regarding labor rights may be considered compatible with international labor standards³⁹⁴. Although many Islamic countries are fraught with issues regarding the oppression of individual and collective rights on religious grounds, these measures do not reflect the frameworks enshrined in fundamental Islamic texts; rather, such acts of oppression can be largely traced back to monarchic states' attempts to legitimize their rule. Muslim scholars and writers from over several centuries exhibit a degree of consensus on the importance of worker rights and “decent work”, goals also defined by the ILO.

3.4.1.5 Hinduism

Hinduism represents the third-largest world religion, with approximately 1 billion affiliates worldwide³⁹⁵, representing approximately 15 percent of the global population. With its growing population, India is expected to become the world's most populous country within the next 30 years, surpassing even China. As a growing economic power, the Indian approach toward human dignity based in its culture also exerts a substantial influence, particularly given India's reputation for state-of-the-art technology hubs and provision of information technology (IT) services worldwide. The country is also associated with controversies regarding its treatment of the poor and women, highlighting a certain need for a revision of its traditional views on human dignity³⁹⁶.

Regarding human rights and human dignity, the *sadharana dharma*, which covers universally valid moral commands for everyone and not just for certain groups or individuals, provides an indication as to how this topic may be approached from a Hindu perspective³⁹⁷. Two levels may be identified—individual and social—regarding the right to life and a worthy standard of living. These basic rights include the right to bodily integrity and to the means that are necessary for and appropriate to the sustenance and development of life: primarily, food, clothing, shelter, rest, medical care, and the necessary social services. Therefore, a human being has

394 Ahmad 2011: 26

395 Liu 2012

396 Drèze/Sen 2013

397 Neli 2014: 134-145

the right to security in the case of illness, inability to work, widowhood, advanced age, unemployment, or any other occasion of deprivation.

This implies an entitlement to moral and cultural rights, including the right to respect, freedom in seeking truth and in expressing and communicating one's opinions, and the pursuit of art within the limits set down by the moral order and the common good. Moreover, a person has the right to be informed truthfully about public events. Furthermore, individuals have the right to share in the benefits offered by culture and are thus entitled to basic education and to technical and professional training in keeping with their stage of educational development.

This is further connected to the freedom of religion or the right to family, where family is considered the first and essential cell of human society. Parents are thus obliged to raise their children and support their education. Human beings have the natural right to free initiative in the economic field and the right to work. Indivisibly linked to economic rights is the right to labor conditions in which the individual's physical health is protected, morals are upheld, and young people's normal development is encouraged. Women have the right to working conditions in accordance with their needs and duties as wives and mothers. In terms of dignity, humans also have the right to engage in economic activities according to the degree of responsibility of which one is capable. In addition, individuals are entitled to a fair wage, and workers and their families deserve a standard of living that serves to maintain the dignity of a human person³⁹⁸.

The Hindu traditional work ethic is strongly influenced by the caste system, wherein different types of work are aligned with different types of "dignity"³⁹⁹, as each caste historically had its own collectively predefined work in society. According to the societal perception, certain jobs had no influence at all in terms of the ability to live a dignified life owing to the lack of dignity associated with labor in general⁴⁰⁰. However, historical efforts on the part of the Gandhi movement following India's independence from British rule emphasized the importance of all kinds of labor, which essentially strengthened the national identity through respect for even lower-caste jobs⁴⁰¹. Ultimately, however, these efforts are always in contrast to the influence exerted by the caste system, which enshrines a strictly

398 Neli 2014: 153

399 Pinch 1996: 102-124

400 Bhattacharjee 2015

401 Suryanarayanan 2009

“hierarchical” view of dignity⁴⁰². This view posits that work can be seen as instrumental to living a life with human dignity only when acquiring sufficient financial resources to form part of a conventionally considered upper class. However, as outlined above with respect to Vedic traditions, the *sadharana dharma* offers certain indications that there exists a right to a just wage and the duty to give the worker and their family a sufficient standard of living to maintain human dignity⁴⁰³. This has implications regarding the importance of work for living a life with human dignity, including the right to appropriate working conditions with access to health care and education.

3.4.2 The International Labor Organization (ILO) and the United Nations (UN)

As the organization charged with promoting human dignity in the workplace by the UN, it is appropriate here to include the perspective of the ILO for the normative aim of this section. The institution has focused on fighting poverty and poor labor standards all over the world and is thus one of the major opinion leaders in terms of establishing a standard of living that promotes human dignity. As such, the ILO has considerable experience with the topic of poverty.

The ILO⁴⁰⁴ mentioned in its declaration that “fundamental values of freedom, human dignity, social justice, security and non-discrimination are essential for sustainable economic and social development and efficiency”. From a historical perspective, the ILO’s foundation was substantially influenced by the Catholic Social Movement⁴⁰⁵. As early as 1893, Pope Leo XIII called for a congress of workers’ delegates without distinction according to nationality, religion, or political union. The extent and level of institutionalization that the ILO has reached today exceeds any of the most optimistic expectations at the time of its inception. It has become an essential cog in the modern world through its unremitting effort to achieve social justice. It has remained true to its principles while adapting to new situations, new labor environments, and new technologies. Its nature and

402 Rajeshwar 2011

403 Neli 2014

404 ILO 1944

405 Roy 1957

commitment constitute proof that it is possible for the world's nations to cooperate with one another on behalf of the international common good.

The ILO has been working to establish labor standards and to promote the idea of dignity of labor. The organization's goal—historically, at least—has been to provide support on a common global issue—namely, that humans may earn their living in peace, support their families, raise their children, be protected against all the hazards of existence, and, after a life of labor, spend some years in rest and contemplation. In that regard, the ILO has understood the dignity of labor from the first day of its existence and operation. From an institutional perspective, the organization and its office must maintain close contact with government, workers, and employers. The ILO has worked operationally with any private organization who wished to do so and has both informed and been passively informed. In general, it works in a universal manner that affects all humanity⁴⁰⁶ by providing nation states with a degree of liberty in implementing policy recommendations.

In addition, the ILO⁴⁰⁷ has highlighted various criteria for human dignity in labor, including education, social security, access to healthcare and appropriate working conditions that must be applied to labor. Consequently, the “decent work agenda” of the ILO⁴⁰⁸ states that work is “one of the few experiences common to most of humanity. It not only plays an obvious and crucial role in the well-being of workers and their families but paves the way to the broader social and economic development of individuals, their communities, and societies”. In addition, the organization aims to secure full, productive, and decent employment for all humans, underlining the constitutive role that work plays in living a life with human dignity from an ILO perspective.

The ILO's perspectives have also influenced the UN, which incorporated the topic of labor at an early stage, and collaboration between the two has been solid since the beginning⁴⁰⁹. The UN's Universal Declaration of Human Rights⁴¹⁰ states in Article 23.1 that “Everyone has the right to work, to free choice of employment, to just and favorable conditions of work and to protection against unemployment”. The concept is also recognized in

406 Roy 1957: 64

407 ILO 2019

408 ILO 2022a

409 ILO 2022b

410 UN 1948

international human rights law mentioned in the International Covenant on Economic, Social and Cultural Rights, which “affirms the obligation of States parties to assure individuals their right to freely chosen or accepted work, including the right not to be deprived of work unfairly. This definition underlines the fact that respect for the individual and his dignity is expressed through the freedom of the individual regarding the choice to work, while emphasizing the importance of work for personal development as well as for social and economic inclusion”⁴¹¹.

3.4.3 Identity and work

Human beings’ identities may be significantly intertwined with their work and profession. Identity is a complex construct with multidisciplinary origins and, consequently, a range of associated conceptual meanings and theoretical roles⁴¹². Moreover, identity is among the primary motivation sources for human behavior. It can have an important impact not only on an individual’s feelings, thoughts, or behavior in the present but also on what they aim to achieve in the future. Identity may therefore provide a frame of reference within which to interpret social situations and potential behaviors and actions across all domains. It signifies who we are both in relation to and how we differ from others. An individual’s sense of identity is heavily defined by considerations of social desirability⁴¹³. Labor can influence social identity, which is focused on social affiliations, whereby one identifies with others⁴¹⁴ in the same profession for instance—which relates to the political environment and has a political aspect. Personal identity, on the other hand, may be concerned with our existence and the personal “sameness” that may relate to the factors that individuate us and distinguish us from others. The role of identity in the context of labor and its potential impact on living a life with human dignity will be discussed below.

Acceptance of an individual’s identity may be defined as “approaching people as being neither inferior nor superior to you”⁴¹⁵ and giving them the freedom to express their authentic selves without fear of being negatively judged. Furthermore, such acceptance includes interacting without preju-

411 UN 2016

412 Leitch/Harrison 2016: 177-178

413 Falck et al. 2009

414 Sen 2009: 285-286

415 Hicks 2011: 1-43

dice or bias and acknowledging that race, religion, class, etc., may be at the core of others' identities. Treating others with dignity and accepting their inherent worth is crucial, consisting in the universal acknowledgment of the human need for appreciation and recognition, independent of one's background. From a biblical perspective, "human beings are attributed a personal dignity by God, even if our personhood is both incomplete and distorted"⁴¹⁶. Some have perceived the demise of the "work ethic" in societies in which production is no longer as important for identity as evidence of participation in the rising consumer society⁴¹⁷. This also affects the role of employment, whereby an "age of insecurity"⁴¹⁸ is evolving as a result of an ever-changing labor market. Work has arguably lost its privileged status in terms of self-constitution and identity-building⁴¹⁹. The modern workplace is a locus of ostensibly constant change, which affects how work influences the human life experience⁴²⁰. A consumption-dominated society could therefore shift the nature of work toward the perception that "interesting" work is the privilege of the few and judged by "aesthetic criteria"⁴²¹. The rest would need to accept jobs that offer no aesthetic satisfaction. The flexible labor market would thus offer neither commitment nor dedication, and attachment to one's job and the identification of one's place in the world with the work performed is unlikely, given the short-lived nature of any employment⁴²².

Labor has primarily been regarded as a means of securing income in recent decades. However, one's pay determines one's livelihood and standard of living as well as how and where an individual lives additionally to extrinsic benefits. When work is stable and well paid, it can also provide economic security and independence⁴²³. Furthermore, work can exert a formative influence on character and intelligence, thus providing opportunities for personal growth. Therefore, work is crucial in terms of individual achievement and accomplishment and is highly relevant to self-identity⁴²⁴, also within the context of community or society. In that sense, the industrial age

416 Gregersen 2021: 398

417 Bauman 1998: 24

418 Beck 2000; Sennett 2004

419 Bauman 1998: 32

420 Doherty 2009; Fevre 2007

421 Bauman 1998

422 Bauman 1998: 35

423 Weeks 2011

424 Russel 1930

made work the “axis of living”⁴²⁵. Traditionally, there was a homogenous and collective experience of employment and the labor market, through an interlinked process of education, mobility, and competition. This placed workers within social groups and presented opportunities for the development of a broader array of relationships outside the family⁴²⁶. Linking the purpose and social dimensions of work further served the need to have a place in society and the need to contribute, including the need to belong and to be depended on⁴²⁷.

Contemporary work, however, is increasingly unstable and, particularly in the age of digital transformation, is becoming increasingly flexible, whereby a parallel may be traced between flexibility and the apparent proliferation of inherently insecure, non-standard work⁴²⁸. This development has become the driving force in the individualization of people’s lives⁴²⁹. In this regard, the concept of “work ethics”—namely, the assumption that work has a moral dimension that is valued by society—involves new dimensions. Work itself has traditionally been considered “good”, and “secure work” has been a characteristic of standard labor based on the notion that humans are part of a productive process. Digital transformation has thus changed how work ethic is perceived by society.

Employment relationships may be defined by task discretion—that is, the degree of initiative or control that employees can exercise over their work tasks⁴³⁰, which also affects work-related identity. The segmentation of the modern labor market in the context of this definition could promote the dichotomy between aesthetic and non-aesthetic work. On the one hand, there are a small number of privileged core employees, who as a result of technological change and higher qualification levels, can experience a greater task discretion, participation, and aesthetic satisfaction. On the other hand, a substantial portion of peripheral, insecure employees experience tighter management control and coercion. The individualization of modern life, driven by digital transformation and associated labor market changes, along with the demise of the work ethic and the rise of workplace insecurity, can therefore have serious consequences⁴³¹. Traditionally, work

425 Beck 1992: 139

426 Budd 2011; Catholic Church 1981

427 Phelps 1997: 12

428 Beck 2000

429 Beck 1992; Beck/Beck-Gernsheim 2002

430 Gallie et al. 2004

431 Doherty 2009: 86

has been regarded as an important point of social relations for informal social interaction and the creation of ties, as well as small-group solidarity with work colleagues⁴³². The consumer society may lead to a working life that is increasingly atomized and fragmented which could demean the work-related identity of those who are no longer able to perform “aesthetic” work.

Work experience is generally inherently valuable to the individual in terms of the task itself and in terms of social relations at work⁴³³. In terms of identity, therefore, “work matters”, and this still seems to be the case when collective identity or social identity⁴³⁴ as an important pillar is endangered, despite the increased atomization and fragmentation of working life. For instance, the related workplace affiliation and solidarity-based collective action becomes crucial when working conditions are subject to deterioration, as illustrated by a recent case at Amazon⁴³⁵. In this specific case, the potential for collective action as an aspect of identity was possible despite the delocalized working style. Workers used other means of protecting their dignity through an identity-based collective action campaign with the successful creation of a company-specific trade union.

As the advancing flexibility of the labor market heavily influences worker identity, particularly through digital transformation and the rise of the consumer society, “entrepreneurial identity”, which is defined by a “founder identity”, is becoming increasingly salient⁴³⁶. Entrepreneurship has always been marked by the individualization of work and it is becoming the reality for more “workers” through the “sharing” platforms of the “gig economy”, such as Uber⁴³⁷. It is dynamic rather than fixed and unchanging and is shaped by different life episodes and their associated patterns⁴³⁸. It may be viewed as a fluid, multi-level, and multidimensional construct comprising multiple sub-identities rather than a univocal and unchanging self. In times of digital transformation and a swiftly changing human labor market as a result of the automation of professions and tasks, an entrepreneurial mindset that embraces creation and development could become increasingly important for humans in terms of their work identity. Entrepreneurial

432 Felstead et al. 2005

433 Doherty 2009: 87-98

434 Sen 2009

435 Weise 2022; Scheiber 2022

436 Fauchart/Gruber 2011: 954; Navis/Glynn 2011

437 Ravanelle 2019; Dubal 2019

438 Lindgren/Wahlin 2001

activities are infused with meaning as a result of the expression of an individual's identity⁴³⁹, and related roles are closely attached to behavioral expectations from a social standpoint. In that regard, identity can serve as one of the most powerful elements driving entrepreneurial actions⁴⁴⁰. Given that entrepreneurs do not build their identities alone, it may be regarded as a fundamental bridging concept between the individual and the social⁴⁴¹, creating a medium through which the entrepreneurial self and the social interact, as norms and prescription that arise from social interaction impact⁴⁴² individual behavior⁴⁴³. This emerges as particularly relevant given that firm creation is both an individual and team activity as well as being inherently social, and organizations may be regarded as social constructions. In that sense, social affiliation also continues to play an important role from an entrepreneurial identity perspective, even in times of digital transformation.

In sum, work exerts a strong influence on human identity, even amid digital transformation and an increasingly automated consumer society. The example of entrepreneurial identity illustrates that although the existence of certain professions or jobs might be short-term, they nonetheless contribute to identity formation. The individualization character of contemporary society might even enhance job-based identity for a time. In addition, work-based identity is relevant for political and social inclusion and the ability to mobilize forces if required—for instance, when working conditions substantially deteriorate. This leads to the relationship with dignity, whereby identity can represent commercial interests for working conditions, particularly if they violate dignity. Nonetheless, the identity–work relationship in that regard is already incorporated into the capabilities approach as part of the 10th Control over One's Environment capability (part of the 7th affiliation capability in an earlier version⁴⁴⁴ of the approach), which emphasizes building adequate “work relationships” based on mutual recognition with co-workers. Based on the diverse identity forms that are observable from a work perspective, this definition is sufficiently holistic to cover this particular dimension.

439 Leitch/Harrison 2016

440 Murnieks/Mosakowski 2007: 2

441 Watson 2009; Ybema et al. 2009

442 Fauchart/Gruber 2011: 947

443 Laakkonen 2012

444 Nussbaum 2008

3.4.4 Meaningful work

Meaningful work may be regarded as integral to human flourishing⁴⁴⁵. Aside from receiving a paycheck or other extrinsic benefits, work can have substantial intrinsic value for the worker themselves. In that regard, labor cannot be defined as a paid activity only, but rather as a productive, purposeful, or goal-oriented endeavor. In addition, there has even been a call for a “capability for meaningful labor” which includes and defines meaningful labor as part of the capabilities framework for living a life with human dignity⁴⁴⁶. Below, it will be considered how the term “meaningful work” may be considered relevant for a life with human dignity.

3.4.4.1 Characteristics

The definition of “meaningful work” is diverse and can vary in with respect to its meaning for all individuals. In general, “subjective and social accounts of meaningful work have limited practical value to help people pursue it”⁴⁴⁷. Nevertheless, the exploration of certain characteristics of the term may help yield insights as to whether and meaningful work they might be instrumental in human dignity.

A substantial portion of one’s waking hours may be dedicated to work that offers key opportunities to develop and exercise abilities in contributing purposefully to communities⁴⁴⁸. Work affects workers both on and off the job; it can drain and damage people, or it may be a source of fulfillment and self-development. Predominant economic theories approach work as an element of cost that characterizes a sacrifice of time and energy on the part of employees and money paid in wages and benefits on the part of employers⁴⁴⁹. This implies the assumption that work exists only to enable people to earn a living and achieve greater potential for consumption or leisure.

In discussing the meaning of work and elaborating the factors that define “meaningful work”⁴⁵⁰, the power of work goes beyond extrinsic

445 Veltman 2016

446 Weidel 2018

447 Michaelson 2021: 413

448 Veltman 2016: 1-4

449 Budd 2011

450 Veltman 2016: 4-8

factors, such as pay or retirement plans. The intrinsic features of work may enhance the flourishing of a worker, for instance, as illustrated by the psychological effects that work can have on individual workers. All human labor includes mental processes, and, as humans, workers are affected by events and circumstances that occur around and through them. Most empirical literature has demonstrated that well-being in the workplace is influenced by intrinsic rather than extrinsic features, such as wages or job security. Options within work to exercise one's abilities, learn new skills, and so on exert a greater impact on mental health and happiness⁴⁵¹. In addition, work itself can provide personal fulfillment through, for instance, meaningfulness, self-development, self-expressiveness, and the satisfaction of purposefully contributing one's talent to communities. In that sense, the extrinsic features of work can contribute to a meaningful life in a particular manner; however, discussions of how work can contribute to a flourishing and meaningful life requires closer examination of the intrinsic features of work rather than the extrinsic benefits exclusively.

Amid the individualization of work in the age of digital transformation and related automation, a pluralistic account of meaningfulness appears to become even more appropriate. One definition of meaningful work would be to consider how different elements of meaningful work may be used to describe its nature⁴⁵². First, work may be meaningful by virtue of its potential to develop and exercise workers' human capabilities, specifically as this expression meets with demanded recognition and esteem. Second, meaningful work should support virtues such as self-respect, honor, dignity, and pride. Third, meaningful work should be purposeful and should specifically produce something of enduring value and worth. Fourth and finally, it should be an integrating element of a worker's life and support the construction of or reflection on personal relationships or connection to the relational context that is essential for the individual's identity.

Another definition would be the "subjective experience of existential significance resulting from the fit between the individual and the work" where the "subjective experience of existential significance refers to the process of personally perceiving work as contributing to, or, making sense of, one's reason for existence in the world"⁴⁵³. Yet another definition would

451 Murphy 1993

452 Veltman 2016: 19

453 Both-Nwabuwe et al. 2017: 12

regard the following components as relevant⁴⁵⁴: “The subjective experience of work as intrinsically significant and worth doing, the experience that one is able to realize oneself through work, and the work serving a broader purpose”.

Various challenges arise in attempting to define “meaningful work”, although the term is becoming increasingly ubiquitous in modern business settings. First, the term is consistently affected by conceptual ambiguity⁴⁵⁵. Second, subjective experience is an important factor in meaningfulness, and even “harmful work can be experienced as meaningful”⁴⁵⁶. Third, the term’s notoriously pluralistic character is intensified when considering other sociodemographic factors, such as generational differences⁴⁵⁷.

3.4.4.2 Dignity and meaningful work

Dignity is often identified as a feature of meaningful work⁴⁵⁸ and inherent to humane working conditions. Work can be seen as a primary means of securing or reinforcing virtues such as dignity⁴⁵⁹ and has been characterized by many thinkers, such as Martin Luther King, as dignified in any form—that is, all forms of work have meaning, purpose, or dignity. Moreover, several discussions in the past have acknowledged the intrinsic benefits of meaningful work as elitist, likely because the discussion appears to view meaningful work as a marker of socioeconomic privilege as opposed to arduous, low-waged labor⁴⁶⁰.

However, the measurement of life’s meaningfulness is a need that can be observed among all people and may be identified as a basic human desire that is not limited to the elite⁴⁶¹. Furthermore, nearly all work allows for a measure or experience of meaningfulness, and additionally, some forms of manual work may be considered as more meaningful than other types of “intellectual work”. In addition, as we shift further toward an age characterized by changes in human labor, the inclusion of meaningful labor in the discussion may provide a normative foundation for social change

454 Martela/Pessi 2018: 12

455 Both-Nwabuwe et al. 2017: 1

456 Michaelson 2021: 413

457 Weeks/Schaffert 2017

458 Laaser/Bolton 2022; Ayers et al. 2008

459 Veltman 2016: 27-29

460 Tokumitsu 2014

461 Yeoman 2014

with respect to the changes in working life that are due to automation. This approach illuminates the misfortunes of some and the moral failures of social and political orders, which may then promote a life characterized by dignity and flourishing for more than just a few. This can lay the foundation in alignment with the aim of critiquing the current economic system, particularly in terms of the efficiency-driven digital transformation.

In essence, it would arguably not be helpful to classify any work as dignified or meaningful, as this would neglect the working conditions that are related to the working environment that an individual encounters at the workplace. Although the intention might be good—that is, to avoid forgetting or belittling socially necessary jobs⁴⁶², one might emphasize that no labor is dignified without an adequate salary. This resembles certain views aligned with the Protestant work ethic, whereby work is a commandment as well as a calling and no calling is more important than another⁴⁶³.

The belief that all labor is inherently dignified is based on an intuitive appeal⁴⁶⁴. It eliminates the social dilemma of who will perform distasteful work, since no work destroys the soul, according to this perspective. Furthermore, it serves as a social lubricant in communities in which people are primarily occupied with work that might otherwise seem undignified. For instance, it is an easy to offend someone by stating that that individual's work lacks dignity or is worthless. The removal of any offending stigma through the assertion that all work has dignity promotes the equality of all humans. This usually stems from the holy commitment to the moral equality of all human beings. Certain perspectives indicate that valuing some forms of work above others might suggest that some human beings are more worthy than others. Nonetheless, the appeal may support political calls for wage equality⁴⁶⁵.

It appears essential to differentiate the notion that all labor has dignity from the assumption that all human beings have dignity⁴⁶⁶, as the relevant definitions typically usually define criteria such as “labor that uplifts humanity has dignity”⁴⁶⁷ or to “lift labor up from mere drudgery and toil and love work for its own sake”⁴⁶⁸. This may be misleading, as not all work

462 King 1986

463 Ciulla 2001: 49-53

464 Veltman 2016: 29-34

465 Ung et al. 2021

466 Veltman 2016: 30-34

467 King 1986

468 Washington 2016: 148

genuinely serves humanity or serves the development of humanity, and some work actively undermines the worth of humans—that is, work that does not possess dignity.

Dignity at work surpasses the extrinsic characteristics and circumstances of work to involve features that are intrinsic to the activity of work, features that have the ability to develop and exercise human capabilities and to convey goods and virtues such as dignity, honor, self-respect, and autonomy⁴⁶⁹. Workplaces can undermine human dignity by hindering self-respect, pride, and attempts to use intelligence, initiative, and agency to complete work⁴⁷⁰. A key strategy for asserting human dignity would be to evaluate worker opposition to mismanagement, abuse, overwork, and exploitation in the context of heavily bureaucratic organizations, entirely profit-driven workplaces, and impolite managers, who have little or no respect for workers⁴⁷¹. An extreme example of this would be slave labor and its associated extraordinary indignities⁴⁷².

Such modes of “employment” can reduce the worker to a mere thing, ridicule their human capacities, and fail to foster the virtues associated with work, such as honor or pride, on account of the lack of agency required for the work. It does not uplift or build up humanity or support the social transformation of humans into a community of equals⁴⁷³. This demonstrates that not all labor is equal with respect to internal rewards and that only work that integrates conception and execution as well as enhancing capabilities and agency contributes to human flourishing⁴⁷⁴. Furthermore, the achievement of social equality would require that all people have genuine opportunities to develop their potential, master complex skills and contribute these skills to society in work that elicits social esteem⁴⁷⁵. Recognition of workers’ dignity may be viewed as an inherent aspect of work, and financial or intrinsic rewards are meaningless when dignity is absent⁴⁷⁶. This means that the sole provision of adequate financial reward is insufficient for meaningful work and dignity.

469 Veltman 2016: 31

470 Hodson 2001

471 Glucksmann 2009

472 Coser 1992

473 Veltman 2016: 31

474 Murphy 1993

475 Gomberg 2007: 14

476 Bal 2017: 62; Sayer 2007

Meaningful work may be considered part of a life lived with human dignity⁴⁷⁷, as living a meaningful life represents a fundamental human need; however, the precise definition remains unclear. In that particular view, non-meaningful work might even be regarded as harmful, owing to satisfy inescapable human interests such as scarifying humans health for money, including the experience of dignity. However, as mentioned above, the experience of harmful work is subjective. Nonetheless, a flourishing life without dignified working conditions is difficult to imagine⁴⁷⁸.

The notion of meaningful work is recognized as sufficiently crucial as to warrant inclusion in the list of ten central human capabilities as a separate capability⁴⁷⁹: “*Labor*. Being able to freely and successfully pursue an avenue by which a person can engage in meaningful labor, interacting with some aspect of nature (as well as other human beings) in a way that develops their faculties, utilizes practical reasoning, and provides them with a sense of dignity”.

The above definition expresses a Marxist standpoint and emphasizes the importance of meaningful labor, which deserves a prominent spot as a separate capability. While acknowledging the necessity to strengthen the position of work in the capabilities approach, the amendment covers yet another approach to meaningful work that can easily be challenged with respect to its applicability. First, the definition does not cover access to the basic necessities required to sustain a family, which gives meaningfulness to the vast majority of employees worldwide. Second, work may be regarded as meaningful without interaction with nature (or human beings), such as technical or intellectual work.

To summarize, meaningful work, although broadly recognized as an important factor in flourishing, does not necessarily need to be narrowed down in the context of living a life with human dignity. On the one hand, the definition and features are too pluralistic to integrate the term into the capabilities approach in a sufficiently precise manner. On the other hand, although dignity is mentioned as part of “meaningful work”, it is not regarded as an overlapping or integral component of it. Nevertheless, the dimensions discussed above highlight the importance of appropriate working conditions that meet a certain standard, such as providing an income to support individual and family, or other capabilities. This would

477 Yeoman 2014

478 Morris 1884

479 Weidel 2018: 79

also avoid the pitfall that arises in relation to the declaration that “all labor has dignity”. For the purpose of the present research, however, the concept of meaningful work will not be further specified with respect to the capabilities approach; however, certain of its features, such as the consideration of working conditions, may be regarded as an important characteristic of dignified life and are already included in the ten central human capabilities.

3.4.5 Implications for the capabilities approach

The normative views outlined above may be distilled into a single essential conclusion: Work is overwhelmingly regarded as constitutive for human dignity, from an individual perspective and community standpoint, whereas the individual perception is relevant for the capabilities approach. Throughout time and its vicissitudes, work has always been related to prevailing social practices⁴⁸⁰. Accordingly, without available work, there can be no dignity. In addition to the constitutive role for human dignity, work is instrumental in the achievement of other capabilities. Work also offers a link between individual freedom (capabilities) and community: human work constitutes participation in a community of persons, which leads to the necessity that access to work requires protection by rights. In that sense, work is fundamental and is invariably *for* the human person, rather than vice versa. As illustrated, work is essential to many aspects of human life, including development, education, identity, or social justice to name a few. Moreover, the right to work entails “inherent claims” such as “rights to leisure, to an adequate standard of living, and to live”⁴⁸¹, which constitutes a direct link to the capabilities approach.

In light of this elaboration, the right to work should be incorporated into the ten capabilities with a revision of the specific 10th capability (“Control Over One’s Environment”). In that sense, rather than “having the right to seek employment on an equal basis with others” the specification must be “being able to exercise the right to work and receive a sufficient income to support all capabilities”. This takes into account the essentiality of paid work for human dignity outlined in the different positions and leaves no space for vagueness in terms of whether someone has access to the labor market (“seek”) or not. As such, the centrality of work to dignity is emphasized and reinforced. This is also relevant given that an overwhelming ma-

480 Ryken 2002

481 Arat/Waring 2022: 68

majority of humanity lacks the privilege of choice to abstain from paid work to receive a sufficient income. The idea of amending a separate capability has been discarded, as stated above in the context of “meaningful work”. Therefore, the revised 10th capability is as follows:

10. *Control over one’s Environment.*

2. *Material.* Being able to hold property (both land and movable goods), and having property rights on an equal basis with others; *being able to exercise the right to work and receive a sufficient income to support all capabilities*; having the freedom from unwarranted search and seizure. In work, being able to work as a human, exercising practical reason and entering into meaningful relationships of mutual recognition with other workers.

This definition does not exclude people who are unable to work—for example, for health reasons—and includes the notion that they also require a sufficient income to live dignified lives. Furthermore, individuals who already have a sufficient income do not need to exercise the right to work. As a direct illustrative implication of this revision from a policy standpoint, governments could be required to provide frameworks whereby work is incentivized as a means of living a life of dignity for the sake of work and all capabilities are supported through an adequate income. In addition, policy must identify ways of maintaining these capabilities, particularly where paid work is no longer available and cannot be further provided.

3.4.6 Potential critique

Certain views and positions are fundamentally opposed to the concept of work. These will be examined below as potential critiques of the role that human work might play in general that would resist the idea of a fundamental right to work. Of course, the examples provided are not exhaustive, but they are sufficient to illustrate the existence of normative views that are critical regarding the essentiality of labor.

3.4.6.1 Marxist critique of labor

The critique of work or critique of labor idea seeks to abolish work as such. Many ideas in that context are based on the Marxist tradition⁴⁸² that work is an instrumental characteristic of capitalism that must be overcome, introducing a “right to be lazy”. This concept seeks to offer an alternative to the right to work, with the aim of abolishing work rather than fighting for improved access to paid labor. From that perspective, a “work-centered” society generates associated social problems, such as mass unemployment, inequality, or diminished well-being⁴⁸³. This view promotes an anti-productivist politics that calls for the decentralization of work in everyday life. Unemployment could be reframed as a more human form of non-work time, allowing the individual the freedom to pursue self-directed endeavors, also with the help of automation⁴⁸⁴. Human labor, and, specifically, the need for human labor, is capitalist by nature and considered to be partially responsible for the social inequality that gives power to a ruling class. Labor, as a social form, can be perceived as a “real abstraction” that reduces all social actors to quantitative expressions of the same social substance without content that aims only at its accumulation⁴⁸⁵.

3.3.7.2 Online anti-work movement

In the recent past, the anti-work idea found numerous supporters who went on to form a movement out of the online platform Reddit⁴⁸⁶. It gained particular momentum during the COVID-19 pandemic, largely because people realized for the first time the extent to which fundamental processes continued despite the substantial changes in working modes, including, for many, significantly reduced working hours. The movement aims to alter the structure of society and may be considered a successor to the Occupy Wall Street movement. In that sense, it calls for “unemployment for all, not just the rich” and criticizes the unequal distribution of wealth in society and the ways in which labor supports society’s elite. The anti-work movement, however, does not call for a complete shutdown of labor, acknowledging

482 Lafargue/Kerr 2018

483 Frayne 2011

484 Lafargue/Kerr 2018

485 Jappe 2014

486 Todd 2021

that this would cause society to collapse—for example, if teachers, doctors, or postal workers simply ceased actively working.

Reddit's anti-work community can be broadly categorized into two groups, with one stating that “we should not work at all” and others that we should just “work better”⁴⁸⁷. Those who wholly oppose work, criticize the human need to generate revenue to be valued by society. The group has also been active in organizing boycotts, such as the Black Friday Boycott⁴⁸⁸, and opposes the view that food, housing situation, or general well-being should be tied to work. In that sense, the movement reexamines the social expectations around work.

The anti-work movement has called for new ways of working since the advent of Maxism, as well as for an abandoning of work as such. These ideas are not helpful in terms of the research question here, which is concerned with evaluating changes in human labor based on the capabilities outlined, owing to the lack of an adequate alternative framework and definition for how work could play a role in society (e.g., in terms of identity, solidarity, skill sets creation, etc.). In addition, the practical implementation of the approach might help to organize strikes but it does not support the reorganization of society in a sustainable and stable manner.

3.3.7.3 Ascetic tradition

Ascetism in general may be regarded as a mixture of abstinence, self-contraction, containment, and the purification of desire with the aim of living a virtuous life⁴⁸⁹. It has a certain normative relevance for religion and some political practices. It may be interpreted in multiple ways, and ranges from mere abstinence in a religious sense to abstinence for a secular pursuit, such as health.

Ascetism has close ties to Marxist ideas, with its strong sense of social justice and identification with the oppressed of the world⁴⁹⁰. Work is regarded as an expression of power, and workers are strictly limited in their ability to exercise their own will. Workers are absorbed by relationships with one another and their overseers, their relationships characterized by

487 Codrea-Rado 2021

488 Todd 2021

489 Flood 2009: 1-2

490 Flood 2009: 40-45; Weil 2001

the “technique” they employ and the production process, which restricting social interaction. From an ascetic perspective, this relates to the oppressive work, the hard and manual work of the proletariat. Nevertheless, when performed consciously, work can also be a form of asceticism, a way of reversing the flow of the body and time. The self can inwardly oppose power and overstep it through detached acceptance, insofar as work would become a form of ascetism in that it regulates the passion and facilitates self-mastery⁴⁹¹.

Work must therefore be seen as a “general theory of action” that relates to the body during the ascetic process and ordering “in time of discipline”⁴⁹². It is the place where degrees of subjectivity are expressed. Subjectivity relates also to the ability to become detached from the process and defines the degree of agency and freedom that we have, while determining the fullness of humanity. Work, therefore, is the area in which subjectivity can be stated and agency is exercised in the rejection of imagination and temptation to be automated.

Overall, although ascetism has its own definition of labor in a philosophic sense, it might not be suitable to fit in to the framework of the pursued approach that tries to conduct and evaluation and later, might make certain demands from a policy perspective. In addition, there are different ascetic views in various religions and philosophies, where abstinence is their main commonality. This also makes it difficult to cover a framework that would ultimately be representative on the one hand, from a religious-ethic perspective but also from a world population perspective on the other hand, as few human individuals generally practice ascetism. However, its ideas may be suited to further contemplation in the context of labor automation.

3.5 Justification of the ethical point of reference

The ethical point of reference may be justified based on the following reasons. First, the principle of human dignity can be universally justified based on the principle of vulnerability that satisfies generalizability, and its respect represents a moral imperative. Second, the capabilities approach that serves to more specifically define a dignified life has been strengthened with normative views on the meaning of human labor for dignity. Third,

491 Moulakis 1998: 95

492 Flood 2009: 43-44

the capabilities approach is additionally recognized as a suitable and justified framework to promote social justice and reduce poverty. Fourth, the capabilities framework has been used to ethically evaluate technological developments.

4 Opportunities and risks of human labor automation from an ethical perspective

Advancements in the automation of human labor will be considered in the context of enabling humans to live a life with human dignity. Subsequently, the opportunities and risks associated with a dignified life are evaluated, encompassing several dimensions and topics. This will ground the understanding of human labor automation from an ethical perspective and facilitate the elaboration of further guidance. In alignment with the research question, the focus will be on work-related capabilities; however, other relevant capabilities will also be included when an ethical impact is identified in association with the absence of humans from work processes.

4.1 Complete replacement of manual human labor by machines

Certain industries are becoming increasingly automated, and it is possible in these industries that robots could completely replace human labor and create a value chain that is close to being run independently by machines, with only a few jobs, such as rare supervision tasks, performed by humans. This chapter evaluates these specific developments from an ethical perspective whereby human beings could become close to—or even completely—redundant.

Human labor is messy and expensive: not only might human workers be lazy or unpredictable, but they might also demand a living wage. Capitalism's aim of creating surplus value leads to the application of technology to the labor process, with machines displacing as many human workers as possible and moving those who remain into supervisory or auxiliary roles⁴⁹³. Thus, from a capitalist perspective, labor automation helps to eliminate this “human factor”, with a general suspicion toward human workers lying at the very root of the automation drive. Furthermore, in this drive toward automation, humans are not valued for their creativity or originality but are rather perceived as an organic collection of potential

493 Reeves 2016: 153

errors, in contrast to the machine's cold efficiency⁴⁹⁴. Manual labor is traditionally targeted in attempts to eliminate the human factor, and thus ethical evaluation is more essential than ever as machines are currently outperforming humans to an unprecedented extent. Perhaps more open and creative work modes will arise in the future⁴⁹⁵, giving rise to the “social individual” or even the decline of capitalist exploitation⁴⁹⁶ when less human labor is concentrated in manual jobs.

4.1.1 Manufacturing and supply chain

The effect of automation by “classical robots” is unsurprisingly concentrated in manufacturing⁴⁹⁷, and their introduction into the production process has had various effects on workers⁴⁹⁸. Robots can, for instance, eliminate harsh, unhealthy, or even dangerous tasks. A good example of this is welding in car manufacturing; this is a risky activity for workers to perform, with potentially harmful short- and long-term effects, such as irritations of the eyes, nose, or chest, or, even more seriously, pulmonary infections, heart disease, or lung cancer. The robot-based welding that is increasingly employed in car manufacturing has significantly reduced the health problems associated with human-performed welding. Moreover, thanks to AI, the procedure is now even more precise. From an ethical perspective, this represents an opportunity to promote a dignified life given that harmful working conditions substantially reduce well-being⁴⁹⁹. In that respect, automation can improve bodily health and—given that increased manual or physical labor has taken a considerable toll on human life in the past⁵⁰⁰—greater capability to life.

Meanwhile, however, several ethical issues arise in relation to the use of robots for tasks that have previously been performed by humans, as the workers who performed these tasks throughout the entire production process become increasingly redundant. This can have multiple negative impacts on the individuals affected. For instance, they could be laid off,

494 Ellul 1967

495 Smith/Anderson 2014

496 Marx/Nicolaus 1993

497 Brown 2020

498 Pham et al. 2018

499 Robone et al. 2011

500 Coenen et al. 2018

which historically has been a common practice since the nineteenth century and the industrial revolution. Salary reductions may be another negative effect, as the machine becomes an increasingly efficient competitor with the human worker. Layoffs are becoming increasingly common, despite the implementation of workers' protection measures and efforts to invest in workers' education⁵⁰¹. When a company introduces new automation technology, the management is typically unconcerned with improving workers' welfare, liberating them from dangerous labor, or enhancing their capabilities; rather, they are simply concerned with profitability, and if the human workers are rendered redundant by machines, it makes little economic sense to keep them on the payroll⁵⁰². This may jeopardize one's material control over one's environment, as income becomes scarce for humans who are directly dependent on the availability of manual jobs. Furthermore, the capability to build meaningful relationships based on mutual recognition may be at stake when the interests of management are increasingly characterized by a hunger for automation.

It is not always the case that working conditions will be improved by the use of automation technology in the context of manual work⁵⁰³. The consistent and fast pace at which robots function in warehouses may be imposed onto the conditions and the pace to which human workers need to respond. In such situations, the robot would not be serving the humans but vice versa; human staff would be increasingly bound to serve robots⁵⁰⁴. This constitutes an ethical risk whereby humans would lose control over their environment and become subject to leadership by robots⁵⁰⁵. In such cases, their work would no longer be perceived as "human", which would diminish their ability to work as humans and exercise control over their environment. For instance, an increased work pace would likely lead to fewer safety precautions and greater physical strain for workers, whereby "the machine tells the body how to work"⁵⁰⁶. The associated higher work intensity, moreover, is not compensated by higher salaries or shorter working hours. Low- and middle-skilled labor, largely concentrated in manufacturing or warehouse jobs, in that sense effectively suffer a salary reduction with the

501 Stefano 2018

502 Pham et al. 2018: 126

503 Holzer 2022

504 Selby 2017

505 Dzieza 2020

506 Denby 1971: 12; 17-19, cited in Resnikoff 2021: 38

introduction of robots⁵⁰⁷, a development that is highly problematic from an ethical perspective in terms of the capability to receive a sufficient income.

Advancing automation in the manufacturing industry through the introduction of new technologies is affecting increasing numbers of people and leading to regional mass unemployment, reducing the employment to population ratio along with workers' wages⁵⁰⁸. This has been the case particularly in former strongholds of industrialism, such as Detroit in the USA, and has created a belief that workers' destinies have been taken out of their hands, either by elites or by the technology itself⁵⁰⁹. This is fundamentally different from the automations based on technology that occurred in the postwar period, when it was largely believed that technocratic management of the economy could solve the problems of capitalism by overcoming poor working conditions. Political and social institutions no longer appear to be in charge, as is the democratic will. Corporations and executives can determine the fates of billions, supported by an efficiency creed. The new automation technologies, largely affecting manufacturing, aim to conceal labor so that it will cost less, through the use of dispassionate technics. From that perspective, for those humans who remain, industrial progress is not aligned with the improvement of working conditions; on the contrary, the rise of unremunerated labor is undoubtedly affecting increasing numbers of people. This is also exemplified by an increasing "shadow work force"⁵¹⁰, which includes temp workers who outnumber companies' full-time staff by tens of thousands. This impeded access to work illustrates the ethical risks related to the capability of political affiliation and the ability to participate in political decisions that affect one's life, which is relevant when the ability to voice deteriorating working conditions is endangered owing to the overwhelming power of corporations.

In the long term, manufacturing will have ever-reduced job opportunities with the advancement of automation technologies, and, in the process, the focus should be on the nature of work and functional description of tasks. The augmented collaborative workforce, whereby diverse technologies such as virtual reality, computer vision, and exoskeletons are used to provide a human-centric vision of manufacturing⁵¹¹, will likely have

507 Graetz/Michaels 2018

508 Acemoglu/Restrepo 2017

509 Resnikoff 2021: 191-192

510 Wakabayashi 2019

511 WEF 2022

a considerable impact on employment in the automation age, redefining relations between workers, their crafts, and their working environments. It is important that workers are able to incorporate aspects such as creativity, social skills, and emotional intelligence to avoid the dehumanizing effects that may ensue if workers' activities are subjugated to robotic behavior and work⁵¹² with these developments. This would be also relevant when workers transfer out of the industry and seek new jobs, taking advantage of the ethical opportunities brought about by the replacement of humans with machines. The ethical risks are obvious, as the augmented workforce not only denies social interaction with other humans but also significantly reduces the human factor of work. In that sense, the capability of senses, imagination, and thought must be strengthened for those workers who remain in the manual labor sector, increasing their cognitive skills and education in anticipation of the time when their job is no longer available. Thereafter, this would strengthen their capability to exercise the right to work.

In terms of supply chain, a salient feature of late capitalism is its growing reliance on logistics infrastructure to manage economic processes⁵¹³. Logistic infrastructure possesses profound circulatory powers that have a bearing on human subsistence and, most crucially, the basis for supply chain capitalism⁵¹⁴, incorporating principles such as reliance on outsourced labor, an emphasis on just-in-time delivery, faith in data-driven decision-making, and the pursuit of economies of scale⁵¹⁵. The COVID-19 pandemic provided additional potential for the automation of human labor in infrastructure, and accordingly, logistics and supply chains. This would lead to an "automated infrastructure, an all-encompassing infrastructural framework marked by primacy of virtualized transactions that promoted a mainly technocentric productive future"⁵¹⁶. Such transformations generate profound uncertainties around the future of work. In times of crisis, such as during COVID-19, the use of automation technologies improvises and reimagines economic circulations and enforces the effect of moving toward an automated infrastructure in supply chain capitalism⁵¹⁷. Automated in-

512 Pham et al. 2018: 127

513 Lin 2021

514 Tsing 2009

515 Burrington 2020

516 Lin 2021: 463

517 Lin 2019: 14-15

frastructure involves productivity in a certain self-service set-up that creates unstable economic configuration for workers and enrolls customers in platform logistics. Self-operating systems without the involvement of humans appears to be even more convenient in a crisis, and new technologies, even when unstable or unfinished, may be explored during crises to reduce labor-intensive work in logistics. Automation has therefore left numerous vocations insecure, with employees struggling to reskill in time. In a race to the bottom, technology has done more to relegate labor to the lowest value denominator in supply chains—for instance, by using gig economy workers for “pre-automation”⁵¹⁸—than to reorganize logistics for the better in terms of working conditions. This reveals a practice whereby a lack of respect for the capability to exercise the right to work threatens not only dignity but also all other capabilities, because “gig economy” workers are known to not receive a sufficient income from the work they perform⁵¹⁹.

This development has also largely affected the retail business already, with a rapidly shifting landscape: in the United States, it is anticipated that around 50 percent of the retail workforce may be automated in the coming years⁵²⁰. Retail traditionally also employs a higher percentage of women who work part-time and who may lose their jobs as automation efforts negatively impact the affected communities; this might also reinforce the gender pay gap⁵²¹. Many retailers have no clear strategy in place for their workers, and in the mid-term there may be a shift toward creating employment in fulfillment centers. Even more worryingly, the tendency shows that these new jobs are likely to be offset by job losses in other industries⁵²². In any case, the increased automation of retail positions, such as cashiers, and manual labor in the supply chain place increasing pressure on the wages of the affected workers. This poses substantial ethical risks to dignity for increasing numbers of individuals, particularly those individuals who are trying to make ends meet with those jobs, such as students or single parents.

The same may be said for low-skilled manual labor in transport, which is also highly vulnerable to automation and job replacement⁵²³. Jobs that

518 Vertesi et al. 2021

519 Zipperer et al. 2022

520 Scarano 2017

521 McKinsey 2019

522 Jones/Zipperer 2018

523 Han et al. 2019: 338-339

require problem-solving will remain in the industry; primarily supervisory roles and educational programs appear to be key in ensuring workers a future in the labor market. Moreover, autonomous driving will put drivers out of work⁵²⁴; however, autonomous driving also offers substantial ethical opportunities, particularly considering the harm caused by accidents and/or distracted driving⁵²⁵. In addition, autonomous driving could promote bodily integrity, as free movement could be enhanced for many individuals owing to lower costs, aside from the capability for life (as accidents cause numerous deaths), and thereby improve bodily health.

4.1.2 Mining

Commodity trading and, relatedly, mining has traditionally been viewed critically from an ethical perspective owing to numerous human rights violations, particularly regarding the use of child labor in developing countries⁵²⁶. Therefore, human labor automation can also have a significant impact on dignified life for of the individuals involved in these industries.

The mining industry operates in the form of global production networks that involve the peculiarities of national “space economies” and “hyper-mobility” of globalized capital⁵²⁷. This means that there is a significant discrepancy between the working situations of those who control the capital flow and those who are affected within the local communities engaging in manual production. In that regard, employment relations are geographically marked, despite the global value chain, and the spatial dimension is important in understanding the specific employment relations. In general, mining companies have been quick to adopt labor automation technology, which has affected not only simple workers but also the management, which increasingly uses automation processes to distribute work within the existing departments but also to contractors⁵²⁸. In this regard, a phenomenon similar to that of outsourcing work in the “gig economy” in manufacturing occurs, while simultaneously reducing the number of individuals employed. Owing to the lack of job alternatives in the mining region, this will reduce the capability to work as well as all other capabilities for an increasing

524 Shladover 2022

525 Talbott 2021

526 Aydin 2016; Paré/Chong 2017

527 Ellem 2015: 1-2

528 Abou-Abed 2021: 1

number of humans and their family members in these regions, as these families rely on the industry.

In essence, mining is a capital-intensive industry, and its employment creation in local regions is generally praised as a benefit to justify extraction projects⁵²⁹. However, labor substitution as a result of automation is affecting a wide range of modern mini processes, and labor replacement is expected to increase in the coming years owing to technology cost reductions. In the mining industry, just as in manufacturing and logistics, the COVID-19 pandemic led to an increased aim to rely less on human interaction for critical operational processes⁵³⁰. These developments are expected to have a substantial impact on mining communities, regions, and nations.

The automation of human labor in mining has serious consequences, particularly in relation to its capital-intensiveness, and it generates challenging scenarios for local prosperity. Lower labor demand is among the consequences, as is lower governmental revenue from the income taxes provided by the workers⁵³¹, based on the fact that mining companies are typically registered in tax havens⁵³². This is likely to increase inequality between and among cities and to prevent more people in mining regions from receiving any form of governmental support.

Several automated mining trucks may now be operated by a single worker in a city office, illustrating a new level of automation. Given this rapid evolution of automation technology, in the mid-term, mining activity will be operated and managed by fewer humans and by multiple machines and algorithms. This will have real-world implications for many mining countries and regions, including probable negative socioeconomic impacts associated with automation. However, some positive effects may also be identified, such as increased safety and the opportunity for work force diversification if educational opportunities are available.

Nonetheless, a rise in robotic productivity is more likely to negatively impact the welfare of young workers and current generations than that of the current workforce⁵³³, an impact that is also affecting mining communities. New mining operations will thus likely employ fewer people, offering fewer employment opportunities for new generations. This intergenerational

529 Paredes/Fleming-Muñoz 2021

530 Burto 2020

531 Widana 2019

532 Readhead/Lassourd 2021

533 Sachs et al. 2015

impact is alarming with respect to the future of those working in mining, raising doubts over whether there will be enough miners in the future to sustain mining towns and regions, including the families affected. In that regard, it will likely be practically impossible to establish new human settlements in association with the opening of a mine, and the modern mining industry thus requires serious social, urban, and regional planning, political deliberation, and, in particular, stakeholder consultation⁵³⁴ as the entire ecosystem that sustained governments and families in mining areas is on the verge of collapse as a result of automation. In that regard, ethical risks arise when increased automation in communities remains unmanaged—that is, when employment disappears, and no alternatives are offered.

Ethical opportunities are provided when automation leads to a reduced environmental impact in these communities, which may be seen on a global level as worldwide mining industries move toward introducing significantly more automation with the aim of enhancing productivity and safety⁵³⁵. This can be observed, for instance, in copper mines, which rank as the third most important metal for society, technology, and infrastructure; only iron and aluminum are considered more important from a mining perspective⁵³⁶. Copper extraction is expected to continue for many years, and this will have a significant impact, including in terms of greenhouse gas emissions, owing to the industry's high energy and diesel consumption. In this sense, automation can significantly support the alleviation of environmental impacts and, at the same time, enhance the safety of the human workforce⁵³⁷, particularly in terms of the potential for human toxicity, potentially reducing it to between 16 and 20 percent in the coming years. Thus, harmful emissions that damage human health may be reduced, including cancerous and non-cancerous effects, thereby increasing bodily health. Emissions can also affect animals and water distribution in the mining area⁵³⁸, offering potential opportunities from an ethical perspective. Accordingly, advancement in the automation of mining processes could increase the capability to live with nature and plants for individuals living in mining regions, given the assumption that automation is reducing the mining industry's environmental impact. In addition, given that mining is

534 Paredes/Fleming-Muñoz 2021: 193

535 Moreau et al. 2021

536 Sverdrup et al. 2014

537 Moreau et al. 2021: 1153-1154

538 Oluwoye et al. 2017

known to be dangerous, with increased death rates associated with heart disease, cancer, and unintentional injuries⁵³⁹, the capability for life may be strengthened when humans' harmful interactions with mining machinery are reduced.

4.1.3 Agriculture

For communities dependent on agricultural employment, automation will largely have a significant impact on their ecosystems⁵⁴⁰. Shifts in the agricultural value chain will lead to the availability of fewer jobs in a trajectory similar to that witnessed in the mining industry. Improved design, more capacities, and reduced costs of agricultural robotics have led to greater automation potential⁵⁴¹ in the transition from a skills-based to a digital and knowledge-driven agriculture. Automation now covers tasks such as navigating difficult terrain, identifying crops, diagnosing crop maturity, and generally operating in non-routine environments⁵⁴². In addition, the number of employees in the agricultural sector has declined radically over the past century⁵⁴³, and supervisory roles—which might involve overseeing multiple robots working in a field, for example—are becoming increasingly important⁵⁴⁴.

Generally, the agricultural sector consists of a larger percentage of individuals whose jobs are at risk as a result of automation⁵⁴⁵. This would result in increased competition in cases of displacement, where similarly skilled workers fight for the relatively few alternative jobs available in the region. Thin labor markets mean that alternative employment within the same region is difficult to find and unemployment necessarily leads to growing mobility⁵⁴⁶. The related displacement that arises then usually results in difficult re-market entry at the worker's new location, so individuals whose jobs are at risk of automation face potentially long commutes, or may even have to migrate⁵⁴⁷. Those who will not be able to relocate, such as older

539 Arif/Adeyemi 2020

540 Rijnks et al. 2022

541 Graetz/Michaels 2018

542 Legun/Burch 2021

543 Autor 2014; Schmitz/Moss 2015

544 Werkheiser 2018; Bechar/Vigneault 2016

545 Frey/Osborne 2017; Nedelkoska/Quintini 2018

546 Findlay et al. 2000; Stockdale 2006

547 Hoogstra et al. 2017

people, might face a so-called “spatial trap”⁵⁴⁸, defined by low growth rates and lack of opportunities in the specific agricultural region. Analogous to the mining sector, many individuals in these regions will not be able to exercise their right to work as a result of such developments.

In the past, rural regions have faced more challenges in applying the infrastructure and technology that would allow for job automation⁵⁴⁹. However, recent developments in robotics have incorporated more remote-controlled and self-running technology or infrastructure⁵⁵⁰ and this, in tandem with the lower costs of robots⁵⁵¹, means that automation in agriculture is advancing. Machine learning concepts have significantly improved the automation of agricultural tasks⁵⁵² by enhancing automatic feature extraction, while the adaptive nature of deep learning helps to achieve greater human-level accuracy in various agricultural applications. Prominent examples include plant disease detection and classification, weed/crop discrimination, fruit counting, land cover classification, and crop or plant recognition. In many of these activities, the automation technology outperforms human labor—for example, plant/leaves recognition and classification may be performed between 30 and 270 times faster by machines than by humans⁵⁵³. This illustrates the vast potential associated with replacing humans with machines, and even larger impacts from an employment perspective are expected in terms of harvesting activities, which have traditionally required considerable human labor⁵⁵⁴. Likewise, in terms of forest harvesting, humans will increasingly take on monitoring roles for the sake of cost-effectiveness as part of so-called teleoperation⁵⁵⁵. Increased data will enable the more effective use of farm equipment and can also be shared with centralized servers⁵⁵⁶ to optimize resources and expenditure⁵⁵⁷ through automation. For instance, autonomous tractors and harvesters, which are GPS-enabled and teleoperated⁵⁵⁸, might considerably reduce the need for low-skilled labor while increasing the need for skilled laborers to operate

548 Iammarino et al. 2019

549 Salemink et al. 2017

550 Legun/Burch 2021

551 Greatz/Michaels 2018

552 Saleem et al. 2021

553 Baweja et al. 2018

554 Visser/Okey 2021; Colmenero-Martinez et al. 2018

555 Visser/Okey 2021

556 Paul et al. 2019

557 Himesh et al. 2018

558 De-An et al. 2011; Redit et al. 2016; Kayacan et al. 2015

and monitor these machines. However, even this can growingly be performed remotely.

In addition, automation across the entire food production and agriculture supply chain could significantly reduce the need for low-skilled human labor⁵⁵⁹, with food handling, processing, and packaging performed by robots. This also relates to the use of automated milking stations and dairies⁵⁶⁰. Autonomous trucks for haulage might also affect jobs and tasks for farmers or in agriculture⁵⁶¹. Furthermore, as new jobs are created, for example in building and maintaining robots, these jobs will not be available in the same locations as those that were eliminated. Moreover, the introduction of robots is often connected to the significant deskilling of labor, and machines' increased autonomy is often connected to a loss of autonomy for those who supervise them⁵⁶² as robots become more independent and better equipped with information and data. Moreover, robots often put employees, even those in supervisory roles, under greater surveillance owing to their data-gathering capacities and associated automation systems⁵⁶³ as employers have greater power to dictate wages and conditions⁵⁶⁴.

In developed countries, typically in the Global North, which have higher levels of non-farming employment and agricultural mechanization, automation benefits large-scale farming⁵⁶⁵. In transition economies, larger-scale farming backed by automation has become an effective instrument with which to resolve land fragmentation, enhance food security, and counteract rural decline⁵⁶⁶. From an ethical perspective, these global regions benefit from automation by enhancing the capability of bodily health through greater food security, increased interactions with other species, and—owing to the revitalizations of rural decline with new jobs—strengthening the ability to exercise the right to work.

In developing countries, by contrast, where large populations still derive their income from agricultural activities rather than the service sector⁵⁶⁷ the impact of automated large-scale farming may be more detrimental. Farmers

559 Caldwell 2013

560 Halloway et al. 2014; Schewe/Stuart 2015; Hansen 2015; Bergman/Rabinowicz 2013

561 Meech/Parreira 2011

562 Carr 2015

563 Stefano 2018

564 Sparrow/Howard 2021: 824

565 Li et al. 2021: 8

566 Juergenson 2016; Long et al. 2019; Zhou et al. 2019, 2020

567 Chinoracký et al. 2019

in the Global South may easily be outcompeted in particular markets if robots are successfully adopted in wealthier countries⁵⁶⁸. This will lead to some groups, such as farmers in wealthy Northern nations, being advantaged over their peers from the Global South⁵⁶⁹, as the shift from traditional family-based farming to more corporate, large-scale farming⁵⁷⁰ comes with an increased necessity for capital.

Thus, capital is important⁵⁷¹ in making automation in agriculture beneficial⁵⁷². Currently, farm equipment manufacturers are focused on automating the largest and most expensive products; therefore, cheaper, mobile robots that would be applicable to smaller farms are of little interest. This development may lead to the disappearance of smaller enterprises, and the concentration of ownership under large-scale global enterprises⁵⁷³. Moreover, automated agriculture would likely enhance the general well-being of animals in intensive livestock facilities by optimizing slaughter practices and improving individual animal treatment⁵⁷⁴, thereby supporting the capability of other species. This would be beneficial from an ethical standpoint.

Nevertheless, although robots are becoming an integral aspect of modern farming, it is not realistic to expect an entirely automated farming system without human involvement in the near future⁵⁷⁵. Nonetheless, modern farms' operational processes may be expected to generate lower expenses with reduced dependence on the human labor force, and the nature of farming will likely change from traditional field activists to high-tech industrial tasks that attract investors, professional engineers, and companies⁵⁷⁶. Nonetheless, this development will probably impact the working conditions of those few who are competing for jobs in agricultural regions owing to employers' enhanced power, and this constitutes a risk, particularly in the Global South.

Aside from the eradication of jobs, however, automation also has positive implications for improved food production, including in the Global South,

568 Fleming et al. 2018

569 Sparrow/Howard 2021: 823-824

570 Ramin Shamshiri et al. 2018b: 7

571 Sparrow/Howard 2021: 821

572 Bergman/Rabinowicz 2013

573 Key 2019; Sheng/Chancellor 2019

574 Jukan et al. 2017

575 Ramin Shamshiri et al. 2018b

576 Duncan et al. 2021

and therefore for nutrition opportunities worldwide, thus representing an ethical opportunity by improving bodily health on a global scale. In that sense, it can not only help to make work safer for those who remain in the agricultural sector, but can also help limit the squandering of agricultural resources⁵⁷⁷. There is also an argument that automation is vital, as it is necessary to increase food production by 60 percent by 2050 to satisfy global food security demands: the COVID-19 pandemic and the growing global population constitute key examples⁵⁷⁸ of uncertainties in this regard. It is thus crucial that food production and distribution systems be improved to combat hunger and address the double burden of malnutrition, whereby smart vertical farming and other automation technologies could help. The employment of automation technology for food production so that the maximum number of crops can be attained while reducing human effort is relevant here.

Moreover, more people are now living in built-up urban spaces that require a supply of fresh and high-quality food⁵⁷⁹. Therefore, as land resources remain constant with more people living in urban areas, there is an ever-increasing need to improve agricultural productivity, and automation can support all parts of the food supply chain, from agriculture to transportation⁵⁸⁰. Another ethical opportunity offered by automation is the more efficient handling of resources and byproducts such as water and wastewater, oil and gas⁵⁸¹, which would enable more individuals in agricultural regions to enjoy a healthy natural environment. Specific applications include water control and automated watering, robots/drones for spraying pesticides and plowing, harvesting machinery, or machines for monitoring health conditions⁵⁸². Accordingly, automated farming has the advantage of reducing the use of water, pesticides, herbicides, and fertilizers, as well as facilitating production for longer periods of the year with increased control over food safety and biosecurity. Moreover, the use of automation technologies could result in improved washing procedures with fewer infectious diseases from bacteria and pathogens⁵⁸³. Automated farming can thereby also positively impact bodily health and the environment (i.e.,

577 Bac et al. 2014; Visser/Okey 2021

578 Saad et al. 2021

579 Lezoche et al. 2020

580 Lu et al. 2020; Ramin Shamshiri et al. 2018a

581 Saad et al. 2021: 2

582 Gorijan et al. 2022; Ju/Son 2018; IDTechEx 2018; Lakhier et al. 2018

583 Saad et al. 2021; Al-Kodmany 2018

other species). Another example is the replacement of heavy tractors and machinery that cause soil fertility to deteriorate over time⁵⁸⁴, which is a serious threat in Europe at least, as compacted soil requires more than a decade of expensive treatment to recover its fertility. This may be resolved by using small vehicles, guided by a human operator, whereby technology can help a single farmer to operate a team of automated vehicles as part of a human–robot collaboration. In addition, automation has led to greater control over temperature, humidity, and fertilizer in agriculture in the context of high-tech controlled environment agriculture systems⁵⁸⁵. This could also improve food quality by improving the sustainability, nutrition, and locality of food. However, consumer perceptions appear to play a significant role in decisions to pursue specific types of sustainability farming and ethically beneficial operating models, as they largely rely on value-oriented food consumers to meet economic, social, and environmental sustainability goals⁵⁸⁶.

Nevertheless, ethical risks may arise when food production and smart farming fail to take into account the situation in the specific agricultural community, as with fewer employment opportunities as a result of automation, issues such as water shortages, lack of cultivable land, and food with high chemical residues may occur when environmental standards are not adequately met⁵⁸⁷. The potential for robots to affect this dimension depends on economic and political choices⁵⁸⁸ regulating the degree of human involvement—for instance, the application of pesticides could easily spiral out of control if not carefully monitored by human workers. In addition, soil compaction may become an issue when human workers are replaced by heavier robots, potentially exacerbating the current situation in which heavy machinery already negatively affects soil, as discussed above. Moreover, the outcome of precision agriculture may be regarded as highly dependent on economies of scale when robots are used, where in the short term only marginal improvements are expected⁵⁸⁹ owing to the currently poorly performing available robots in unstructured environments.

584 Ramin Shamshiri et al. 2018: 8

585 Broad et al. 2012

586 Vågsholm et al. 2020; Sackett et al. 2013

587 Baerdemaeker 2013

588 Sparrow/Howard 2021

589 Schimmelpennig 2016; Sheng et al. 2015; Sheng/Chancellor 2019; Key 2019

For communities in agricultural areas, the social and cultural implications of automation should not be underestimated, as they can also result in significant ethical challenges. Rural populations may be affected heavily in the long-term in terms of their social fabric⁵⁹⁰ when their jobs vanish only to be recreated elsewhere⁵⁹¹ as teleoperated jobs that could easily be executed by employees who are situated thousands of kilometers away⁵⁹² and who have no connection with the local population. In that sense, significant demographic shifts may be anticipated.

In addition, inequalities in the distribution of wealth in rural areas may rise owing to the further consolidation of land in the agricultural sector. These class-related changes may cause social decay connected to underemployment⁵⁹³ and diminish the quality of life in rural areas. This stands in complete contrast to the positive developments that might ensue for those who benefit from the application and teleoperation of bots—for example, increased flexibility of work, reduced labor intensity, or more family time⁵⁹⁴.

Automation also affects the relationship between nature and humans and how they think about food and farming⁵⁹⁵, which might fundamentally alter local nutrition practices⁵⁹⁶, thereby endangering the rural individual's self-image and identity associated with living off the land⁵⁹⁷ and the related work in the subsistence economy. This would endanger several capabilities of individuals in these communities: first, their traditions, which have been passed on for generations over hundreds of years are regarded as “truly human”, as the activities directly involve their culture, creativity, or religious practices. In this regard, the capability to senses, imagination, and thought is at stake for individuals in these communities. Second, emotions would be endangered as a result of the threat to the basic human interaction that guides the development of individuals in their formative years. Third, the planning of people's lives become challenging, when the fundamental aspects of their everyday lives and identities, even food and nutrition, are at stake.

590 Sparrow/Howard 2021: 825-826

591 Rotz et al. 2019

592 Cheein et al. 2013

593 Howard 2017; Fineman 1987; Kates et al. 1990

594 Schewe/Stuart 2015; Stræte et al. 2017; Mathjis 2004

595 Sparrow/Howard 2021: 825-826

596 Horrigan et al. 2002

597 Stock/Forney 2014

In certain regions, this may widen the disconnect between rural communities and other areas⁵⁹⁸, analogous to mining. Another issue with automation in agriculture coheres around the existing gender gap in employment, which may become increased⁵⁹⁹ as new jobs favor people with technical backgrounds, a group traditionally dominated by males⁶⁰⁰. Women might thus become even more excluded from the workforce in the agricultural sector, a violation of the capability to affiliation in terms of non-discrimination. Regarding the deployment of agricultural bots, legal guidance as to what types of work will still require human supervision is lacking⁶⁰¹. There is a substantial ethical risk that rural society will be left behind by the introduction of automation technologies without including the broadest possible community into the discussion⁶⁰². These discussions are essential to combating social inequality and forced migration through joblessness, which could further weaken the social and political situation in these communities when traditional manual labor becomes replaced.

To summarize, the complete replacement of human labor comes with diverse consequences from an ethical perspective. On the one hand, opportunities arise for bodily health and capability to life, when dangerous tasks can be delegated to machines and no longer need to be performed by humans. In addition, opportunities arise through improvements in food production and more efficient and environmentally friendly processes, which also supports the well-being of animals and nature. On the other hand, challenges arise as individuals increasingly lose their access to work, as regions that are economically dependent on mining or agriculture risk being left behind. Moreover, if the deployment of automation technologies is not appropriately guided by environmental norms, it may even be harmful. In addition, as humans are increasingly obliged to compete with robots, this may negatively impact the working conditions of those who remain, particularly when labor standard enforcement is not possible in the affected regions.

598 Bell et al. 2015; Klerkx et al. 2019: 4; Werkheiser 2018: 186

599 Liepins 2009; Pini 2022

600 Smith 2011

601 Basu et al. 2020

602 Eastwood et al. 2019; Rose/Chilvers 2018

4.2 Education and skills in the context of advancing automation

Access to education plays an important role as part of the ethical point of reference with respect to a dignified life, as having the relevant skills in times of digital transformation is increasingly becoming the decisive factor in the ability to access paid work. In addition, it is an integral part of the capability to senses, imagination, and thought to become truly human. Moreover, educating oneself may also be perceived as work—for example, if paid work is no longer available. The first part of this section focuses primarily on a labor market or employer perspective, assessing ethical risks and opportunities when the labor market changes as a result of advancing automation with reduced job availability and higher expectations toward employees in terms of education and skills. The second part focuses on the work of educators and the impact of new forms of education.

4.2.1 Labor market requirements and access to work

The current generation of learners faces unparalleled uncertainty in terms of how they anticipate and prepare for emerging skills and jobs, owing to the impact of automation and constant technological disruptions⁶⁰³. Skills mismatches are increasing to the point that many graduates are unable to get jobs, while employers are often unable to fill vacancies owing to the changing nature of skills and jobs. The current conventional schooling systems, which were founded around 100–150 years ago to enhance the efficiency of the first and second industrial revolutions, are no longer adequate for people to thrive and prosper in today's world, which is increasingly driven by AI, automation, and innovation. This illustrates that the need for new skill sets in light of digital transformation and automation is relatively recent, and different contributors will be discussed below with respect to the skill sets that will be required in the future labor market. A general consensus in the associated discussion is identified and subsequently assessed from an ethical perspective. The COVID-19 pandemic intensified the influence of digital technologies on human labor. As emphasized above, access to technology enhances productivity, and the use of digital technologies is closely related to the ability to adapt to new technologies. Below, certain approaches to the required skills are discussed, outlining the generic skills that employers in the future labor market may demand owing to their rele-

603 Panth/Maclean 2020: 1-5

vance to the ability to exercise one's right to work as part of the capability to having control over one's environment.

For instance, four different skill clusters have been outlined identified⁶⁰⁴ as likely to become increasingly salient owing to the changing nature of work. The first cluster comprises “change-handling skills”, which include a mindset of adaptability, flexibility, and openness to change. They also relate to cognitive skills as an important aspect of adaptability and the capacity to “grow alongside the technology advances”. The second cluster contains skills for continuous improvement, among them curiosity, enthusiasm, and lifelong learning, with enthusiasm and lifelong learning posing a mutual dependency complemented by curiosity. The third skill cluster focuses on interaction skills that include empathy, communication, and collaboration. All of these also reflect important leadership qualities that become even more important in light of the increasing diversity in teams with different educational backgrounds. The ability to conduct meaningful conversations and communicate value propositions are becoming even more salient, and teamwork is undergoing a “(...) new paradigm away from the classical linear and hierarchic functions to increasingly flat hierarchies”. The fourth and final skill cluster is defined as “out-of-the-box thinking” skills that include innovation capacity, creativity, and critical thinking. Creativity in this sense means “to escape the borders of the norms and their structures”, as only applying something in a different context that also can be part of creativity can be taken over by automated processes. Another crucial factor here is critical thinking aimed at challenging existing processes and routines and potentially contributing to becoming an early mover with respect to changes in the market environment. Similar competences are defined as “twenty-first century skills”⁶⁰⁵ at work and primarily include soft skills, such as “critical thinking, creativity, communication, collaboration, problem-solving, cross-cultural competencies, work ethic, empathy and social, emotional and digital intelligences”, summarized as “multiple intelligence”. There tends to be a general mindset shift⁶⁰⁶ from an employer and social partner perspective, whereby a “skills-oriented learning (...) instead of qualifications-focused education upfront” is required and key contributions on their part are necessary to provide broad and transferable upskilling or training opportunities. All these skills outline how education

604 Danuser/Kendzia 2019: 470-471

605 Panth/Maclean 2020: 3

606 Schleicher 2018

increasingly relates not only to the capability to senses, imagination, and thought, but also to emotions and practical reason, when critical thinking becomes more important.

Talent shortages may impact high-skilled labor owing to automation⁶⁰⁷. The activities of certain professions will change substantially as a result of digitization and automation, with new job profiles becoming radically different. Correspondingly, humans will increasingly perform jobs that are not easily automatable, and communication technology will shape the nature of jobs and their handling. Further aspects of this dimension are discussed in the section below on the automation of communication. From that perspective, high-skilled jobs will increasingly demand high-level cognitive and complex skill sets that include advanced written and oral expression capacities, reasoning, and complex problem-solving. This leads directly to the significance of social interactions and adaptation skills. Correspondingly, social skills, such as teamwork and communication skills, may constitute one of the future labor market's core demands. Such skills are needed irrespective of whether tasks change in the light of new technologies and are aligned with the evolving importance of soft skills, even in technology-related jobs.

Similarly, considering the goal of a thriving digital economy⁶⁰⁸, it is no longer sufficient to have just IT or technology-related skills, and other complementary skills are necessary. These additional skills range from good literacy to socio-emotional skills to facilitate collaborative and flexible working. In this respect, generic skills are required to use digital technologies with “soft skills, such as leadership, communication, and teamwork skills, required for the expanding number of opportunities for IT-enabled collaborative work”.

Automation can not only alter the types of jobs available but also the number and perceived value⁶⁰⁹ of jobs and work. Replacing workers' routines, machines can create a comparative advantage with employees who possess the relevant soft skills, such as problem-solving, leadership, emotional intelligence, empathy, and creativity. Workers who perform tasks that cannot be “cracked” by automation become increasingly critical by virtue of their creativity, adaptability, collaboration, innovation, imagination, and design skills. According to this study, employers will prioritize such skills.

607 Kofler et al. 2020: 35-51

608 OECD 2016

609 PwC 2018: 30-31

Maximizing the benefits of automation complemented by these skills is an ongoing goal of business leaders worldwide, as a global CEO survey revealed⁶¹⁰.

Other impacts relating to skills in the context of advancing automation may be measured in terms of graduate employability⁶¹¹. This also provides certain indications regarding the availability of paid jobs in the future. Although employability is a complex and vague concept, this perspective outlines “key transferable soft skills” and competencies that enhance employability: professionalism, reliability, the ability to cope with uncertainty and pressure, to plan and think strategically, to communicate and interact with others, either in teams or networking, good written and verbal communication skills, information and communication technology skills, creativity and self-confidence, good self-management and time management skills, and a willingness to learn and accept responsibility. These soft business-related skills and competencies tend to be remarkably homogenous in terms of employers’ requirements and are recognized as important in the various studies mentioned so far.

Likewise, the European Union (EU) in the study “A new Skills Agenda for Europe”⁶¹² reveals the types of skills that might be required in the future from a market perspective. The EU has proposed new indicators of digital competence with its Digital Agenda for Europe (DAE) and a methodology of digital skills was developed by Eurostat in 2015. Those are just a few activities based on the acknowledgment of the European Parliament in 2006, which defined digital competencies as “essential”. Digital skills that will be particularly relevant for the future include the following: the ability to organize relevant digital information, communicate, or interact in digital environments (for example with co-workers); problem-solving and software handling that involves the ability to create, edit and re-elaborate new content; and the ability to produce media outputs as well as programming. Further skills that are mentioned include entrepreneurship, language competencies, and a sense of initiative when it comes to employers’ needs in the digital workspace or future labor market. The EU study additionally includes indicators of training and upskilling that relate to the field of lifelong learning.

610 PwC 2018

611 Andrews/Higson 2008: 411-414

612 Soldi, et al. 2016: 11-15

The ILO⁶¹³ discusses the issue in a report about digitization and skills systems. Future qualifications and skills are expected to encompass both technical and personal aspects⁶¹⁴. From a technical standpoint, IT competence, data analytics, statistical knowledge, organizational and processual understanding, and the ability to interact with modern interfaces are imperative. The study reveals that German and American industries, for example, consider the following personal skills to be essential: self- and time-management, adaptability/ability to change, teamwork abilities, social and communication skills, continuous improvement, and lifelong learning. Furthermore, other skills are recommended but not mandatory (“should”), among them an awareness of IT security and data protection protocols, as well as general interdisciplinary knowledge about technologies.

The Future of Jobs 2020 report⁶¹⁵ highlights the top 15 skills predicted for 2025. The top 10 comprise (in descending order of importance) of, for example: analytical thinking and innovation, active learning, problem-solving, creativity, leadership and social influence, technology use (including monitoring, control, design, and programming), and reasoning. An interesting outcome of the study is the ranking of the top skills compared with the previous years (2020 and 2019). Soft skills, such as writing, strategy, mindfulness, meditation, gratitude, or listening, are becoming increasingly important, whereas technical competencies, such as Python programming, deep learning, or algorithms are declining in importance. The results cover the in-focus or required skills for both employed and unemployed individuals. Nevertheless, for those who are unemployed, Python programming remains the top required skill, indicating a persistent market need for such technological acumen. This may change, however, as the considerable decline in knowledge about artificial neural networks, regression, or deep learning for 2020 indicates. In general, it appears that the technical skills required by employers are subject to rapid change.

A similar view is expressed in a publication about the fourth industrial revolution⁶¹⁶. Creative and social skills are “low-risk jobs in terms of automation”. However, those jobs can also change. For example, creative writing may be affected by automated narrative generation whereby sophisticated algorithms can create narratives tailored to particular audiences. In

613 ILO 2020: 29

614 Gehrke et al. 2015

615 WEF 2020: 36-39

616 Schwab 2016: 43-48

an experiment by the *New York Times*, readers were unable to differentiate texts written by a robot from those written by a human. Therefore, for all stakeholders and people seeking paid work (i.e., the vast majority of humanity), the ability to anticipate future employment trends and required skills becomes a critical survival mechanism. These trends may vary in the short term according to industry and geography. However, requirements for problem-solving, social, and system skills are generally on the rise, whereas physical abilities or content skills appear to be declining in importance.

Consideration of the various parties' positions clearly indicates a certain development or compromise between the discussed positions of academic research, institutions, companies, and governmental bodies. Soft skills are generally recognized as increasing in importance in connection with the digital and technological advancements, in which the increased automation of human labor plays a crucial role. Nevertheless, adaptability is also necessary and can encompass technical skills in response to the demands of technology and the connected market. Interestingly, none of the parties are particularly espousing a specific technology that might represent an important future skill set, attesting to the rapidly changing relevance and short-term applicability of tools and a dynamic that is evolving as a result of swift replacements on the market. In this respect, this also influences whether labor is demanded for the referring tools. Only a few studies⁶¹⁷ to date have included specific technologies in their position or research, indicating that it is rare to rely too heavily on the success of specific technologies (such as AI and robotics). The results of the WEF report also showcase how demand for technologies that were highly relevant the previous year can rapidly decline from a labor market perspective. This is also applicable in the context of automation-supporting technologies that embody different kinds of digital tools.

In general, automation as part of digital transformation can affect the capacity for human achievement in workplace⁶¹⁸. Achievements here may be defined as coordinated human activity in such a way that those outcomes are linked to the efforts of individual human agents. Achievement may be part of the above definition of meaningful labor, particularly given that the linking of efforts can arouse a certain pride within an individual. Having the capacity in life to have achievements appears to be part of a desire when

617 e.g., WEF 2020

618 Danaher/Nyholm 2021

it comes to workplace necessities, represented in the capability to develop mutually recognized working relations. Achievements may be linked to identity and self-worth⁶¹⁹, and the lack of opportunities for achievements in the workplace must be considered.

If human workers are wholly replaced by a machine, the workplace will clearly be devoid of any human achievement⁶²⁰. This negates the very possibility of achievement, and while other talent outlets have yet to emerge, humans are currently interacting and collaborating with machines in the pursuit of achievement.

The developments and studies mentioned above indicate that soft skills may be regarded as permanent in the context of demand from the labor market, as technical skills tend to change rapidly and become quickly outdated. These changes have accelerated considerably with current technological advances. The consideration of soft skills is even more relevant, because they seem *prima facie* harder to automate and are especially relevant for human beings (of course, this may change if AI chatbots are imbued with “soft skills”). In this context, certain traditional soft skills can also be automated (such as writing, as illustrated by the *New York Times* example cited above).

To summarize, problem-solving, creativity and critical thinking, and teamwork or social skills were emphasized as relevant in all of the accounts evaluated. This reflects ethical opportunities, when automation requires higher levels of education for those who are able to stay in the labor market and access education, since the required soft skills not only enhance access to work as an aspect of control over one’s environment capability and ability to work as a human alongside other humans but also support the development of capabilities such as sense, imagination, thought, emotions, and practical reason, all of which are related to these capabilities. This demonstrates that skill set requirements increasingly prioritize skills that transcend specific work processes to interact with other capabilities, such as emotional intelligence or doing this in a truly human way which distinguishes the human even more when competing against the machine. From an ethical perspective, the evolution of these skill sets reveals an increasingly demanding labor market, in which labor that involves manual work is becoming obsolete. Mental or cognitive abilities become critical which could support the capability to bodily health when, for example, awareness for mental health is improved. Nonetheless, these skills are always relevant

619 Smides et al. 2020

620 Danaher/Nyholm 2021: 232

in interactions with technology in which only a certain group stands to benefit from improved education—namely, those who are still able to work.

In this regard, as the labor market is rapidly changing always faster and required educational skill sets might change faster with this, ethical risks continue to emerge. Verification of educational level will likely become increasingly important as the labor market for the highly educated is becoming increasingly narrow and competitive in tandem with greater demand as manual labor becomes scarce, forcing many workers to invest more in education. This is linked to an ever-growing pool of potential candidates that may or may not be able to satisfy the requirements for a given job. The future labor market will thus likely become more unstable, which poses challenges from an ethical perspective. Correspondingly, learning abilities might decline in older job candidates. Thus, mental and emotional aspects may be threatened by fear and anxiety when jobs and job availability are constantly under scrutiny. In this sense, “automation anxiety”⁶²¹ poses a considerable risk. Correspondingly, the job automation likelihood has been linked with workers’ unfavorable health outcomes⁶²² and poorer job security as a result of increased exposure to automation risk, leading to negative health outcomes⁶²³. Moreover, the ability to exercise practical reason is increasingly threatened by automation when it is work related, as in the capability to control over one’s environment. The rapidly changing labor market can make it difficult for employees to identify with their work and find mutual values with their colleagues. This also affects the meaningfulness of relationships with other workers, which are becoming more short-term and labor market-oriented as professions and jobs undergo changes, as team members may be shuffled among teams while becoming increasingly project-based in an agile working environment⁶²⁴. In addition, the capability to life covers the “the idea that a human life can be understood as an unfolding story, displaying a kind of unity, analogous to narrative unity. We can view the moments of our life as a meaningful whole, something that we can make sense of”⁶²⁵. In the narrative of a human life, work plays an important role as a key means by which people may find meaning. A constantly changing labor market and the alteration

621 Estlund 2022

622 Cheng et al. 2020

623 Patel et al. 2018

624 Maheshwari 2019

625 Jecker 2021a: 28

of professional profiles can cause stress from the perspective of the “meaningful whole”. Human identity can also be affected if the automation of labor obliges humans to continually change their narrative unity. Moreover, practical reason, which relates to a “person’s ability to reflect on and choose a plan of life that expresses authentic values and ends”⁶²⁶ may be negatively affected as automation may result in the frequent alteration of career plans in terms of an unsafe labor market, with a direct impact on work values and ends.

For those who are educated and in receipt of high salaries as a result of their high productivity levels, automation of labor may reduce working hours and thereby lead to increased free time and more recreational opportunities. Moreover, the quality of recreational activities will increase if the demands of physical work are alleviated. Given technology’s ability to enhance productivity, automation may free up time for workers and thereby enhance their opportunities for recreation.

To conclude, education is crucial in that it supports not only access to paid work but also supports all other capabilities in that context, because without work, most people will find the other capabilities difficult to fulfill without any income. In addition, promoting these automation-complementing skill formations is key in reducing wage equality⁶²⁷, which in turn promotes freedom of political expression. This emphasizes the importance of an adequate education policy that takes into account automation’s ability to reduce manual labor while increasing the importance of skills relating to the senses, imagination, and thought. Their relevance on the labor market has been thoroughly discussed above. In this regard, automation of manual labor presents an ethical opportunity for this capability to enhance access to education, as this simultaneously elevates “truly human” skills. In addition, higher education generates increased opportunities to use one’s mind creatively in political and artistic expression. Furthermore, as advanced education tends to improve health and well-being⁶²⁸, the focus on human skills as a result of automation can lead to a reduction in physical or mental pain and enhanced pleasurable experiences.

626 *ibid.*: 30

627 Bentaouet Kattan et al. 2021

628 Zajacova et al. 2020

4.2.2 New ways of education

Automation has affected education by altering the ways in which knowledge is provided and thereby changing the nature of the work in which education professionals engage. Access to education, as an important factor for enabling capabilities and labor market access, is crucial from an ethical perspective, and automation can generate opportunities by facilitating human development while also representing a risk, if the pace of the required education is too high with too few jobs available (as outlined in the section above) or if education is becoming increasingly biased through the influence of automation technologies. Nevertheless, the threat of complete automation of the teacher profession is comparatively low⁶²⁹. Automation technologies such as AI are “reasonable to expect that the recent advances (...) will have profound impacts on (...) competence requirements, as well as in learning and teaching practices” and “it may also enable new ways of teaching and learning”⁶³⁰. In addition, the increased interconnectedness facilitated by education platforms may result in global classrooms⁶³¹, eliminating certain differences in educational standards, which would represent an ethical opportunity in terms of access to knowledge on condition that certain groups are not discriminated against, as they have been in the past⁶³². The capability for senses, imagination, and thought may thus be enhanced and adequate education may be a possibility for more individuals, particularly if the education costs are reduced thanks to automation technologies.

Correspondingly, in its “Beijing Consensus on Artificial Intelligence and Education”, UNESCO⁶³³ articulated the potential to address educational challenges and innovate teaching and learning, with an emphasis on ensuring that the core principles of inclusion and equity are respected. The consensus calls for a human-centered approach to AI, whereby AI’s role is redefined to address inequalities in terms of access to “knowledge, research and the diversity of cultural expressions and to ensure AI does not widen the technological divides within and between countries”, stating that there must be a promise of “AI for all”. In that sense, it calls for the inclusion

629 Study International 2020

630 Cabrera et al 2018: 2

631 Malik et al. 2019: 408

632 Hacker 2018

633 UNESCO 2019

of AI in planning education policies by considering certain uses of AI—for example, in education management and delivery, to empower teaching and teachers, for learning and learning assessment, and to develop values and skills for life and work in the AI era while offering lifelong learning opportunities for all. These opportunities should also promote the equitable and inclusive use of AI in education. From a monitoring perspective, UNESCO calls for measures to ensure ethical, transparent, and auditable use of education data and algorithms. In that respect, plenty of ethical opportunities with educational work automation seem to exist, while at the same time, access to education and biases in AI systems are a risk to use those potentials. Nonetheless, the technical perspective must be considered, given that the use of automation in education has accelerated in recent years, with the pace becoming even faster as a result of the COVID-19 pandemic⁶³⁴.

Initially, AI took the form of computer technologies for education before transitioning to web-based and online intelligent education systems and finally evolving to the use of humanoid robots and web-based chatbots to perform instructor duties and functions, potentially with or without a personal human operator on the other side⁶³⁵. This allows teachers and instructors to more efficiently and effectively perform administrative roles, such as reviewing and grading, thereby allowing them to deliver higher quality teaching. Another advantage of using automation technologies, such as machine learning, is the increased customization and personalization that they facilitate, aligning the curriculum and content with student needs. However, risks may emerge when AI is also biased, as the distribution of information—even within academic institutions of higher learning—is directed by technology corporations, who monopolize control over the relevant algorithms⁶³⁶. Moreover, for teachers to assume their new role in education, they must focus on conveying other skill factors, such as creativity, imagination, innovation, and skills that machines cannot perform. Educational policies must increasingly consider humans who are teaching other humans “human”-specific values, as other tasks, such as administrative work, can be increasingly automated. This is particularly crucial given that schools play an important role in students’ socialization, as environments in which human associations form and influence cognitive development. The use of

634 Saadé et al. 2020

635 Chen et al. 2020: 75264

636 Fahimirad 2018: 114-115

automation technologies in educational work can thus jeopardize children's healthy maturation processes, particularly if AI is increasingly permitted to determine what content is covered. Moreover, if AI is permitted to influence examination content, a lack of accountability may ensue when test results⁶³⁷ are based on algorithms. This may generate fear and anxiety at the prospect of a coldly rational machine that increasingly serves as a gatekeeper and "instance of authority". In addition, fewer instances of human recognition and social interaction may hinder the establishment of empathy, as school children will be exposed to the virtual world not only in their free time through social media but now also in their compulsory schooling, which may reinforce the effect of, for example, the inability to live in relation to the world of nature when playing with others. This poses a risk from an ethical perspective.

As mentioned above, automation technology is unlikely to lead to job losses for teachers in the near future; nevertheless, as robots become increasingly sophisticated, this may exert pressure on teachers to improve their efficiency, potentially diminishing their collective bargaining rights⁶³⁸. Moreover, teachers may become deskilled as work becomes increasingly automated, with robots making decisions and teaching classes. This is also relevant to the political sphere, as automation technologies may lead to a decline in political awareness when the nature of work is subject to change and identification with one's specific profession declines. This could go on to affect the collective bargaining power of specific professional groups, such as public-school teachers, a development that would be problematic from an ethical standpoint.

Teaching in higher education institutions will also necessitate a reconsideration of the teacher's role, given the displacement of jobs by advancing automation⁶³⁹. For example, the rise of software designed to detect plagiarism raises the question of agenda-setting with regard to teaching and learning. Given that technology corporations have a quasi-monopoly on how they use data, their impact on how research is conducted is increasing. This highlights the importance of privacy, since these corporations could use plagiarism software to overhaul higher educations by stealing research and investigation results in advance. Furthermore, AI software based on complex algorithms may assume responsibility for certain teaching practice

637 Li/Wang 2020: 591

638 Dandalt 2021

639 Popenici/Kerr 2017: 10-11

tasks in higher education, and programmers may design such software under the influence of their own agendas and biases. Universities must be able to remain independent of these influences in maintaining civilization and promoting knowledge and wisdom⁶⁴⁰. This is also relevant, as automated decision-making (ADM) technologies are increasingly instrumental in preselecting job candidates, deeming students to be “failing”, and, crucially, allocating school resources⁶⁴¹.

The already fragmented academic labor market in higher education may be affected by automation as the acceptance of large student numbers while keeping faculty numbers static is becoming increasingly common⁶⁴². In that regard, the ethical risk occurs if critical and creative agent role of the teacher is endangered when automation increasingly takes over the process of deliberation, whereby the teacher begins to adapt to technology rather than vice versa. The standardization of educational processes and platforms poses a further threat to deliberative diversity, as the knowledge conveyed is based on information selected and sorted by technology corporations’ algorithms. This would also jeopardize universities’ academic freedom.

In that regard, automation far exceeds the advertised “automation of repetitive tasks”⁶⁴³, which would liberate teachers from administrative work, enabling them to focus on building “meaningful relationships” with their students. Although the deployment of AI is regarded as a “win” in terms of facilitating increased time for personal human interaction, the digitalization of education also poses a risk to the development of cognitive skills outside the digital world⁶⁴⁴. In that case, an additional risk may emerge, as individuals may become increasingly dependent on these tools, which have been developed by technology corporations who may lack transparency in terms of how these algorithms function. This also demonstrates that there is no “judgment free environment for education”⁶⁴⁵.

An ethical opportunity, aligned with the agenda, may be perceived as lifelong learning becomes more accessible⁶⁴⁶. This must be strengthened by preserving the integrity of higher education, while teachers must focus on conveying human skills, such as imagination, creativity, and innovation.

640 Awbrey/Scott 1994

641 Selwyn et al. 2021: 2

642 Gallagher/Breines 2021

643 Sealfon 2021

644 Jha/Arora 2020

645 Malik et al. 2019: 408

646 Popenici/Kerr 2017: 11

This may help avoid and critically reflect on the ways in which automation seeks to influence future outcomes of education, as educators shift their focus from experience to future events⁶⁴⁷. In this context, it is also important to demand that designers, developers, and vendors be held accountable for their products so that they are built to serve pedagogical values and not to diminish or undermine key aspects, such as social relationships with people. In that regard, educational professionals should be more engaged in shaping the development and not leave it in the hand of those who provide these products, which are purely guided by commercial interests. Correspondingly, the technology deployed in education must be strictly controlled to ensure that it does not prevent individuals from expressing themselves and freely developing a conception of good, which is related to the capability of practical reason. Critical reflection might be at stake if algorithms assume responsibility for education, making sure that certain views and positions are avoided by those who seek knowledge from knowledge and e-learning platforms, which are increasingly personalizing the way in which humans perceive education. This individualization of education further threatens the development of political affiliation with other humans and jeopardizes social connections, which are required for participation in political life to ensure that concerns regarding the political system can be freely voiced.

More broadly, automation in education requires universities to re-think their role both in terms of technology, and also in terms of their role in society as a whole⁶⁴⁸. For example, universities should consider the structure of their educational models to foster qualities such as self-reflection, conflict resolution, creativity, or choice-making skills⁶⁴⁹, which will be important for students entering an increasingly more automated job market. This is also relevant as the demand for AI-based education platform is set to increase in the coming years, also thanks to its growing personalization⁶⁵⁰. The availability and quality of continuing education counts for more than simply the education of younger students, as “seeking this sort of midcareer intervention should be as natural as choosing to go to college after high school”⁶⁵¹.

647 Selwyn et al. 2021: 8

648 Cabrera et al. 2018: 32-33

649 Malik et al. 2019

650 Qu et al. 2022

651 Sundararajan 2017: 10-11

Moreover, AI may strongly affect how wealth is distributed in society as level of education becomes a determiner of whether one will have a job or not in an automated job market. If algorithms in university programs are used to decide whether a certain student passes an exam or not, this so-called “intelligent examination system has very important practical significance for promoting the socialization and modernization of education”⁶⁵². The same applies to whether someone is admitted to a school or university and reflects another critical dimension besides teaching when automation technologies are applied in educational work.

In summary, the deployment of automation technologies in education in the short and medium term is unlikely to jeopardize the availability of jobs for teachers. Nevertheless, it affects how education is perceived and how teachers work as they face the increasing threat of being controlled by algorithms that determine what content is presented to pupils or students, which places various capabilities at risk, as stated above. To avail of the opportunities offered by advancing automation in the educational field, teachers should focus on conveying human values and knowledge, such as critical thinking and social skills, and demands for transparency on the part of technology providers must be reinforced to ensure that pedagogical standards are maintained and a diverse range of knowledge is provided. This would ensure that those who are willing to receive further education do not become a target for the opaque agendas of technology corporations or other providers, designers, or developers of educational software systems.

In conclusion, automation is leading to rapid changes with respect to the in-demand skill sets on the labor market, giving rise to ethical challenges as job security declines. In addition, social interactions and social skills, despite being demanded from a market perspective, are increasingly shaped by automation technologies that influence human interactions. This is also related to changes in the professional environment, as greater access to information with fewer direct interhuman teachings poses a threat from the ethical perspective; this is particularly relevant if human skills can no longer be learned and educational tools are based on biased algorithms.

652 Li/Wang 2020: 591

4.3 Automation of communication

Modern digital communication tools alter the ways humans express themselves and interact with each other, an area where automation technologies are increasingly deployed. On the one hand, human jobs in traditional media are increasingly replaced by robots, and on the other hand, social media offers automation technologies opportunities to manipulate and control human behavior while exploiting their creativity, time and needs without providing remuneration for their work, at least in most cases. Their usage urgently requires an analysis from an ethical perspective, especially since the topic traditionally is not thought of in terms of human labor automation and related impact. First, it will be elaborated how communication is affected by automation technologies from an ethical perspective and how automation shapes communicative work. Second, it will be analyzed how the “automated press” steers the political discourse, which has largely shifted to social media. Third, the problematic nature of unremunerated work on selfhood, which is caused by advancing automation technologies that manipulate users through social media with serious impacts on socialization, will be outlined. Fourth, it will be highlighted how this development has resulted in new forms of unpaid work—that is, data slavery.

Traditional forms of communicative production—namely, speech and writing—have been increasingly affected by the consequences of automation⁶⁵³ in recent years. This, in essence, is caused by the increased perception of virtual reality as genuine reality that also affects the nature of human labor, specifically traditional communicative work, such as journalism. Moreover, as technology becomes more sophisticated, the social and political implications of machines’ abilities to accelerate the production of written and oral discourse is visible. This not only threatens material livelihoods by reducing job availability but also jeopardizes the values of deliberative struggle and social reciprocity that are embodied in everyday communication. In that regard, in contrast to the industrial automation, immaterial human labor, which is largely based on communication, is undergoing heavy alternation. Work of this nature may be regarded as the defining activity of human community and political life as well as the key to human development⁶⁵⁴. The economic consequences may be felt by many who work in fields that rely heavily on communication, such

653 Reeves 2016: 151-154

654 FAO n.d.

as psychotherapists and personal assistants or even teachers, professors, and media professionals, all of whom increasingly face sophisticated digital technologies that would do their jobs at a minor cost⁶⁵⁵. This poses an ethical risk in terms of the ability to exercise the right to work for the increasing number of individuals who are engaged in producing or creating immaterial goods. This is reinforced as the automation of communicative labor affects all individuals, whether it pertains to ordering food, learning about political candidates from automated campaign calls or social media posts, or attempting to reach customer service agents. Regarding new media and digital rhetoric, economic and cultural life is increasingly affected by the machines' displacement of human workers. In essence, the automation of communication will not only influence human labor as a source of income but will also affect the culture of human labor as a whole, particularly in the context of what defines paid work⁶⁵⁶.

Besides the fact that digital transformation has enhanced the potential for interpersonal human communication by facilitating connections across cultures and continents⁶⁵⁷, which can positively strengthen capabilities for affiliation, digital capitalism must reconcile its desire to profit from human communication with its historic aim of eliminating unpredictability, possibility, and temperamental and political volatility on the part of the human worker⁶⁵⁸, which is aligned with the increasing commodification of information in the digital economy⁶⁵⁹. Immaterial labor is most saliently distinguished from its material counterparts by its social purpose, in that the production of communication affects relationships and knowledge, in contrast to manufacturing a car or other material goods⁶⁶⁰, which has a lesser direct impact on immediate human relations. Therefore, the “biopolitical” dimension is directly affected when automation technologies are increasingly deployed in communication, owing to the fact that human communicative labor produces a constitutive surplus that positions the human subject and its communities—at least traditionally—beyond the power of capital⁶⁶¹ and represents a cornerstone in the capability of political affiliation.

655 Carlone 2008

656 Resnikoff 2021

657 Ruben et al. 2020

658 Schiller 1999

659 Terranova 2000

660 Hard/Negri 2005: 114

661 Greene 2004: 15-16

AI and its automation drive have thus facilitated a rule of communicative culture where humans before by tradition realized this biopolitical potential in communities through interaction⁶⁶². As this can only be lived through common human experience, automatic communication reduces the opportunity and impulse for cooperative human efforts when AI is used to monitoring human communication, analyzing, and subsequently mechanizing human interactions. These pursuits are additionally connected with the vast amounts of data that are collected and then used as part of a new media ecosystem⁶⁶³. The standardization or machination of communication in that sense limits the opportunities for local, harmonious passion in the virtual world and reduce the prospect and impetus for humans to organize, struggle, co-operate, and empathize with one another⁶⁶⁴. The socially essential work of human communication is therefore transformed and drained of its freedom, eventuality, and politically creative ability, which threatens to skim the biopolitical surplus from human communication, posing a high risk from an ethical perspective. Further issues in this respect include the question about authorship and, consequently, accountability and responsibility for communication content⁶⁶⁵ created through algorithms. The intention of automating communication is similar to that of industrial processes from a capitalist standpoint; immaterial products relating to human communication, such as curiosity, care, or intimacy, can be reproduced more reliably, precisely, and cheaply than humans facilitate when it comes to providing communicative labor, aiming to define or influence cultural norms, consumer norms, or public opinion⁶⁶⁶. These developments represent an ethical risk in terms of affiliation and political rights, as social interaction between humans is increasingly controlled by distributed information based on opaque algorithms, and news media lack transparency⁶⁶⁷ with respect to their specific use.

Machines have developed a competency in interpreting and producing discourse and have taken over several domains of social life in which communicative labor is vital⁶⁶⁸. Accordingly, humans are increasingly turning to machines for knowledge and information about what would traditionally

662 Reeves 2016: 154

663 Ali/Hassoun 2019: 40

664 Reeves 2016: 155-156

665 Montal/Reich 2017

666 Lazzarato 1996

667 Diakopoulos/Koliska 2017

668 Reeves 2016: 155

have been products of a human relationship, as scientists and corporations are increasingly using AI to create replacements that exceed human abilities⁶⁶⁹—for example, being more reliable or tailored to clients. Examples include chatbots or other machine facilitators that provide support services that would traditionally have been provided by humans. In addition, when searching for information, individuals usually receive sorted content that is directed by bots⁶⁷⁰ rather than humans. Critically, this automation of communicative labor provides conditions of human sociality that deny the fact that care and conversation can occur only between humans⁶⁷¹, which poses an ethical risk with respect to the capability of being truly human.

Humans' political possibilities and potential to possess genuine personal opinions are diminished as content production is increasingly performed with, by, and between machines, as machines occupy roles that were formerly human⁶⁷². In this sense, the deployment of automation technologies will further restrict the domain of human-produced culture by forcing people out of communication-oriented professions, replacing ineffective paid human labor with machines' imitated effective creativity and care—for example, chatbots⁶⁷³. One approach to finding an answer to these challenges would be AI literacy so that individuals are “empowered to interact with and treat mass-personalized content in a way that promotes individual and social good while preventing harm”⁶⁷⁴.

Automation of communication not only threatens blue-collar workers in manual jobs, as mentioned above, who certainly bear a large burden in terms of automation technology innovation⁶⁷⁵, but also affects white-collar professionals, including artisans, lawyers, or accountants. Although new complex non-routine work may emerge, the gains at the top of the labor market will not be offset by losses in the middle and bottom of the job market⁶⁷⁶, as reflected by the decline of full-time professional editors⁶⁷⁷. In addition, the automation of labor affects human assistance or administrative jobs, for which big data are more efficient, again with the assistance of

669 Signorelli 2018

670 O'Brien 2022

671 Moskowitz 2013

672 Lewis et al. 2019

673 Gehl 2014

674 Hermann 2022: 1258

675 Bessen 2016

676 Smith/Anderson 2014

677 Thurman et al. 2017

chatbots or natural language bots⁶⁷⁸ which are also used, for example, for screening of job applications⁶⁷⁹. In this regard, working conditions and the availability of work may deteriorate, as jobs are completed by machines, affecting individuals' ability to maintain control over their own environments in terms of their material and political well-being.

Text customization through AI raises further ethical issues with respect to information availability and the right to information. Through big data, readers might be presented with different views derived from their Internet history⁶⁸⁰. In that sense, automated communication has also led to a rationalization of social communication traditionally pursued by human beings. The adaptation of these technologies may be explained by rational interests and greater efficiency⁶⁸¹, as illustrated by radically new media-related properties and network ideas⁶⁸². This also has resulted in a greater dependency on efficiency-driven automation communication by the mere necessity to manage the information overload⁶⁸³, which can be aligned with a "digital rationalization"⁶⁸⁴, whereby automated communications feature elements of interactive communication and allow for individualized mass communication⁶⁸⁵ with content that has been wholly developed by machines. This poses a risk to the ability to, for example, imagine others' situations, since only certain elements of information are made available to intended receivers of a message, diminishing the quality of communication rather than improving it, which opposes the promises of more efficient modes of communicating.

4.3.1 Social media

Social media has affected human social life considerably, particularly with respect to communication. It has facilitated, but also automated, the ways in which we interact and work in the digital world. On the one hand, with an increasingly automated press involving fewer humans in public political discourse, it is necessary to reflect on how political rights and

678 Reeves 2016; Kolhatkar 2013

679 Azulai 2017

680 Morozov 2012

681 Papsdorf 2015

682 Castells 2005

683 Blair 2010

684 Papsdorf 2015: 1000

685 Papsdorf 2013: 72

affiliations are affected by social media platforms that involve automated communication tools.

On the other hand, social media exerts underlying effects on human behavior and socialization, including with respect to the labor market and remunerated work. The automation of communication in that regard affects different spheres, especially through the means of social media. While increasing numbers of workers are struggling to find regular employment, others “work” unpaid and unwittingly for technology corporations at all hours, at home, in bed at night before falling asleep, never out of reach and continually providing private data. This “surveillance capitalism”⁶⁸⁶ has found ways to commodify and trade in some of the most intimate aspects of daily life. By harvesting the data produced by an individual’s often unremunerated interaction with a machine, these technology corporations seek to trade in the labor of mere selfhood and, more remarkably, to shape it. Everywhere, human labor remains of the utmost importance in the creation of value; rarely, however, is it recognized or paid as labor. As long as this labor remains invisible, those who profit from it will not need to pay for it⁶⁸⁷. This development is highly problematic from an ethical perspective and will be further outlined below.

In addition, the algorithms used in social media have a known history of exhibiting racist tendencies when gathering data, and there is a fundamental lack of transparency regarding how the technology works⁶⁸⁸, amounting to an ethical risk in terms of equal treatment when no human worker or author can be openly held accountable for such practices. Moreover, social media influences users by fabricated “norms”, which are created by algorithms that serve commercial platform monetary benefits⁶⁸⁹ by not treating humans *as such* but rather as objects based on private data. In that regard, humans are simply a means, objects in the service of these corporations, whereby “liking”, “friending”, and “sharing” undermines the sanctity of human dignity and merely serves as a manipulative tool⁶⁹⁰. Withdrawal from social media, on the one hand, can leave humans feeling lonely and isolated, reinforcing the susceptibility to radical or extremist pursuits that is already provoked by the use of these communication tools in democratic systems; on the other hand, social isolation and emotional distress are

686 Zuboff 2019

687 Resnikoff 2021: 192; Burns 2019; Henwood 2019; Klein 2020

688 Sandvig et al. 2016

689 Kamir 2020: 146

690 Dijck 2013

becoming increasingly common owing to the constant manipulation by algorithms. Both aspects are highly relevant from an ethical perspective, because they take advantage of basic human needs to force individuals to work without payment, thereby threatening other central capabilities.

4.3.1.1 Automated press and political discourse in democracy

Automation of communication affects how democracies work and operate, particularly because automation technologies change the ways in which humans work and interact in relation to the political discourse in a democracy. Cross-cutting communication spaces may be regarded as key to a functioning democracy⁶⁹¹ and addressing issues that are relevant to citizens. Social media, for example, can improve awareness with respect to working conditions⁶⁹² and rally affected individuals for political reasons⁶⁹³ if necessary, allowing for joint action irrelevant of distance. In facilitating direct communication with leader figures, social media can support the creation of political identities⁶⁹⁴ without relying on human opinion leaders, such as journalists or political commentators. These developments represent an opportunity from an ethical perspective.

However, rationalization of communication can also lead to a loss of meaning, freedom, and reification⁶⁹⁵. This can be also seen in terms of effects in social media⁶⁹⁶, as content appears to be increasingly similar across cultures and individuals in terms of how communication is effected, which also has a political dimension. In this context, highly subjective acts of communication are transformed into objective categories, rendering communication predictable and controllable⁶⁹⁷ by machine-based influence that remains limited to specific content without any underlying human input. This may be interpreted as a form of “dehumanization”, where the human actually becomes simply a means and no longer represents an end. Coincidence and open-ended outcomes become rare when being guided by the machine, which endangers discourse. Politically relevant human

691 Bozdag 2020

692 Barnes 2020

693 Bunse 2021

694 Penney 2019

695 Habermas 2019

696 Bakardjieva 2014

697 Papsdorf 2015: 1001-1002; Horkheimer 2013: vi

beings become increasingly objectified, connected to a loss of contingency and reflexivity. In addition, political communication is becoming more vulnerable to disinformation, which is increasingly spread as automation of communication offers new possibilities⁶⁹⁸. Paired with automated journalism, this jeopardizes freedom of information⁶⁹⁹ and diminishes the ability to politically affiliate in a truly human way, which is an ethical issue.

This development verifies that human political activity may come to be entirely rendered by machines, and there is a very real threat that humans will become wholly irrelevant in the political process, as opinion-formation becomes increasingly influenced by automated communicative tools. Social media is becoming a primary news source, where new alternative online media polarize narratives and increase the potential for extremist news⁷⁰⁰ through the creation of “echo chambers”⁷⁰¹, with news bots playing an important role in leading people into a certain narrative based on their historic search preferences⁷⁰². For example, in Europe today, only half of citizens born after 1980 believe that it is crucial to live in a democracy⁷⁰³, and this is likely connected to a loss in confidence and trust in political parties and governments. A key issue in this context is the denial of responsibility by platforms and algorithm operators who profit from broadcasting political information, thereby providing ideological extremists with media power to distort democracy⁷⁰⁴, an issue that generally relates to public relations through social media⁷⁰⁵ when companies operate in the political arena. This again highlights the lack of accountability associated with reduced human work and involvement in politically relevant discourses. As these developments fundamentally threaten democracy, they pose a direct ethical risk to human dignity, as political rights are essential in a liberal democracy, and protection of the quality of democracy becomes crucial⁷⁰⁶. One approach would be to use trusted webpages (e.g., those affiliated with government agencies); however, greater policy guidance and regulatory

698 McKay/Tenove 2021

699 Monti 2019

700 Schulze 2020

701 Bail et al. 2019

702 Cho et al. 2020

703 Beaufort 2018

704 Entman/Usher 2018: 306

705 White/Boatwright 2020

706 Colomina et al. 2021

frameworks are required to protect public discourse⁷⁰⁷. It is further necessary to boost AI literacy and knowledge regarding how social media and communication to allow people to participate in political activities while understanding how these tools affect free speech.

Another key challenge is the increasing loss of political influence in certain sectors, as fewer people are employed and are therefore less able to raise their voices politically. In that sense, workforce automation is likely to create political upheaval⁷⁰⁸. Historically, industrial revolutions have given rise to non-market mechanisms⁷⁰⁹, such as new political movements that have the potential to culminate in global warfare⁷¹⁰. The current digital transformation has led to a rise in populism, with economic change and insecurity among the contributing factors⁷¹¹. At this point, workplace digitalization matters for voting behavior⁷¹², however, technology appears not to have been blamed but rather misattributed by voters to topics such as migration or international trade. When people misperceive the source of an economic problem, they are more likely to support inadequate remedies that fail to strike at the root of the issue. Worse, the policies could be inefficient or even damaging. In that sense, policy must generally take this issue into account, especially since certain sectors might be losing influence in politics, which may go hand in hand with a deterioration in working conditions for the remaining employees. This will likely be paired with the anger of the supplanted individuals and voters, who may seek radical—if not fascist—solutions to their unfavorable economic situations.

To summarize, social media is becoming a decisive factor in social status and affiliation between humans. Political sentiment and opinion today largely depend on information distributed via these channels with reduced direct human communication and less human media work shaping political positions. The algorithms that control the flow of information and are increasingly biased toward a certain political ideology—for example, in the case of TikTok⁷¹³, which suppresses any critique of the Chinese communist party—indicate that there are risks, for example, with respect to political and social inclusion. The capability to affiliation is thus threatened if auto-

707 Ouchchy et al. 2020: 934-935

708 Gallego/Kurer 2022: 470-472

709 Caprettini/Voth 2020

710 Eichengreen 2018; Boix 2019

711 Rodrik 2018

712 Gallego/Kurer 2022: 473

713 Feuer 2019

mated communication harms institutions such as the press, in which robots are increasingly merely reproducing content based on a user's history⁷¹⁴. As political social interaction become increasingly dependent on digital means, the use of AI threatens democracy by diminishing the roles of human individuals and replacing them with robots that are subject to opaque algorithms with unknown biases. The attack on the US Capitol on January 6, 2021, illustrates this increasing extremism caused by closed “echo chambers”, whereby humans are manipulated based on their opinions. Access to political information is thus increasingly predetermined, which also reduces the opportunity to revise or overthink one's own political opinion, which poses a direct threat to the “nourishing”⁷¹⁵ of political affiliation.

This non-involvement of human work directly relates to the capability to be treated as a dignified being and non-discrimination, as the use of AI in the political arena heavily discriminates in favor of information based on socioeconomic, racial, or ethnicity-based criteria⁷¹⁶. In this sense, automated communication disrespects and humiliates humans by treating them as products and using political opinions to profit from the human need for political affiliation. Moreover, it becomes increasingly difficult to imagine oneself in others' situations—especially one's political opponents.

4.3.1.2 Socialization and the work on selfhood

Social media has had a range of effects on socialization, particularly with respect to the increasingly automated character of communication led by commercial interests, which affects the nature of work. On the one hand, the future of work has been largely affected by narratives conveyed via social media. For example, job applications and operational work are becoming increasingly virtual, altering how humans receive appreciation, whether through direct messages or “likes”. The younger generation in particular and the population more generally are affected by the idealized images that dominate social media platforms such as Instagram, LinkedIn, or Facebook in terms of professional socialization⁷¹⁷. The comparison of working conditions and benefits via social media increases transparency

714 Arnold 2022

715 Nussbaum 2011: 32-34

716 Peters 2022

717 Jong et al. 2021; Zhao et al. 2021

surrounding working conditions and salaries, as increasingly illustrated by the so-called “Generation Z”⁷¹⁸, representing an ethical opportunity. In addition, social media can have a positive impact by means of connection, support, and discussion forums where issues relevant to individuals can be raised⁷¹⁹, such as health issues at work.

On the other hand, the use of social media is associated with considerable challenges in other aspects of socialization, driven by potent commercial interests and enacted through sophisticated and hidden algorithms⁷²⁰, whereby work is performed without payment, enforced by the fact that human attention is increasingly “mined” by technology corporations⁷²¹. Finding one’s identity can also be seen as an increasingly important task requiring dedicated time and creativity in today’s world. Social media use is associated with dependence and reliance that may culminate in addiction, particularly for young people, for whom it represents a primary social arena that socializes and indoctrinates them into new forms of culture through technologies that aim to control the “culture of connectivity” and manipulate humans by gathering data⁷²². This is related to the ever-increasing quantification and measurement of our social and everyday lives⁷²³. The desire for connectedness and sociality has induced over 4.5 billion individuals to join virtual social media networks⁷²⁴ and make the sphere a crucial part of their social lives. As it initially appeared, in the first five years of the new millennium, the virtual social world served as an arena for the exploration of individual personal growth in a democratic, individualistic, friendly, and respectful environment. Soon, however, it became overtaken by corporations who enforced their interests, profit-seeking ideologies, and a utilitarian and competitive mindset⁷²⁵. Wikipedia, as a noncommercial provider, in many ways represents the last survivor of the old spirit of the virtual world. The new virtual world of connective media is structured by automated technologies to manipulate users’ needs to increase commercial profit, an aspect further outlined in the chapter on data slavery.

718 Schmid 2022

719 Popat/Tarrant 2022

720 Kamir 2020: 142-146

721 Horgan 2020

722 Resnikoff 2021

723 Dijck 2013

724 Chaffey 2022

725 Dijck 2013: 4-15

The “popularity” of the virtual world is accompanied by real-world impact. For example, the technological pressure to select the most connected person or idea may lead to real-life pressure reinforced by one’s peers, and social media may become an indicator for symptoms of mental ill-health⁷²⁶. Peer pressure has become a hybrid social and technological force, as connections between humans inform automated connections and vice versa⁷²⁷. The ideology pursued by the technology giants are defined by principles such as popularity, hierarchical ranking, competition, rapid growth, large traffic volumes, and fast turnovers. Moreover, social activities are inextricably connected to economic pursuits in a culture of automated “personal” recommendations, traded for “work” based on private data that is largely unpaid.

However, users are largely unaware that they, thanks to their search for connectedness, become part of a large underlying commercial interest on the part of the platforms facilitating this virtual sociability (Facebook, Instagram, Twitter, Google, etc.) through manipulation. Intensive connectivity—or coded “popularity”—is extremely profitable, and so these corporations employ technology to construct the kind of “popularity” that serves their purpose and stimulate users to pursue these profitable types of “popularity”. They are lured by the promise of achieving commercially promoted “popularity”, believing that they are advancing their own statuses and prestige “spontaneously”⁷²⁸. The underlying mechanization or automation is also evident in online dating, which differs fundamentally from the “traditional” approach whereby relationships developed out of mutual friends, situational links, or personal instinct⁷²⁹. Now, algorithms match people rationally based on information and interests, character traits, or socio-structural characteristics.

Manipulation of language in social media is an essential element in the pursuit of automation. New meanings have arisen around terms such as “sharing”, “friends”, “followers”, or “likes”. For example, the meaning of “sharing” has been transformed from user-to-user information exchange, to sharing personal and private data with anyone in the world. The application of the terms “friends” (Facebook) or “followers” (Instagram or Twitter) to networks on social media represents a social badge of honor informed by

726 Beeres et al. 2021

727 Dijck 2013: 157

728 Dijck 2013: 62, cited in Kamir 2020: 144

729 Cacioppo et al. 2013: 10136

the popularity principle, has also found their new meanings⁷³⁰. In addition, the concept of “liking” imbues popular ideas or things with a high degree of emotional value, arguably at the expense of rational judgments for which there are no buttons in the online social environment. This manipulation affects all corners of culture and sociality⁷³¹, paired with the increase in mental distress and the normalization of self-harm and suicidality among the youth⁷³².

These efforts to secure “popularity” as a mark of personal status, prestige, or precedence in a search for “virtual honor” have very real consequences for people’s emotional lives and self-perceptions. Social dynamics that are connected with an “honor game”⁷³³ relate to competition, hierarchical thinking, and among other behaviors, exposure of competitors and shaming, particularly when mental health problems arise in relation to social media addiction⁷³⁴, particularly cybervictimization or social comparison. This all comes at the expense of privacy, authenticity, and other features of the universe of dignity and respect⁷³⁵.

Social media reinforces bullying behavior by making it difficult for the victim to leave owing to their dependency on the platform⁷³⁶. For most, opting out is not an option, because it would mean leaving sociality altogether, since the virtual activities are wholly intertwined with people’s offline social lives⁷³⁷. Fear of missing out is a real anxiety affecting young people and it keeps them constantly hooked up to multiple virtual groups, including while they sleep. It interferes with their ability to create intimacy, to choose freely, to simply be with any human activity that might give rise to respect. All these developments lead to negative effects on cognitive control, academic performance, and socioemotional functioning⁷³⁸, which represent an ethical risk with respect to bodily health. Moreover, emotional development is blighted by fear and anxiety as social media leads to increased opportunities for sociopaths and other antisocial personalities to further engage in emotional abuse through manipulation tactics such

730 Kamir 2020

731 Dijck 2013: 65-55

732 Abi-Jaoude et al. 2020

733 Kamir 2020: 145

734 Boer et al. 2021

735 Dijck 2013

736 O’Reilly 2018

737 Dijck 2013: 173-173

738 Abi-Jaoude et al. 2020: 136

as “love-bombing”⁷³⁹ or intermittent reinforcement⁷⁴⁰ that modern communication allows and enforces through AI. This is directly linked with the increased opportunities to maintain and direct global sex trafficking rings⁷⁴¹ and other forms of work that represent heavy violations of human dignity. In this respect, automation has led to more emotionally abusive communication methods, which go beyond the traditional channels used to communicate with individuals elsewhere, which even might be reinforced by activities on social media. Furthermore, younger people may be negatively influenced by social media while developing their emotions and increased digital expression of feelings. In this respect, forms of human attachment are directly threatened, as the automation of communication through biases and guided misinformation may cause rifts between family members or erect barriers between generations, as direct communication between those who are supposed to love and care for each other is increasingly separated and individualized through the use of technology. Furthermore, the process of grieving may be negatively influenced by social media as notifications of birthdays or other important days continue despite the individual’s death⁷⁴².

Social media and the increased pace at which values are communicated with a lack of human absence, guided by AI, causes various issues for young people as they mature⁷⁴³, negatively affecting practical reasoning and the attempt to form a conception of the good is treated by constant alteration, and critical reflection on how best to plan life becomes difficult. The increased value of pluralism additionally makes it more difficult to form a stable conception of the good, directly linking to the expression and development of authentic values. In the long term, this may threaten the basic values of a society, diminish solidarity, and promote egoism⁷⁴⁴. In addition, family values are at stake as values become relative and short term-oriented. The very *raison d’être* of the nation state may be called into question if its existence is no longer a factor of stable value perception, where “for the first time in human history, we have given up autonomous

739 Archer 2017

740 Wilding 2017

741 Anthony 2018

742 Andrews 2019

743 Saiphoo/Vahedi 2019; Charmaraman et al. 2022

744 Andreassen et al. 2017

control over our social relationships and interactions, and we now allow machine learning and artificial intelligence to make decisions for us”⁷⁴⁵.

Similar aspects apply with the even deeper integration of humans into the virtual world through so-called “metaverses”, which first surfaced with the so-called “massively multiplayer online role playing games (MMORPGs)”, in which large numbers of players, extending into the millions, come together in a virtual world⁷⁴⁶. The result often is a re-creation of real-world activities. Some virtual worlds, such as *Second Life*, even have their own currency that can be converted into real-world money. This provides a strong incentive for entrepreneurs to seek commercial opportunities in metaverses by also using automation technologies to collect more data, giving rise to questions surrounding ethical design⁷⁴⁷. Given that humans can also be employed or paid for work in such virtual worlds, the development also affects human labor, where substantial risks may be found from an ethical perspective, as these virtual realities almost entirely eliminate the “human factor”. In the long term, the metaverse will likely offer lucrative opportunities for certain individuals and organizations⁷⁴⁸. It may become a future source of wealth creation and employment opportunities. How this might impact the automation of real-world jobs requires further evaluation. From an ethical standpoint, however, it certainly supports an increasingly efficient value chain, though it may represent a parallel value chain with a transparency threat when the provider’s business model remains opaque in terms of privacy and how algorithms work. Moreover, significant threats may also apply to the loss of individuals’ cognitive skills as they spend more time on these platforms and lose the capability to relate to nature and the environment. Furthermore, human affiliations may be steered and guided by machines and opaque interests.

4.3.2 Data slavery as a new form of unpaid labor

AI requires vast amounts of private human data if it aims to create value, data that are largely gathered by “surveilling” communication between humans. Hidden from public view and organized on a gig basis for extremely low or even no pay, human beings are completely essential for assessing

745 Abrams 2022

746 Papagiannidis et al. 2008: 610-613

747 Fernandez/Hui 2022

748 Papagiannidis et al. 2008: 616-618

content, verifying decisions, and tailoring results based on the collected data. This invisible labor, also called “ghost work”⁷⁴⁹, is closing the gaps in AI and powers the systems of profitable technology corporations. New machines or applications, advertised as innovations in convenience, extend the reach of the workplace into hitherto unreachable regions of an individual’s life so that one is never off the job or never stops providing data. While this work is unpaid, technology corporations are profiting from this data⁷⁵⁰, an issue that is especially salient in social media. In this context, technology corporations transform humans into products based on collected private data that they then sell on to vendors for the purpose of targeted advertisement⁷⁵¹ using their work of self-ness. In this regard, data or digital slavery involves traditional “chattel as well as “modern” slavery⁷⁵², where, on the one hand, humans are becoming increasingly a property or legally owned object as such (“chattel) and in addition, an object of actual control of the slave (“modern”) through automation technologies. The latter definition includes practices such as sex trafficking, bonded labor, and forced child labor⁷⁵³.

This has become particularly salient with the rise of social media but also in relation to other technologies or “services” that surveille communication⁷⁵⁴. More users generate more private data, resulting in higher profits for the respective technology corporations. Users are not valuable to these corporations by virtue of their inherent universal merit, human dignity, or unique individual characteristics. Their virtual contributions are not valuable for the merit of their contents. Rather, users are valuable as extras that constitute masses, as items in a collection that derives its value from size⁷⁵⁵. In addition, not all users are similarly valuable, some are more valuable than others; the differentiation in value depends on a user’s connectivity with masses of other users. A user’s value depends on its “popularity”: the more users it relates to, the more valuable it becomes. Unlike sociality and connectedness between humans in the real world, this leads to quantification through connectivity. The creation of data slaves through automation technologies is a devastating threat to human dignity

749 Gray/Suri 2019

750 Meier 2022

751 Resnikoff 2021

752 Chisnall 2020

753 United States Department of State 2022

754 Zuboff 2019

755 Dijck 2013: 152-170

as it creates a system in which human labor is not remunerated at all, and skills, time, and creativity are exploited. In the long term, this threatens not only control over one's environment through work that is unremunerated but also other capabilities, since people do not receive the income they require to augment their education owing to their addiction to selfhood nurtured by automation technologies.

This development is relevant, as new forms of unpaid labor occur in the context of advancing automation, specifically as humans on the labor market are increasingly competed by machines and driven out of jobs through the deployment of automation technologies. This not only violates a dignified life in terms of lack of access to paid labor but also negatively impacts one's security in being treated as a human when technology treats humans as products that are sold. As the products are based on opaque categories, "digital data commodity is both gendered and racialized" (Fuchs 2018), and unpaid forms of labor are differently exploited to waged labor in that "they form superexploited milieus of primitive accumulation". This can be observed in how AI is aiming to maximize screentime, to make people addicted to the use of social media, which is another violation of dignified life relating to the definition of "modern" slavery.

In this regard, data production in the digital era offers a "solution to the contradiction between two imperatives of capital: the maximization of unpaid labor time versus the necessity to preserve reproductive time. The more time we spend surfing, the more labor we provide, and the more we reproduce our labor power, both for paid and unpaid work"⁷⁵⁶.

In addition, pathologies arise from spending excessive leisure or free time in the digital world, as lack of physical exercise, inability to concentrate for long periods, and memory loss bring considerable social and personal costs⁷⁵⁷. These skills converge with the forms of work that are required on the labor market in terms of certain digital skills, and so leisure time and work time have begun to align⁷⁵⁸. These developments are highly critical from an ethical perspective since they also reduce the capability for recreation as unpaid work in the form of data gathering continues during individuals' free time. Pairing these developments with new forms of "entrepreneurship" in the sharing economy, where work is highly unstruc-

756 Frayssé 2017: 15

757 Carr 2011

758 Frayssé 2017

tured for the sake of “flexibility” and “decentralization”⁷⁵⁹, accounts for the growing inequality, which becomes increasingly structural as part of digital capitalism, dividing “gig workers”, who are bound to provide private data in their free time, from those who control the capital flow and markets and therefore determine labor regimes. This illustrates a “real subsumption from labor to capital”⁷⁶⁰.

To conclude, the automation of communication is ongoing, not only affecting “traditional” dimensions of human labor automation—for example, by reducing the opportunities for individuals to obtain adequate income—but also undermining the nature of human communicative interactions with the different consequences outlined above. On the one hand, information distribution is increasingly shaped by the deployment of automation technologies, whereby humans are no longer an essential part of the communication process (e.g., when content is created by AI). On the other hand, communication between humans is used for heavy data collection, with no remuneration offered. In this regard, the ethical risks of communication automation substantially outweigh the opportunities associated with the growth of automation.

4.4 Digital finance

In this section, different automation tendencies in the financial industry that are used to reduce traditional or labor-intensive work are evaluated. Also, the role that wealth distribution plays in times of digital transformation is discussed, particularly when the sector employs fewer humans while robots increasingly control automated financial streams while financial services become increasingly standardized. Financial literacy may also be playing a key role if there are less jobs available in general for humans to receive a certain income.

In 2016, financial services and insurance represented approximately 5.1% of the total European GDP with approximately 2.6 million people employed across European economies⁷⁶¹. For several decades, or at least until the 2008 financial crisis, this industry has been conventionally known for its corporate stability and secure employment. However, new forces of

759 Ahsan 2020

760 Raposo 2020: 10

761 Gomber et al. 2018: 2

innovation and process disruption have substantially altered the nature of financial services. In addition, a strong drive for standardization as part of service automation has increased the potential for capital gains at lower costs⁷⁶².

4.4.1 Robo advisory

One particular development in the automation of the banking industry is the emergence of so-called robo advisory, which aims to significantly reduce human labor. Financial advisory—a work activity that represents a substantial part of employment in the industry—becomes increasingly robotized thanks to digital transformation⁷⁶³. Existing banking models have faced considerable challenges in recent years, prompting a shift toward smart services based on algorithms and intelligent software, which have increased the potential for job replacement⁷⁶⁴. This has led to a considerably higher interest on the part of banks and insurance companies in digital financial advisory—or “robo advisory”—services.

These digital platforms comprise interactive and intelligent⁷⁶⁵ user assistance components and leverage information technology to guide customers through an automated investment advisory process⁷⁶⁶. They differ from other online investment platforms on the conceptual level. First, they offer a customer assessment that allows the user to analyze their risk appetite, which, second, determines how the customer portfolio is managed. This is completed without any direct human interaction. Hitherto, the term “robo advisory” has been almost exclusively applied to financial services; however, it is possible that the technology will be extended to healthcare or the real estate industry for portfolio management⁷⁶⁷.

Robo advisory is aimed at fundamentally transforming the traditional, human-to-human advisory process into a digital, human-to-computer procedure. Traditional investor profiling, conducted by means of an in-person interview and bilateral interaction, is replaced by online questionnaires and self-reporting techniques. Owing to cost savings facilitated by the auto-

762 Boute et al. 2021

763 Kuzela 2016

764 Alt/Puschmann 2016; Praeg et al. 2015; 2016

765 Maedche et al. 2016

766 Sironi 2016; Ludden et al. 2015

767 Jung et al. 2018: 81

mated profiling and management of the customer lifecycle, robo advisors tend to target the retail customer or non-professional segment, regardless of actual wealth. The use of products that requires less active portfolio management, such as exchange-traded funds (ETFs), further lowers the cost structure and the combination of instruments used in risk allocation, and also fund trading leads to a fully automated process, thus significantly reducing management costs⁷⁶⁸. As the service is delivered online, this again diminishes the need for personal asset costs while simultaneously allowing more customers to be served. The low complexity of the financial products involved also means that an even larger audience—that is, potential customers—can be addressed. This would represent an ethical opportunity in allowing more individuals to better control their environments.

This development has accelerated in recent years, particularly with respect to the reduction of human face-to-face banking encounters as a result of digitalization⁷⁶⁹. The scale of automation has made it possible to provide higher quality and more transparent financial advice to more people at lower costs than is possible with human financial advisors⁷⁷⁰. Studies have investigated whether the investor or customer can distinguish between robo and human advisors and whether the advisor becomes “humanized” if given a name⁷⁷¹. Humans are more likely to rely on the advice of named human advisors than unnamed human advisors; by contrast, they are less likely to rely on advice given by a named robo advisor than that given by an unnamed robo advisor.

Task complexity also plays a key role in determining how customers react to humanized technology. When a robo advisor performs a task perceived as relatively simple, humans are more likely to rely on a named robo advisor than an unnamed robo advisor. When a robo advisor is performing a task perceived as relatively complex, humans are more likely to rely on an unnamed than a named robo advisor. Combined, these results suggest that task complexity is an important factor affecting how humans perceive named robo advisors. A named robo advisor would thus suggest a rather more “human” interaction than an unnamed advisor. This has prompted discussion⁷⁷² as to whether it is critical to assign names to robots to “hu-

768 Jung et al. 2018: 81-82

769 Sironi 2016

770 Baker/Dallaert 2018: 713-719

771 Hodge et al. 2021: 783-786

772 Wells 2021

manize” automated work processes by suggesting some sort of “human” interaction.

Robo advisors can target users or customers irrespective of age or gender⁷⁷³. However, a culture of uncertainty and avoidance in a given context can deter people from using robot advisors, indicating that there is still a lack of trust in human–machine interactions when it comes to financial services. Subjective norms may play an important role in the adoption of this particular technology and decisions regarding its adoption appear to be heavily dependent on the influence of public opinion. From an ethical perspective, robo advisors can represent opportunities as well as challenges. Given the lower costs and removal of barriers to access, humans may enjoy easier access to capital markets—that is, investment to gain an income that will cover their needs, particularly if work is no longer available to provide further income. It may also increase incentives for financial literacy when people are obliged to interact with machines to gain access. In the past, expensive human advisory has proved to be an impediment, diminishing financial inclusion, thereby contributing to poverty⁷⁷⁴. Meanwhile, control of financial markets may decline if increasingly fewer humans are part of the value chain and deriving an income from the financial services industries, which could render more humans vulnerable or dependent on a smaller group of people⁷⁷⁵. Moreover, the high salaries paid to financial service workers have been subject to debate, in addition to whether they even have a positive influence on society as part of the controversial trickle-down effect⁷⁷⁶, where high incomes for the upper classes are said to ultimately benefit those on lower incomes. Nevertheless, when labor generally becomes scarce, lower financial service costs may improve the lives of many individuals. This participatory effort, which favors individuals’ financial literacy, may also reinforce their ability to exercise their political rights⁷⁷⁷.

4.4.2 Accounting

Accounting is a repetitive task that is heavily related to traditional paperwork and has typically furnished well-paid work in industrial nations,

773 Belanche et al. 2019: 1423-1425

774 Pomeroy 2022

775 Coeckelbergh 2015; Beltrami 2018

776 Amadeo 2021

777 Khalil 2021

particularly those with strong financial sectors. The accounting profession is now undergoing significant changes owing to transformations in technology and the markets, where transversal skills seem to be more important than technical competencies or so-called “hard skills”⁷⁷⁸. This may include cognitive skills, such as inductive and deductive reasoning, when automation risk for accounting is increased⁷⁷⁹.

The employment landscape is thus becoming increasingly challenging as automation has led to the softening of labor markets caused by economic uncertainty⁷⁸⁰. Traditional core responsibilities are increasingly taken over by machines that automatically check numbers, which affects the nature of work and availability of jobs in the accounting labor market. This could lead to greater prevalence of weak full-time and short-term employment or casual working. Nonetheless, new knowledge, which is required in accounting, surges when new technologies such as distributed ledger technologies (DLTs) are emerging⁷⁸¹. Traditional accounting knowledge thus becomes obsolete, as new approaches are necessary to design effective real-world distributed systems through which accountants can support value creation and governance. Finance leaders have begun to redesign business processes to receive “continuous accounting”, whereby the data are extracted, transformed, and automatically added into accounts daily⁷⁸². This would save considerably on management time and reduce human error while simultaneously improving the ability to make decisions regarding resource distribution, which have traditionally been made on a monthly basis, as data were only sorted and made available in a presentable manner at monthly intervals.

Moreover, accounting work has traditionally been tedious, repetitive, and time- and effort-intensive⁷⁸³. In the early ages, reconciliations were printed out and stored in binders; now, thanks to automation technology, accounting teams need only deal with exception handling. The result is that only an exceptional accountant is required to work alongside continuous accounting practices and provide only high-value services, such as fraud detection, compliance, technology strategy, and business advice. In

778 Cunha et al. 2022

779 Business World 2017

780 Jackson 2020

781 Gietzmann/Grosetti 2021

782 Alexander 2018

783 Parcells 2016: 42-43

that sense, substantially fewer hours are spent on searching manually for errors, and time is saved as the need to manually transfer data is reduced. Accountants' work, therefore, has shifted its focus toward more analytical processes—for example, benchmarking or identification of business trends. In that sense, automation can complete unskilled tasks and foster continuous improvement by allowing accountants to use their skills to enhance robots and liberate themselves from repetitive work to become more forward-looking and focus on providing strategic services. As part of an educated digital workforce, the level of errors in auditing would be reduced, and productivity and efficiency are expected to bring benefits to human workers, which will be advantageous if—as in the case of robotic process automation (RPA) as the main automation technology applied in repetitive accounting tasks—no additional data need to be stored in its execution as such⁷⁸⁴. This would be comparatively advantageous from an ethical perspective, since no private data are involved in the deployment of this type of automation technology. Moreover, it would be preferable to applications such as AI in medicine, where additional data are invariably required for decision-making. In RPA however, decision-making is still in the hands of humans and only the repetitive “robotic” tasks are automated. The “rule-based” process is thus automated, and the workflow processes accounting transactions, such as travel claims or labor reporting, which can speed up internal controls. Nevertheless, in the area of accounting, trends indicate that new automation technologies and AI are increasingly capable of learning decision rules, handling variations and new conditions, and ultimately performing the analytical and judgmental tasks currently executed by humans⁷⁸⁵.

Uncertainty surrounds the roles that human employees might take in working alongside bots⁷⁸⁶. Skills expansion is required in relation to, for example, business process and improvement, exception analysis, and robotic software development. Further changes are expected, since, hitherto, repetitive tasks have mainly been affected. Sophisticated cognitive technologies, such as AI, will further shape the human labor involved in accounting.

784 Ansari et al. 2019: 4

785 Brands/Smith 2016

786 Kokina/Blanchette 2019: 12

4.4.3 Mobile banking applications

Studies discussing the effects of banking applications on employee productivity have tended to approach automation as beneficiary, in terms of reducing errors and frauds and elevating the employee workload by saving time⁷⁸⁷, an ethical opportunity in terms of working conditions, particularly when workers' skills are optimized. This would enhance employee health by alleviating some of the pressure associated with errors⁷⁸⁸.

Generally, mobile banking and its applications have had the greatest disruptive impact on financial markets in recent years⁷⁸⁹, marked by the increased use of mobile phones and, correspondingly, users. Banking transactions are therefore increasingly completed through mobile applications. Mobile banking, as part of an automated process, appears to have had a generally positive impact, providing users with opportunities to access various financial documents directly via their mobile phones without the need for an intermediary or financial advisor⁷⁹⁰. This also facilitates greater transparency and competition on the financial market, and this is ethically positive, particularly when the benefits of Fintech are taken into consideration as a supplement to traditional banking services⁷⁹¹.

In terms of productivity, mobile applications and automation facilitate service reliability and optimize processes, leading to time savings⁷⁹². Automation also promotes the elimination of service variations, which also has an impact on productivity, as fewer resources are lost in providing individualized services. In this regard, banking services appear to have undergone a degree of democratization, representing an ethically positive development. In addition, the standardization of applications generally reduces the error rate of financial services, an aspect that favors individuals who lack the financial capability and the time to understand the processes behind the financial industry. This is also ethically positive in granting increased access to financial education, similar to the deployment of robo advisors.

This standardization has also led to bots becoming predominant in customer service and support lines. Human financial advisors in the future

787 Gao 2021

788 Roll et al. 2019

789 Lee/Shin 2018

790 Shaikh/Karjaluoto 2015

791 Feyen et al. 2021

792 Hananu et al. 2015

will be increasingly used only to target high-value assets⁷⁹³ and will therefore be regarded as a luxury service. This will affect thousands of frontline workers in the industry, and it is estimated that at least 100,000 jobs could vanish in the United States within the coming five years⁷⁹⁴, potentially amounting to the largest reduction in the US bank headcount in history. Consequently, there will also be fewer bank branches and fewer opportunities for interaction with human financial advisors.

In various banks, changes to jobs, automation, and replacement appear to create a constant sense of fear, making training or retraining for new positions even more crucial⁷⁹⁵. The COVID-19 crisis has accelerated this development, shifting away from using physical branches toward more application-based banking⁷⁹⁶ and initiated a development of job reduction in the industry. Generally, across countries, the use of digital payment tools and platform leads to higher digital literacy, at all levels of financial literacy⁷⁹⁷. In addition, the connected possibilities to make informed personal finance choices are associated with higher financial literacy, also when labor could become scarce. This shows that digital and financial literacy is required to leverage the advantages that digital finance offers, which should be considered in accessing digital financial products and financial markets while laboring under a lack of financial literacy. Ethical risk arises when people have digital literacy but lack the requisite financial literacy to make the right choice. Both skill types are key in supporting the ability to live a dignified life and the mindful management of finances required to secure income or savings⁷⁹⁸ that may in turn be used for the development of all capabilities.

4.4.4 Blockchain

Blockchain technology, as the best-known form of DLTs, is increasingly applied in the financial industry to automate processes and replace human labor, particularly through the deployment of smart contracts⁷⁹⁹. Smart

793 Gomes 2021

794 Brooks 2021

795 Hu et al. 2021

796 Gallaroti 2020

797 Lo Prete 2022

798 Demarco 2021

799 Li/Kassem 2021

contracts may be understood as computer or transaction protocols intended to automatically execute, control, or document legally relevant events and actions according to the terms of a contract or agreement⁸⁰⁰. As the financial industry largely employs individuals working on compliance processes, the further incorporation of DLTs can have a significant impact on the number of paid jobs available.

Contract delivery, paired with risk management, plays an important role in many administrative units of larger financial corporations. The introduction of smart contracts allows for the reduction of human error⁸⁰¹ as it assumes control contract governance and leads to the automation of numerous manual processes⁸⁰². Furthermore, smart contract technology can have a strong impact on credit payment systems when aiming for distributed business workflow automation⁸⁰³. As traditional trade processes typically involve numerous intermediary institutions with large workforces, DLTs can also affect traditional work in financial intermediaries, such as credit card companies or banks more generally.

Although the potential appears to be considerable in terms of human labor automation caused by DLTs in the financial industry, there is still a lack of standardization, irrespective of the technology. The implementation of automated processes in a multi-party, globalized network environment requires that market participants define and agree on the meaning and content of shared data, business processes, roles, and responsibilities⁸⁰⁴. The automation effort appears to be still in its early stages; however, several studies have highlighted the potential of DLTs⁸⁰⁵. The complexity of the financial markets also requires purpose-specific DLT implementations, meaning that several solutions are required to pursue the automation efforts further. This will require interaction and coexistence among different DLT initiatives in alignment with other automation efforts. Nonetheless, a considerable legacy of different networks is operating that interfere with DLTs, similar to the diverse nature of telephone networks worldwide⁸⁰⁶.

Nevertheless, deeper automation appears to be inevitable as machines and the operability of DLTs continue to grow smarter, cheaper, and more

800 Barth et al. 1998; Fries/Paal 2019

801 Ye et al. 2018

802 Shojaei 2019

803 Chang et al. 2018

804 Ehrenfeld 2017: 248

805 Elghaish et al. 2020; Egelund-Mueller et al. 2017

806 Ehrenfeld 2017: 248-249

efficient. This means that a new “breed” of human capital will be required, with open-ended efforts that generate effectiveness rather than efficiency, organic value rather than speed, and firms will require more skills to oversee technologies and manage machines rather than people. In essence, the DLT will affect other industries further, exerting an impact throughout the entire supply chain, also with regard to human labor automation. An example of this would be the automation of legal work, further outlined below, which could have a strong impact on global governance, requiring global approaches and multidisciplinary analysis⁸⁰⁷. Blockchain offers a wide range of ethical opportunities in this regard; however, it is too early to assume it will have a direct impact on life with human dignity. For example, increased access to capital through cryptocurrencies based on blockchain⁸⁰⁸ may enhance the availability of jobs owing to the effects that loans and capital exert on the labor market⁸⁰⁹.

To conclude, digital finance offers access to financial services for more individuals, which is beneficial from an ethical perspective, because it also gives people greater incentive to become financially literate, and such education becomes more accessible through digital transformation⁸¹⁰. In that regard, it enhances financial inclusion, with increased opportunities in developing and emerging economies when jobs become scarce. In addition, as the application of digital technologies provides individuals with more extensive and efficient financial support, the geographical limitations on traditional financial inclusion are lifted and financing costs for small firms are reduced while they are empowered through technology. Digital financial inclusion thus drives sustainable employment—at least, in upper-middle and high-income economies⁸¹¹. In that context, digital skills and financial literacy may also drive entrepreneurial spirit⁸¹² and increase individuals’ control over their environment.

The tendency whereby automation efforts and standardization lead to fewer job opportunities is difficult to evaluate owing to the variability of trickle-down economic effects, which have been largely cited as a positive effect of the high salaries paid to individuals working in the financial industries. Overall, automation in the financial sector leads to more positive out-

807 Hooper/Holtbruegge 2020

808 Black et al. 2019

809 Feldman 2013

810 Ozili 2018

811 Geng/He 2021

812 Oggero et al. 2020

comes in terms of democratization, fewer obstacles to receiving information and services, and improved financial control for more people. This directly affects the specific capability for control over one's environment, since the ability to hold property and control is enhanced, and transparency (e.g., through blockchain technology) is improved.

4.5 Machines in medicine

Automation will lead to job replacement and altered demands for medical education and competencies, and digital education will become more important for humans working in the sector⁸¹³. However, there are significant differences between the various professions within the medical field. Whereas medical practitioners and physiotherapists run only an approximate 2% automation risk⁸¹⁴, nurses, care workers, nursing assistants, and home caregivers have a significantly greater probability (up to 60%) of replacement. In that sense, the higher the automation risk, the more skill requirements mark employment patterns⁸¹⁵, and job transformation is a rather more realistic prospect than complete replacements, shaped by new constellations of human–machine interaction systems. In addition, medical decisions and work are increasingly influenced by automation technologies, with data serving as the basis for decision-making. In addition, the vast application of medicine will require a reevaluation of the importance of modeling human reasoning and cognitive science to ensure that the impact on individuals is beneficial⁸¹⁶. In that sense, modern medicine is becoming digital medicine, changing the profession and how the various actors relate to one another in the medical environment, in which the patient is increasingly centered⁸¹⁷. Ethics is playing a fundamental role at each level of the application of automation technologies in medicine—for example, when it comes to the optimization opportunities of reduced labor costs in terms of drug distribution and the provision of medical services, which may affect the capability to health.

813 Carretero et al. 2017

814 Frey/Osborne 2017

815 Sætra/Fosch-Villaronga 2021

816 Patel et al. 2009: 16

817 Heinemann 2019

4.5.1 Medical decisions

Automated diagnosis is just one of the examples in which automation technologies influence medical decision-making⁸¹⁸, and the traditional care model is currently in a transformative process⁸¹⁹. Diagnosis is considered one of the key tasks in medicine. Formerly, electronic medical records were the most technological tool of medical practitioners, representing a simple data repository designed to support appointment organization and billing. This has changed with the introduction of AI in medicine (AIM), which has the capacity to improve its performance by means of “autolearning” in real-world applications⁸²⁰. On the one hand, this affects the number of medical consulting hours worked; on the other hand, it affects how doctors make decisions. In this respect, those who are still working in medicine face increasing influence by automation technologies. This illustrates the two effects of automation on labor: first, the automation of human labor reduces the need for human involvement, and second, those who remain in their jobs will be affected by ADM based on the deployment of automation technologies.

AIM may be physical, like robotic surgery, or virtual, as in digital image manipulation, neural networks, and machine learning⁸²¹. Practical examples of an AIM implantation might include the assessment of disease risk, estimates of treatment success, management or alleviation of treatment complications, assistance in patient care or clinical research, and drug development⁸²². All these activities, nevertheless, are regarded as a decision support system, with the need for a final action executed by a human actor⁸²³, or as a means of accelerating human investigative efforts⁸²⁴. Human inputs into, and control over, decision support systems are essential in managing the ethical consequences of degrees of augmentation of human agency in patient interactions⁸²⁵. Nonetheless, the amount of human labor currently invested may be reduced.

818 Bond et al. 2018

819 Arnold 2021

820 Reddy et al. 2020

821 Hamet/Tremblay 2017

822 Becker 2019

823 Mintz/Brodie 2019: 79

824 Ching et al. 2018: 3

825 Braun et al. 2020

Healthcare represents the largest area of AI investment in recent years⁸²⁶, and medical technology increasingly influences how doctors encounter and treat patients and how patients understand their own ailments⁸²⁷. AIM may alter the role of humans working in the medical disciplines where pattern recognition skills have traditionally been important, as they might be rendered obsolete⁸²⁸. For example, robotic surgery may replace human surgery, and machine learning could outperform psychiatrists in suicide prediction⁸²⁹, which could lead to an ethically positive effect, were increased remote electronic surveillance of digitally connected e-patients at risk to be supported⁸³⁰. This may place greater weight on medical practitioners' need to differentiate "between what a machine says and what we must do"⁸³¹.

In all these developments, human agency with respect to autonomous machine function remains clear to ensure that human capacities and skills are not denigrated⁸³², and challenges for medical students may arise when those skills are required to sustain human agency in the workplace. Web-based information, including unverified opinions and advice, are easily accessible through individuals' information-seeking efforts⁸³³. They can be easily weighted against medical expert information and may lead to trust or mistrust in medical opinion and advice. Trust, therefore, has emerged as a growing challenge for medical practitioners, as online resources appear to be provided by non-biased search engines; however, personalized "mis-information" may be harmful⁸³⁴.

This also relates to the crucial "explainability"⁸³⁵ when AI is deployed. In relation to AI usage, the concern arises that intelligible outputs are not provided to users, when computer applications influence the processing of medical decisions. The more intense the medical intervention is, the more relevant this becomes, particularly in biomedical contexts where patient safety is of the utmost importance. To counter this issue, greater interaction

826 Buch et al. 2018

827 Hoffmann et al. 2018: 246

828 Fogel/Kvedar 2018; Coiera 2018; 2019

829 Passos et al. 2016; Walsh et al. 2017

830 Fonseca et al. 2019

831 Coiera 2019: 166

832 Karches 2018

833 Gray et al. 2005

834 Arnold 2021

835 Combi et al. 2022

is needed with those who work on developing AI systems to ensure that explainability is built into the algorithms, where still remains considerable potential to bridge the gap and move away from the existing “black box” situation, which lacks transparency. In this regard, it will likely be important to build in control mechanisms to ensure that these algorithms are not subject to biases⁸³⁶ and that they respect certain principles in terms of not violating human dignity. In that sense, humans will always need to be able to correctly interpret results based on data that are sorted or managed by AI. Moreover, the need for “causability” may arise, which describes the measurements for the quality of explanations⁸³⁷ where not only the properties of the system and its decision must be intelligible but also the properties of the individual who is affected by these systems, especially given that tools such as deep learning systems increasingly gather personal medical data. Transparency in this regard may also promote the use of these systems and support opportunities related to AI solutions. In that sense, it would help to understand the human behavior behind medical decisions and actions, where we should consider not only who statistically recovered faster but also why.

The ethical issues in healthcare are broader, with automated resource allocation, prioritization, benefit/loss dilemmas, and consequent existential threats, than they are in other areas of services that use risk assessment algorithms in decision-making⁸³⁸. Human input is crucial as an active veto to avoid automated decisions resulting in unfair outcomes⁸³⁹. The potential arising from big data to personalize preferences and direct consumers’ attention permits the option of “big nudging”⁸⁴⁰ by employing personalized strategies to operationalize health and other governmental policies that affect individuals’ autonomy through coercion, particularly when data from health devices connected to the “internet of things” secretly report to, for example, health insurance decision algorithms⁸⁴¹.

Moreover, in terms of medical decision-making based on algorithms and big data, data inputs are crucial for machine learning outcomes, and the quality of data sources, such as the traditional electronic medical record,

836 Panch et al. 2019

837 Holzinger et al. 2019

838 Kose/Pavloiu 2017; Rasmussen 2012, Nagler et al. 2018

839 Vergheze et al. 2018; Broome 1990

840 Souto-Oter/Beneito-Montagut 2016

841 Bronsema et al. 2015; Helbing et al. 2019

are likely to be insufficient⁸⁴². They require augmentation—for example, with social media data—to assist in medical decision-making, including treatment recommendation. However, these approaches underestimate the discontinuity between human objectives relating to the definition of the good, as other decision algorithms and benefit/loss analyses have been engineered to the software used at the expense of human objectives⁸⁴³. Moreover, if a human substitute decision-maker is present, it is questionable whether the decisions of the substitute decision-makers may be outdone by what are arguably more broadly informed AIM-derived decisions, ascribing to AI hegemony over the decision-making reality through an automation bias⁸⁴⁴. Social media data may also be inappropriately influenced by non-expert opinions⁸⁴⁵. The same concerns apply to further issues, such as the potential for patient discrimination, marginalization, and stigmatization⁸⁴⁶.

AIM and related automations appear to simultaneously offer “utopian freedom” and “existential dystopia”⁸⁴⁷. Past and present promises regarding the future of medicine lead to fear, skepticism, disappointment, and ambivalence toward qualified and unqualified enthusiasm or optimism⁸⁴⁸. AIM innovations are expected to represent the greatest evolutionary progress in human history, bound to affect how humans live and act⁸⁴⁹. However, these new algorithmic decision-making tools offer no guarantees of fairness, equitability, or even truthfulness⁸⁵⁰. Human medical advice, moreover, may be overruled by personally controlled record tools that incorporate data from primary care, hospital interactions, consultative doctor–patient interactions, or network-based genetic and genomic knowledge⁸⁵¹ for the sake of person-centric care. In terms of competences, the increasing invasiveness of robotic surgery requires that both patient and doctor understand the role of AI, especially given that all parties are exposed to liabilities from the perspective of corporeal and legal adversity⁸⁵².

842 Arnold 2021: 126-127

843 Kose/Pavliou 2017

844 Arnold 2021: 127-128

845 Cohen/Smetzer 2017

846 Arnold 2021: 128

847 Salla et al. 2018

848 Arnold 2021: 132

849 Salla et al. 2018: 1

850 Beam/Kohan 2018: 1318

851 Herr et al. 2018: 143

852 Mueller/Bostrom 2016; Swinglehurst et al. 2014

Robot-assisted surgery (RAS) is a recent innovation that promises less damage to the patient's body, less pain and discomfort, short hospital stays, and quicker recovery periods⁸⁵³. Since the mid-1980s, with the advent of the first RAS procedures, surgical robotics has become a highly dynamic and growing field for business and research, attracting clinical attention worldwide⁸⁵⁴. Robots offer the advantage of being devoid of shortcomings, such as fatigue or lapses in attention, and are able to perform repetitive and tedious surgical procedures. Deployment of RAS may also optimize the production and distribution of healthcare resources and improved use of the healthcare workforce, which also could support the medical situation and supply chains in low- and middle-income countries⁸⁵⁵, which would be beneficial from an ethical perspective.

Despite these positive possibilities, the deployment of RAS is still subject to risks, particularly in the context of human-robot interaction⁸⁵⁶, in which trust plays an essential role⁸⁵⁷. This relates to the fact that certain actions undertaken by bots cannot be supervised or corrected by humans and therefore may harm patients. Safety issues, in terms of the robot's functioning in addition other security concerns, such as vulnerabilities in the area of cybersecurity or privacy, also arise in relation to automated surgery. Questions of liability arise in this regard, as surgical practice has traditionally been characterized by tasks that were fully executed by humans. This recalls challenges similar to those encountered in automated driving, whereby the human remains in the "driving seat" just as a doctor remains "in-the-loop", safeguarding patients during operations that are supported by surgical machines with autonomous competences in which issues of accountability and culpability remain unclear⁸⁵⁸.

As robot autonomy progresses, human surgeons' activity declines, while their supervisory role increases⁸⁵⁹. Sensory data is important for the use of RAS, where the medical support staff are integral to the procedures' success, including patient positioning or port placement. Humans will thus not be eliminated in highly automated surgical procedures, though they will be required to take on more roles in performance, oversight, or support.

853 Fosch-Villaronga et al. 2022: 1

854 Faust 2007

855 Reddy et al. 2016

856 Fosch-Villaronga et al. 2022

857 Sullins 2014

858 O'Sullivan 2019

859 Fosch-Villaronga et al. 2021: 368-369

These developments will also lead to an increase in personalized medicine, since the overload of available information means that knowledge-based work will inevitably be driven by the use of big data and AI⁸⁶⁰. As noted above, however, this requires a continuous influx of additional data to be an effective decision-maker. The storage of personal health data undoubtedly represents a major new profit opportunity for tech companies⁸⁶¹. From an ethical perspective, greater precision, standardization, and personalized medicine represent huge opportunities, as more individuals would have access to reasonable healthcare, and lower costs could make diagnosis more affordable. The increased personalization could further support individual dignity by reducing the negative side effects of medications, which are generally developed based on a northern European or American target patient based on trials with “white” gens⁸⁶², may be reduced for large parts of global population⁸⁶³. From an ethical perspective, several opportunities may when medical decisions and actions are increasingly based on automation technologies. First, medical costs may be reduced and access to healthcare may be increased, since human medical advice tends to be expensive⁸⁶⁴. This could lead to a “democratization of high medical care”⁸⁶⁵, whereby the specialties and capacities of medicine, such as radiology or pathology, may be disseminated worldwide, with increased capabilities for those who were so far left out from highly technologized patient care. In that regard, the work of medical professionals will likely shift toward more consultative and exclusively higher-level diagnostic tasks, such as integrating information to make accurate diagnoses, leading to improved personal care. Nonetheless, medical professionals’ understanding of and acclimatization to the new circumstances will ensure better healthcare delivery to the masses⁸⁶⁶.

Second, this could also strengthen the capability to life, since an individual’s life largely depends on having access to health facilities when needed. Moreover, AI can better predict mental or emotional health as data can be used in more precisely and accurately manner⁸⁶⁷ by including information

860 Naik/Bhide 2014

861 Felder 2015

862 Whyte 2022

863 Mathur/Sutton 2017; Goetz/Schork 2018

864 Vuong 2016

865 Ahmad et al. 2021

866 Amisha et al. 2019

867 Graham et al. 2019

from electronic health records, social media platforms, or brain-imaging data in an effort to ensure personalized medicine. Diagnosis through AI can reduce costs and enhance access to health and healthcare⁸⁶⁸. Furthermore, automated mental health smartphone apps can support psychological health⁸⁶⁹, improving our understanding of humans who are suffering from mental health issues.

Third, automation and increased productivity may reduce employees' overtime and facilitate better rest between shifts, with reduced pressure and less stress⁸⁷⁰, for example, by requiring fewer repetitive tasks. So-called cognitive automation technologies or automation of hyperspecialized workflows, which recognize and transcribe speech in medical encounters, increasingly allow for more patient-centered treatments and reduce the administrative tasks required of medical employees⁸⁷¹. Furthermore, more precise diagnoses can support the efficient deployment of supportive surgery robotics⁸⁷², reducing the risk of failure on the one hand and alleviating mental stress for medical professionals on the other. Both effects support the capability to health, and the same applies to nursing operation automation, wherein the quality of patient care and staff satisfaction increase as a result of the opportunities that automation technology offers⁸⁷³.

The opportunities must be guided so that the responsibilities of individual patients and society at large are appropriately balanced when fewer humans work in the medical sector⁸⁷⁴. Otherwise, several risks from an ethical perspective may ensue: first, enhanced data collection poses risks when not handled appropriately, and when data are sold to other providers, humans may be transformed into products as private data are traded, and if unpaid, will amount to data slavery (see Automation of communication section above) which is a violation of human rights. Second, errors made by machines lead to uncertainty, if responsibility and accountabilities are not regulated. Third, bodily health and integrity may be at stake if the exact uses of robots in medicine are not made transparent, giving rise to fears that robots might violently assault humans and threaten their health if not

868 Kent 2021

869 Tong et al. 2022

870 O'Connor 2020

871 Desai/Bowman 2021; Ratia et al. 2018

872 Nadimpalli 2017: 2

873 Suby 2013

874 Geiger/Hirschl 2015

appropriately supervised, which could even be life-threatening in the worst case.

4.5.2 Pharmaceutical industry, pharmacies, and drug distribution automation

The deployment of automation technologies is expected to have an impact on the pharmaceutical industry in terms of fewer available jobs on the one hand and with respect to how employees work in the pharmaceutical industry on the other⁸⁷⁵, with further impacts on drug development and distribution. These developments are important in terms of the ability to access health, whereby the automation of work in the pharmaceutical and pharmacy industry might improve access owing to the lower costs for individuals while also exerting a substantial impact on those who work in the sector. Nonetheless, a substantial number of individuals worldwide depend on the pharmaceutical industry for health support, including pharmacies. The application of AI in this specific field has the potential to “create miracles in healthcare”⁸⁷⁶, provided the utilization is “limited to human hands and strict adherence to human ethics”, which includes the strengthening of available affordable therapies for the “betterment of human health”. To ensure that automation in this sector is as beneficial as possible, methodology must be standardized⁸⁷⁷, further guided by ethical inputs to ensure that automation technologies are applied in the right manner to clarify when, why, and how AI is used. It is also important that society understands the process so that there are grounded expectations characterized by transparency⁸⁷⁸. This is also affected by the increasing involvement of third-party software companies, which are proliferating in response to the growing demand for AI solutions⁸⁷⁹.

Pharmacy workers, particularly those in low-skilled jobs, are likely to be affected by automation, and automation anxiety has been observed in the sector⁸⁸⁰. Automation technologies are increasingly used in hospitals and retail pharmacies to enhance processes’ efficiency, with reduced inci-

875 Bremme et al. 2020

876 Sandeep Ganesh 2022: 11

877 Boehm 2022

878 Owens 2003

879 Kulkov 2021: 9

880 Piercy/Gist-Mackey 2021

dence of human error and faster fill times⁸⁸¹. Human error may lead to unnecessary illness or, in the worst case, even loss of life. One example would be prescription filling⁸⁸². As ADM focuses on operations, pharmacy workers' hands-on work will be reduced, particularly that of lower-skilled workers, such as technicians⁸⁸³. In that context, the reduction of human error represents an ethical opportunity in terms of facilitating good health and preventing premature death.

The pharmacist's role is typically characterized by judgment, decision-making, consultation, or supervising⁸⁸⁴ and ensure that pharmacotherapy matches patients' needs while the patients understand the treatment⁸⁸⁵. Pharmacists thus require a relatively higher skill set than pharmacy technicians. As such, pharmacists are more likely to see automation as beneficial to work⁸⁸⁶. Automation can have a positive impact on staff by reducing stress and improving working conditions, work-life balance, and management of workload⁸⁸⁷. Pharmacy technicians working after automation reported feeling like workers on a "production line" rather than skilled dispensers; however, the negative effects of automation on job control could be mitigated by the provision of new opportunities for pharmacy staff to expand and develop their role on the wards.

Automation has also introduced new sources of stress, such as increased pressure as a result of the availability of fewer staff in dispensary or frustration caused by robot malfunction. These factors must be identified when automated systems are incorporated. Automation projects should be implemented alongside new, complementary jobs that are patient-facing, require upskilling, and offer task variety in addition to interdisciplinary learning⁸⁸⁸. This would also provide increased access to adequate education and allow workers to focus more on the human aspects of the job. Nonetheless, some groups contribute to so-called "polarized experiences of automation", particularly employees who have fewer opportunities for rotation across roles

881 Repko 2022

882 Fanning et al. 2016

883 Wheeler et al. 2019

884 Piercy/Gist-Mackey 2021

885 Albanese et al. 2010

886 Piercy/Gist-Mackey 2021

887 James et al. 2013: 115

888 Findlay 2017: 132

and more limited career paths⁸⁸⁹, when standardization and intensification are paired with lean staffing and unwanted flexibilization.

Reduction in dispensing errors constitutes an important perceived benefit of automation in pharmacy settings⁸⁹⁰, aside from the “rationalization of the dispensing process, leading to efficiencies in dispensary and throughput and turnaround times and re-engineering of pharmacy services, which might include the development of award-based medicines management service, and decentralization of the clinical pharmacy service”. Nonetheless, issues of liability must be addressed when implementing these technologies, particularly given that errors may affect people’s health. Manual compounding in the past has revealed that humans are the primary source of error⁸⁹¹. In this regard, the majority of medications today no longer require manual compounding, and in such instances, automation systems can take over and significantly reduce errors.

Pharmacy faces more financial pressures in terms of conducting rapid cycle evaluation and implementation to maintain the quality of patient care while reducing costs⁸⁹². Pharmacists often do not have the opportunity to critically evaluate the automation prior to evaluation and are often persuaded by unrealistic marketing promises or anecdotal information from colleagues. This may jeopardize the drug approval process, as errors and lack of understanding about how drug assignment works can lead to medical or health issues of patients. In that sense, standardization of relevant outcomes could benefit pharmacists internationally if they have the appropriate knowledge to make more informed decisions about capital investment in automation, which will require collaboration between professional organizations, pharmacists, and manufacturers of these systems. This highlights the importance of providing adequate education to pharmacists.

New developments in technologies, however, could make both professions increasingly obsolete. For example, so-called “pharmaco-electronic” technology⁸⁹³ implants tools that can increasingly control and monitor bodily functions and communicate directly with providers of specific drugs or even replacing these drugs with various electronic features. In addition to sensors designed to detect anatomical infections with viruses or bacteria and or DNA bio-engineered sequences designed to fix genomic defects, AI

889 Kalleberg 2012

890 Goundrey-Smith 2013: 102

891 Hansen 2014

892 Boyd/Chaffee 2019: 9-10

893 Carvalko 2022

processors may improve resilience when the technical and biological worlds merge, and analytical or diagnostic tools may work seamlessly in concert with big data, in real time and offline. Moreover, predictors of health deterioration may, in that context, be supported by AI-based risk scoring, which is becoming increasingly common, as more individual health centers are integrating AI-based risk prediction into their operations. These technological advancements are likely to alter not only the nature of pharmacy work and related employment but the entire pharmaceutical value chain. However, these technologies are still in the early stages of development.

Regarding pharmaceutical companies, the efficiency gains of automation for larger corporations are significant, even if it just by a few percent⁸⁹⁴. Errors in predicting the success of clinical trials may be improved, which can enhance planning activities. This positive effect is evident not only in large companies, which also benefit considerably from automation of administrative or planning tasks, but also in mid-sized or smaller firms, which are more focused on R&D activities. In that sense, AI may be regarded as a paradigm shift in drug discovery and development. Nonetheless, decision-making should be assisted by these automation technologies rather than wholly delegated to them.

AI in the pharmaceutical industry also plays an important role in the personalization of medicine—namely, personalized medications with the desired dose, release parameters, and other relevant individual aspects can be manufactured in response to patient needs⁸⁹⁵. In addition, automation will accelerate products' market availability while simultaneously enhancing product quality and facilitating optimal use of available resources⁸⁹⁶—for example, when proper positioning and costing in the market is made increasingly possible by comprehensive market analysis and prediction⁸⁹⁷, positive developments ensue from an ethical perspective, in safeguarding individuals' bodily health. The use of AI for diagnostic assistance with a more data-driven approach to patient categorization has also been acknowledged by the FDA, which has approved dozens of AI platforms for personalized patient care⁸⁹⁸. Many are used for remote patient monitoring, while others have identified brain bleeding via scans. AI can help to op-

894 Kulkov 2021: 8-9

895 Rantanen/Khinast 2015

896 Jaemsae-Jounela 2007

897 Paul et al 2021: 90

898 McGrail 2021

timize medical treatment by determining which drug should be administered.

Automation in the pharmaceutical sector may indeed cause job losses. At this stage, however, the systems are intended to ease work rather than completely replace humans⁸⁹⁹—for example, when AI contributes suggestions and predictions. The understanding of human needs paired with understanding of how the technologies work is set to become increasingly important, which may be summarized as “increasing data-driven demands combined with scientific decision-making that govern modern pharma”⁹⁰⁰.

AI can thus reduce the complexities of cost in drug discovery, particularly in the cases of drugs for which there are already-existing therapies, thus enhancing further evolution of the specific treatment⁹⁰¹. AI is especially helpful as a key component of innovation capacity when employees have a combination of AI skills and domain expertise as opposed to having AI skills only. Both skill sets are key, because developing and improving AI tools is an “iterative process requiring synthesizing inputs from bot AI and domain experts during both the development and the operational stages of the tool”⁹⁰².

AI may generally be regarded as a useful approach to drug discovery when the impact mechanisms are already known already or in discovering novel drugs⁹⁰³. Its limitations emerge in relation to incremental drugs, for which AI remains too expensive. AI also has no use in exploring radically novel drugs. As such, for AI to prosper as a drug discovery tool, it is crucial that data sets on which AI may be trained are developed⁹⁰⁴.

It is anticipated that AI capacities will be increasingly deployed in the pharmaceutical industry, particularly in the discovery new drugs to treat chronic and oncological diseases⁹⁰⁵. Chronic illnesses are among the leading causes of death in certain Western countries, particularly the United States. AI is increasingly used for chronic disease management and enhancing patient health. AI also has potential for use in candidate selection processes for clinical trials, whereby the selection could be enhanced to provide trial opportunities to more suitable candidates. Drug discovery and

899 Davenport/Ronanki 2018

900 Henstock 2019: 545

901 Lou/Wu 2021

902 Lou/Wu 2021: 1451

903 Lou/Wu 2021: 1467

904 Smalley 2017

905 McGrail 2021

manufacturing will also be supported by AI, which will become the norm in pharmaceutical manufacturing. The COVID-19 pandemic has accelerated the use of AI in clinical trials, as reliance on digital technology in clinical trials has increased⁹⁰⁶. Rare diseases may also be more easily detected as an aspect of personalized medicine, as body scans, patient biology, and analytics are improving to support disease detection⁹⁰⁷. The prediction of treatment results also benefits the matching of drug interventions with individual patients, reducing work that formerly involved trial and error. In that regard, patients' potential responses to drugs might be more easily predicted by inferring potential relationships among various factors. An example hereby would be the body's ability to absorb compounds and the distribution of those compounds around the body as well as the person's metabolism.

In addition, predictive biomarkers⁹⁰⁸ may help to identify potential responders to molecular targeted therapy before the drug is tested in humans, thus reducing the likelihood that individuals participating in trials will experience side effects, leading to drug repurposing, where particularly budget-pressed pharma companies may benefit from reduced R&D expenditure. The same advantage applies to drug adherence and dosage, as AI and simulation technologies may help to prevent the occurrence of side effects⁹⁰⁹. Monitoring and algorithms for evaluating test results can ensure timely drug adherence, facilitating swift decision-making and optimizing patient treatment⁹¹⁰.

To conclude, access to healthcare may be ethically improved by means of automation, particularly if personalization is increasingly possible and medical product costs are reduced. However, these tools must be carefully evaluated to ensure that they do not violate privacy or jeopardize human dignity. The risk of complete automation of these jobs is currently low which would reduce the opportunity of humans in the field to earn a living.

906 Kolluri et al. 2022

907 Sartorius 2020

908 Sartorius 2020

909 Blasiak et al. 2020

910 Paul et al. 2021: 90

4.6 Care and sex robots

Care technology has expanded in recent years, giving rise to the question of how robots commonly used in aged care might contribute ethically⁹¹¹. The aging populations in Western societies are predominantly paired with shortages of direct care workers, causing the care of elderly persons to have become a growing societal issue⁹¹². In this context, it is anticipated that the nature of care work will be driven by the forces of automation in response to these aging populations⁹¹³. The deployment of sex robots shall also be explored from an ethical perspective below.

There are demographic reasons for the decline in caregiver numbers⁹¹⁴. As such, care robots are regarded by many as a promising development that might mitigate the growing recipient–caregiver disparity and may be considered embodied forms of semi-independent or independent technologies that support caregivers and older adults in physically assistive tasks⁹¹⁵. The applicability of these robots can include assistance with eating problems, provision of hygienic care, or social support. They may also fulfill combinations of several functions.

It seems likely that personal or professional service robots will be found at the homes of elderly and disabled patients in the near future⁹¹⁶. This will lead to a shift in how human labor in care is perceived, particularly in the service sector. Service or care robots can have different capacities (e.g., infrared sensing or locomotion), degrees of autonomy (e.g., the amount of input required from a human operator), and appearances (e.g., robot-like, machine-like, or humanoid)⁹¹⁷. They should further be distinguished from purely industrial robots used in, for example, factory automation⁹¹⁸. The use of AI in elderly care promises to enable so-called “4p-medicine”, encompassing predicate, personalized, preventive, and participatory health-care⁹¹⁹. In addition, these care robots may alleviate the burden on unpaid

911 Vandemeulebroucke et al. 2018

912 Ho 2020

913 Phiromswad et al. 2022

914 WHO 2015

915 Vandemeulebroucke et al. 2018: 15

916 Wynsberghe 2016: 311-312

917 Engelberger 1989

918 Engelberger 1989; Lin et al. 2012; Veruggio/Operto 2006

919 Rubeis 2020

caregivers, such as family members⁹²⁰. From an ethical perspective, however, this may also lead to reduced opportunities for affiliation and social interaction for elderly people.

Care robots are used in private and human environments, such as people's homes, fulfilling functions that include health and safety monitoring and the provision of companionship⁹²¹. However, this will likely also lead to more significant harvesting of private data on the part of the robots. Several ethical concerns emerge as important in relation to ethical care. First, healthcare robots can reduce the potential amount of human contact. Second, there is a risk that elderly people may become increasingly objectified and experience the associated sense of a loss of control. Third, privacy concerns arise when robots are present in private and personal environments. Fourth, dependency and loss of personal liberty may ensue. Social isolation is a common threat that may lead to a loss of dignity⁹²² when human interactions are significantly reduced.

Nonetheless, there are several ways in which robots may be employed in elderly care and positively affect human labor: first, they can assist elderly individuals and their carers in performing daily tasks; second, they can help monitor behavior and health; and third, they can provide companionship. In all of these areas, the introduction of bots may enhance elderly individuals' quality of life, provided that they do not lead to total social isolation and leave room for affiliation. In this respect, the complete replacement of humans in elderly care⁹²³ seems an unrealistic prospect, largely owing to the "human touch"⁹²⁴ that is traditionally required in these services and facilities, and a complete substitution (e.g., a retirement home staffed by robots) would provoke political or societal conflict. Even more, the application of technology to support elderly care may strengthen or enhance human interactions, particularly with close family members. A good example of this is the Kinoo App⁹²⁵, which encourages grandparents and their grandchildren to play games and interact with one another through the app. In addition to automatically reminding individuals to keep in touch, the app also includes a feature that encourages conversations about relevant topics, such as values or global issues, thereby aiming to keep families

920 Ienca et al. 2018

921 Sharkey/Sharkey 2012a: 27

922 Laitinen et al. 2012; Sharkey 2014

923 Sharkey/Sharkey 2012b; Sparrow 2016

924 Sætra/Fosch-Villaronga 2021; Fosch-Villaronga 2019

925 Berthelson 2022

affiliated during periods of isolation, such as those caused by the COVID-19 pandemic.

Increasingly, support platforms may also help when this meaningful whole is under threat, and suicide prevention and crisis intervention can also be enhanced through AI and automated services, such as “The Trevor project” shows, which support wider availability of digital mental health services to LGBTQ youth⁹²⁶. Chatbots may help facilitate initial consultation when life-threatening events occur, which is both ethically beneficial and supportive of elderly people. Furthermore, reduced human labor costs and automation improves mobility, allowing elderly individuals to become more autonomous and expand their social horizons⁹²⁷. In addition, from a material perspective, awareness about the essentiality of human work could improve the treatment of humans by humans, provided care robots are appropriately regulated, while manual or heavy physical work is increasingly performed by machines, allowing humans to focus exclusively on the “human work”, such as conversation or care targeting emotional and mental well-being, while reducing the need to perform physical tasks. In that respect, it is important that robots remain identifiable as robots for their environment, human care workers and elderly people alike, and treat humans with the appropriate level of dignity when they operate.

Accordingly, working conditions must be regulated to ensure that humans do not become objectified with increasing automation and are placed front and center in decisions to automate human labor. This also requires the option to exercise the right to work at a higher age and contribute to society, which may be supported by increased opportunities to work in cognitively demanding environments. Care robots may thus be instrumental in enabling humans to remain part of the workforce. In that sense, paid labor may still be accessed, if necessary, and provide for other capabilities—for example, having sufficient financial resources for recreational activities and education in concert with adequate working conditions. Nonetheless, care robots must be carefully controlled in this regard. This could be encouraged either by technological governance⁹²⁸ or suitable skills training for workers, grounded in high-level or digital skills⁹²⁹ that provide an understanding of how robots work. Another important feature of using care

926 Kent 2021

927 Nadimpalli 2017: 2

928 Zardiashvili/Fosch-Villaronga 2020: 13

929 Sætra/Fosch-Villaronga 2021: 10-11

robots ethically is the use of “democratic spaces”⁹³⁰ in which all stakeholders in aged care, with a focus on those who receive care, are included in the ethical debate. This would certainly also help to structure demands toward the providers of these technologies.

Various specific threats may arise as a result of automation, such as depersonalization of care through algorithm-based standardization, discrimination against minorities with the subsequent generalization that arises with standardization, dehumanization of the care relationship, and increased “disciplination” of users through monitoring and surveillance⁹³¹. To counteract this, a joint effort is required on the part of users, caregivers, providers, and policy makers.

In essence, to build suitable care robots, the understanding of care is crucial⁹³²—specifically, how relationships between robots and users can be mediated to ensure that authentic care is delivered, built on certain capacities that are reciprocal and responsive. From that perspective, robots’ lack of humanity places a significant restriction on their ability to properly care for humans. Moreover, robots cannot genuinely stimulate meaningful conversations that include humor and compliments. This would prevent them from truly caring about care recipients’ deeper needs in long-term care relationship contexts. The treatment of humans as an end, when social isolation is causing psychosocial distress⁹³³, is an existing risk facing society for demographic reasons owing to population decline, and the further removal of human care may exacerbate these issues when care robots are used. Furthermore, caring must fluctuate and transform within social structures, and so health needs would likely not be met by robots in the long term, despite the manufacturers’ promises.

However, care robots can provide assistance when “natural care” is distinguished from “ethical care”, which includes the notion that the focus is placed on the perceptions of the care recipient rather than the giver⁹³⁴. In that regard, the caregiver, who is responsible for “natural care”, such as bringing up children or caring for elders, alongside demographic or economic reasons would not be the primary basis for decision-making, but rather the needs and feelings of care receivers would be prioritized. From that perspective, if the receiver feels cared for, this would be a legitimization

930 Vandemeulebroucke et al. 2018: 15

931 Rubéis 2020

932 Hewitt 2021

933 Fierloos et al. 2021

934 Johansson 2013: 75-77

to avail of robot-provided assistance services. This again shows the importance of strengthening the ability for affiliation, which allows robots to remain up to date with the needs of those receiving their care.

As indicated above, AI health monitoring technologies may play a significant role in addressing the aging health workforce and filling human resource gaps⁹³⁵ while simultaneously reducing the burden on family caregivers. In this regard, however, privacy concerns apply, and potential algorithmic biases could be a threat. Nonetheless, with care patients, the direct application of medical care must be considered as an additional dimension. Monitoring systems can provide a comprehensive picture of elderly individuals' overall activity patterns and the influence of the environmental context to better cover symptoms. Furthermore, technology can support the detection of symptoms, such as in the case of COVID, and secure social quarantine when required, supervising the physical and mental health of elderly patients, paired with a remote health center feedback analyzed by means of AI to sustain elderly people's confidence during difficult periods⁹³⁶.

These tools may therefore be valuable supports for healthy aging. In that context, as elderly patients' health and care costs rise, care robots may not only promote autonomy for elderly people but also reduce the burden on public finances⁹³⁷. Nonetheless, certain aspects of relational care, safety, and privacy must be balanced, particularly regarding the design of these technologies, and clinical and ethical factors emerge as highly relevant as humans are increasingly monitored in their day-to-day activities. This is key in ensuring that systems enhance relational care, facilitate independent living, and promote health outcomes. All these developments are positive from an ethical perspective and reinforce the dignity of elderly individuals.

Similar in this vein is "value-sensitive design"⁹³⁸, which aims to embed normative considerations in the design of care robots at an early stage in the design process, to proactively indicate the evolution of the technology. This would incorporate specific care values that would ensure that patients' dignity is respected prospectively, rather than retrospectively. This approach also centers the question of what care society ultimately requires.

935 Ho 2020

936 Qian et al. 2021: 87

937 Ho 2020: 5

938 Wynsberghe 2013

A subsequent idea, the “nature-of-activities approach”⁹³⁹, aims to consider different value practices in accordance with different healthcare practices to distinguish the nature of a given healthcare activity. This should help to draw a line between those tasks that should be left to humans—practice-oriented activities that require human skills—and goal-oriented activities in which care robots may assist in a way that is ethically sound for all concerned. This should help provide a clear definition of the robot’s role, depending on the specific nature of the activity that is targeted from an automation perspective.

Since the publication of *Love and Sex with Robots*⁹⁴⁰, the discussion as to whether sex robots may be a suitable alternative from an ethical perspective, whether as a replacement for sex workers or as supplement, has expanded. They represent a specific kind of care robot, which can be also used for elderly or disabled individuals⁹⁴¹. Advancements since the publication of Levy’s book have ensured that the “development of highly humanoid sex robots is on the technological horizon”⁹⁴². Phone sex workers must now increasingly compete with sophisticated digital technologies that would perform their jobs at a far lower cost⁹⁴³. Erotic depictions date back to Paleolithic and Mesolithic ages, and so the existence of artifacts that offer sexually relevant functionality is not new to human civilization⁹⁴⁴.

Specific applications to support a dignified life are evident in the deployment of sex robots for older adults with disabilities⁹⁴⁵, which arguably reinforces several of the ten central human capabilities. First, as human life may be understood as an unfolding story, sexuality plays an integral role in the narratives of our lives and who we perceive ourselves to be. Given the stigmatization of sexuality among older individuals, sex robots could help to generate a counternarrative and integrate this into older disabled people’s lives. Second, sexuality may be regarded as an integral component of health that includes physical and psychological dimensions. In that context, sex robots may serve as a tool that allows individuals to maintain their sexual health. Third, the expression of sexual feelings and engagement in sexual behavior may be regarded as a form of self-determination and therefore,

939 Santoni de Sio/Wynsberghe 2016

940 Levy 2008

941 Fosch-Villaronga/Poulsen 2020

942 Frank/Nyolm 2017: 305

943 Carlone 2008

944 Koumpis/Gees 2020: 228

945 Jecker 2021a

an aspect of bodily integrity. As cognitive impairments may interfere with sexual agency, sex robots can be designed to assist with social functions, serving as a source of affiliation and sexual partnership. Fourth, sexuality is related to emotional intelligence, which enables people to be caring, kind, and compassionate. Working with sex robots could help overcome struggles caused by impairment and restore a sense of wholeness and meaning to life. Fifth, reflecting on and choosing a plan of life that expresses authentic values and ends relies on practical reason. Many people's life plans center sexual partnership, as these relationships facilitate happiness, intimacy, and self-fulfillment. Sex robots in that sense could support to incorporate sexual activity into the life plan. Sixth, the capability to affiliation is related to sexuality, whereby affiliation with others is the underlying goal of erotic desire. In that sense, people could bond with sex robots and feel intimately connected to them.

These examples illustrate how the deployment of automated sex robot can generally support a dignified life; however, we must investigate in what sense the robot would differ from a human sex worker and whether sexual relationship can be fulfilled by machines rather than humans⁹⁴⁶. In addition, a robot's manipulating of a human being on a sexual level prompts further discussions from a mental and psychological standpoint⁹⁴⁷. Nonetheless, many who regard prostitution as objectionable may consider robots to be an acceptable solution, and arguably, the deployment of sex robots allows individuals' sexual needs to be met without violating the rights of any other persons⁹⁴⁸.

Other positions regard prostitution as morally problematic and apply the same reasoning to the deployment of sex robots⁹⁴⁹. The deployment of sex robots may additionally be framed as a distorted attitude toward human sexual partners given that consent is not an issue that arises with robots⁹⁵⁰. Bodily integrity is "a form of self-determination through the body"⁹⁵¹, and care and sex robots may increasingly support this capability, particularly for older and/or disabled individuals. In addition, sex robots may help preserve the dignity of sex workers who are targeted by sex trafficking and forced labor, as the business model may become automated through the increased

946 Boni-Saenz 2021

947 Sullins 2020

948 Jecker 2021b

949 Richardson 2015

950 Gutiu 2016

951 Jecker 2021a: 29

deployment of humanoid sex robots. What appears to be clear is that the use of sex robots may cause friction in societal perceptions of reproductive activities.

Another issue that may arise is objectification, where a sex bot's design is based on personification⁹⁵². Human dignity may be violated as the personified individual is considered as merely a means and not an end. In this regard, consent may be required to counteract the objectification. Other perspectives regard user autonomy and responsibility as crucial to ensuring that intimate relationships may develop healthily, for example, among adolescents⁹⁵³. Sex robots that look and behave realistically could also help train people to behave confidently and respectfully in intimate relationships. In therapeutic settings, they may support the development of empathy or enhanced self-esteem in individuals who exhibit narcissistic or dependent personality disorders.

What remains open is the question of how society might respond to and regard individuals who avail of sexual services or care from sex robots⁹⁵⁴. Societal conceptions of love and sex might change, with radical behaviors comparable to those associated with drugs and prostitution, practices that are considered taboo. A similar threat may arise in relation to stigmatization and illegalization, which already causes considerable problems, particularly with respect to prostitution when bans on legal sex work reinforce the poor conditions experienced by those affected by human trafficking⁹⁵⁵. Nevertheless, ethical guidance is required, as robots will surely alter societal perceptions of sex, as has been the case with robots used in healthcare or warfare⁹⁵⁶.

Sex robots may support mental health in terms of reducing extreme solitude (e.g., feelings of inadequacy, physical or psychological problems) by providing a palliative solution or a companion to support satisfying experiences and emotional relief⁹⁵⁷. In that sense, the ability to attain sexual satisfaction using sex robots may even transcend the "humanly possible"—for example, by satisfying the desire for particular acts that might be unacceptable to potential human partners⁹⁵⁸. However, it can also be argued that

952 Lancaster 2021: 598

953 Peeters/Haselager 2021: 64

954 Peeters/Haselager 2021

955 Cho et al. 2012

956 Peeters/Haselager 2021: 64

957 Carvalho Nascimento et al. 2018: 238

958 Anderer 2022; Dubé 2017

the deployment of sex robots might in fact reinforce feelings of isolation and loneliness⁹⁵⁹. Users of companion robots may be reluctant to attend events that are conventionally attended as part of a couple, such as weddings.

The potential for coping with loneliness and isolation with the assistance of sex robots is of particular interest in the context of the aging and elderly population who require support for well-being and health⁹⁶⁰. From that perspective, the threat of using AI that could reposition value systems in terms of sex, however, appears to be an issue affecting the deployment of robots in general.

From an ethical perspective, as outlined above, sex robots do represent an opportunity. First, from an individualistic standpoint, sex robots can support capabilities relevant to sexuality in efforts undertaken in pursuit of a dignified life. Second, considering sex robots as substitutes for prostitution may prevent the horrendous violations of sex workers' dignity, which compromise such workers' bodily health and integrity⁹⁶¹ as a result of human trafficking or forced labor⁹⁶² and may even lead to a destruction of this ethically reprehensible "business model".

Conclusively, robots represent a range of opportunities in the area of care and sex from an ethical perspective. On the one hand, individuals can be supported to live an independent life, provided that the human interaction in their lives is not wholly reduced as a result of the deployment of robots. On the other hand, robots may enhance care workers' and other individuals' quality of life by improving their working conditions.

4.7 Weapons automatization

Automation is increasingly affecting the use of weapons. Conventional warfare is increasingly using autonomous weapons systems (AWS), which incorporate AI in different forms. Meanwhile, automation technologies are increasingly used for surveillance and espionage, even in domestic contexts. Both diminish human influence in decision-making and, in effect, human labor. Their use thus warrants an ethical evaluation.

959 Borenstein/Arkin 2019

960 Koumpis/Gees 2020

961 McTavish 2017

962 Hancock 2020

4.7.1 Conventional warfare and autonomous weapons systems (AWS)

AWS have been increasingly used to reduce human labor in the military or in war zones, in which work has traditionally been performed by humans. So-called “killer robots” are entering the warfare arena by reducing the influence that humans have in decisions as to whether a particular individual or group should be eliminated. In recent years, scholars have debated whether the use of AWS violates human dignity or whether such an argument is even applicable in discussions surrounding automation of this nature⁹⁶³. Most states generally agree that a certain degree of meaningful human control is necessary at all times when deploying autonomous weapons and that new regulations may be necessary⁹⁶⁴ to ensure that the arms race between nations developing these advanced weapons is not posing any risk to international stability and security. In addition, the development of these weapons is becoming cheaper as the costs associated with data processing decline.

AWS are arguably the most extreme example of automation in terms of the technology’s use in making life and death decisions. In extreme cases, these weapons select and engage with targets without any human intervention. While the current stage of development varies across contexts, fully autonomous weapons are likely to already be a reality. In that sense, there is a new case of “death by algorithm”⁹⁶⁵. Their use has been subject to multiple discussions at the United Nations as to whether autonomous weapons raise “unique ethical questions” for warfare⁹⁶⁶.

Automated robotic weapons are already available to evaluate and engage with targets⁹⁶⁷, and the extent of human control requires definition, where different aspects exist, as to whether it is direct or indirect control—also called “control-by-design”. Direct control constitutes “human-in-the-loop” control, whereby constant and uninterrupted physical control is given and a human is constantly engaged to influence the outcome. Another form of direct control would be “human-on-the-loop”, whereby the human has the ability to intervene and override the system’s actions as part of a last-resort measure—keeping one’s “hands on the wheel”, so to speak. Indirect control consists of an appropriate level of capacity on the part of human operators

963 Saxton 2016

964 Righetti et al. 2018

965 Heyns 2017: 48

966 Horowitz 2016

967 Firliej/Tacihagh 2021

to work with a predictable and reliable system, and the autonomous system would have the necessary ethical guidance incorporated in the event of inevitable accidents or events.

In international humanitarian law, the principle of distinction has played a major role in the stigmatization and norm-setting processes of weapons⁹⁶⁸, leading to the ostracism of anti-personnel landmines and cluster munitions. The same reasoning has been used in the past by proponents of the ban on AWS, who state that the automated weapons cannot differentiate between civilians and combatants, making them inherently unlawful. Technological advancement has made this argument redundant and shifted the discussion toward new argumentation regarding how the ban on AWS may be justified. AWS not only affect warfare between countries, but are also increasingly available in domestic law enforcement, where their application could be even more concerning (Heyns 2016). For example, police officers, unlike individuals in the military, have a duty to protect the public, and their judgment demands more personal involvement than those who perpetrate hostilities. This requires meaningful human control and higher standards of responsibility on the part of the force. Nevertheless, fully autonomous weapons would not be subject to human control and therefore should not be instrumental in law enforcement. The same argument may be applied to military “meaningful control”, whereby the rights to live and dignity embodied in human rights support the conclusion that fully autonomous weapons should be banned⁹⁶⁹.

Calls for complete bans are also emerging from the healthcare community, citing the radical violation of health professionals’ moral code and ethical principles⁹⁷⁰. The argumentation is based on absence of human supervision, “exacerbating the encoded human biases while excluding human morality. Targets would be chosen based on their perceived age, sex, ethnicity, facial features, dress code, gait pattern, social media use, or even their home address or place of worship”. Owing to its digital nature, the use of these weapons would be vulnerable to malfunction and cyber hacking, with nebulous legal accountability. Another threat may be found in the self-improving algorithm, which increasingly requires more data and thereby becomes increasing lethal.

968 Rosert/Sauer 2019

969 Heyns 2017

970 Armitage 2019

On a global level, AWS are not subject to any specific regulation⁹⁷¹, which would call for a differentiation of the specific applications of autonomous weapons. Mines are an example of weapons already beyond human control, illustrating how the automation of weapons can harm innocent or random victims with an absence of human intervention. This also shows that there is some sort of autonomy or autonomous weapons in the past, which could give guidance on how to use them today and in the future. Again, the distinction rule, as exemplified by the mine, is recognized as a first characteristic indicating the at least partial use of autonomous weapons. Generally, a minimum level of human control should be implemented for AWS, which would oppose the development of fully automated weapons.

Ethical concerns around the usage of AWS are evident in the fear that the cruelty of warfare delegated to machines could further exacerbate dehumanization or make war more abstract⁹⁷². Moreover, their deployment could show a lack of respect toward combatants targeted, who may be subjected to “undignified deaths”⁹⁷³. From a deontological standpoint, the need for human control and judgment may be based on the principle of dignity, whereas consequentialist accounts highlight global stability and the likelihood of warfare to object to AWS⁹⁷⁴. Exploration of the human control argument reveals that the main reason usually cited in the interest of prohibition is the lack of accountability; AWS cannot currently be regarded as moral or legal agents⁹⁷⁵, whereby human rights and humanitarian principles are jeopardized by the mere fact of these weapons’ deployment⁹⁷⁶.

The healthcare community has typically been influential in establishing bans on chemical, biological, or other conventional weapons, such as landmines⁹⁷⁷, and the medical professionals claim a certain moral authority and professional credibility in terms of the devastating humanitarian consequences wrought by warfare and inhumane weapons. Furthermore, at this stage, the deployment of weapons that seek to replace human judgment in the decision to inflict harm should be banned, according to health professionals’ representatives, who advocate for banning these weapons while “understanding the risks of automation in decision making”.

971 Hughes 2022

972 Armitage 2019

973 Leveringhaus 2018

974 Sharkey 2019: 75

975 Asaro 2020: 212

976 Asoro 2012: 689-688

977 Armitage 2019

Meanwhile, some arguments advocate that AWS may be aligned with conceptions of human dignity. The use of “right-making features” could rebut the argument that the use of AWS would be an affront to combatants’ dignity; however, this argument is vulnerable to the charge that a killer robot could cause unnecessary suffering⁹⁷⁸. In addition, it may be argued that just because a killer robot disrespects combatants’ dignity, it would not necessarily bring about undignified deaths, and may help maintain dignity “in the face of indignity”. Moreover, humans may be regarded as unlikely to relinquish the level of control over war in the coming years⁹⁷⁹, where moral agency would still be ensured provided these weapons are not “fully” automated. This also raises the question as to what can actually be considered a fully automated AWS, since algorithms invariably underpin the operation of these systems, which are built by humans and can thus never be regarded as neutral⁹⁸⁰. In addition, it may be argued that human decisions, as part of the rule of law, for example, are also subject to bias, or that a bot is not substantially different from a morally discerning soldier deployed in battle or a police officer on patrol, which generally supports the further automation of weapons⁹⁸¹.

Furthermore, new conceptions of “standards of basic respect for human dignity”⁹⁸² have arisen in dealing with the question of the terms on which AWS could be employed while still meeting certain ethical concerns. This approach considers actions in light of basic standards if, first, the action is militarily necessary; second, it involves a distinction between combatants and non-combatants; third, non-combatants are not targeted for harm; and fourth, any and all incidental harm to non-combatants is minimized. The specific issue with this approach emerges in terms of the fourth perspective and the calculation of damage to non-combatants, albeit in a minimized manner. Aligned with the above approach⁹⁸³, it is questionable whether this would be compatible with the right to bodily integrity under the human rights framework.

The discussion regarding how AWS should be guided by the principle of human dignity highlights the specification challenges associated with

978 Young 2021: 473

979 Horowitz 2016: 34

980 Stinson 2022

981 MacIntosh 2016

982 Kahn 2022

983 Heyns 2017

the concept and confusion as to how the principle should be stringently applied. Accounts differ, therefore, depending on the perspective and perception of dignity. For that reason, autonomous weapons may be evaluated using the framework of the ten central human capabilities to complement the research field in which “its relevance to military action and to AWS, where it does not yet seem to have been explicitly discussed”⁹⁸⁴.

Freedom from unwarranted search and seizure increasingly relies on machines rather than human beings, which poses a greater ethical risk when weapons become “fully automated”, acting purely on algorithmic guidance. In addition, control over these weapons may shift increasingly further away from democratic choices and influences, as fewer individuals know how and when these weapons are deployed, an aspect that has already been criticized—for example, regarding the US drone war⁹⁸⁵. In addition, the capability to grieve over losses is impeded by a lack of accountability when the perpetrators of an attack remain unclear. Drone attacks on funerals have been reported in the past, with innocent casualties resulting from such attacks⁹⁸⁶, constituting a violation of bodily integrity.

The same applies to the use of autonomous weapons in domestic circumstances when collateral damage is done⁹⁸⁷. For example, protecting individual bodily dignity by the state (i.e., policy) may be at stake—for example, at events requiring individual judgment, such as demonstrations where children or bystanders risk being trampled upon by protestors. The lack of accountability in the public sphere by autonomous weapons in domestic use presents another threat to bodily integrity, particularly since moving freely from place to place, at least in Western democracy, is considered a right in most legal systems and forms part of article 13 of the Universal Declaration of Human Rights. In that respect an individual may be hit based on a specific location while exercising this right.

In general, the capability to life may be jeopardized when autonomous weapons conduct strikes that are not justifiable and terminate life prematurely. From the perspective of the capabilities approach, the deployment of AWS represents a violation of human dignity, critically affecting the capabilities to life, bodily integrity, emotions, and control over one’s environment. There are few grounds to justify their usage, such as the argument

984 Sharkey 2019: 82

985 Boyle 2015

986 Friedersdorf 2013

987 Heyns 2016: 365-366

that they could be used where search and seizure is warranted; however, the “death penalty”-like impact of these strikes⁹⁸⁸ would not be justifiable under the ten central human capabilities. As such, AWS are a clear violation of human dignity.

4.7.2 Espionage and surveillance automation

Automated technologies are increasingly used to spy and surveil not only other countries, but also in domestic contexts, and intelligence capabilities are unprecedented in terms of their reach and efficiency. This development poses a threat not only to democratic individual rights but also to privacy, with massive collection and analysis of data, including predicting and influencing behaviors⁹⁸⁹. Paired with access to social media and other global communications platforms (for an extended discussion, see the above chapter on communication), individuals are increasingly losing the ability to protect their rights when connected through those platforms where privacy is relinquished for the sake of “control” and “security”. These developments are relevant to ethical discussions.

While hundreds of thousands of spies were necessary to sustain totalitarian systems in the past, as in the case of East Germany and the Stasi⁹⁹⁰, the dimensions and possibilities in terms of gathering data for surveillance and espionage have increased to unprecedented levels, with a reduction in the need to employ humans. Prior to the digital age, surveillance was linked to private investigators or government agents in stakeouts, which involved physical work, expense, and time⁹⁹¹. Technology has now fundamentally altered the “second oldest profession”⁹⁹².

The increasingly algorithmic and automated surveillance that evaluates and spies on human beings can reinforce structural inequalities⁹⁹³—for example, in policing⁹⁹⁴. Certain communities or groups may be attacked or spied on, posing a direct threat to equity within a state and challenging individual rights. Outdated legal rules are insufficient to protect the

988 Friedersdorf 2021

989 Avila Pinto 2018

990 Hall 2006

991 Friedland 2015

992 Cunliffe 2021

993 Kelly 2022

994 *The Economist* 2020

individual from the state (Friedman 2015), as governments increasingly enlist private companies to conduct surveillance and spying operations, with warrants no longer necessary and law enforcement increasingly using the gathered data for operations, thereby violating fundamental human rights. Specifically, technologies that support home activities, such as the “Internet of Things”, assist law enforcement in surveilling citizens. Among the practical applications witnessed hitherto was the “Amazon Rekognition” platform used by the US police, which identified lookalike individuals as potential subjects⁹⁹⁵. The software was also prone to more frequent errors with dark-skinned individuals⁹⁹⁶.

Despite their global operation, these tech companies are largely concentrated in California, where global espionage and surveillance in other jurisdictions is becoming increasingly normal, without accountability to the law in the jurisdictions of individual victims⁹⁹⁷. This may pose an increasing ethical challenge, as individuals are often unaware that they are being spied on and lack the opportunity to fight back. The weakness of consumer defenses and its expensive enforcement, particularly for corporates headquartered in the United States, reveals how spying and surveillance may be conducted in an automated manner with minimal human labor, which also strips individuals of their rights in countries outside the United States.

Certainly, mass surveillance and spying on citizens may enhance safety and reduce crime, specifically through cameras and data analytics that support the pursuit of suspects⁹⁹⁸. Furthermore, the government efficiency facilitated by automation technology can enhance service quality for citizens and reducing labor costs on the government side, which may then lower the need for government tax collection. Moreover, fewer police personnel might be required, and, if implemented correctly and without bias, automated security measures may provide an ethical opportunity, considering the hate crimes often perpetrated by police officers⁹⁹⁹.

In China, the low espionage and surveillance costs thanks to automation technology have led to an “automated tyranny”¹⁰⁰⁰ in which an authoritarian regime tramples on individuals’ rights to privacy as well as their civil

995 Hao 2020

996 Wiggers 2019

997 Avila Pinto 2018

998 Priks 2015

999 Bunn 2022

1000 Wang 2020

and human rights, a development that was enforced during the COVID-19 pandemic¹⁰⁰¹. In that sense, the stripping of privacy through automated surveillance has been widely accepted by citizens, including the collection of citizens' biometric data without consent. These data are increasingly used to marginalize and harass minorities, as the case of the Uyghurs demonstrates¹⁰⁰².

As Chinese surveillance technology is increasingly sold to Western governments, these dynamics also affect individuals in liberal democracies¹⁰⁰³, where legal bases are also not granted. This promotes the growth of technology-powered authoritarianism worldwide, owing to the lack of global governance on the circulation of these technologies. Nevertheless, the EU has begun developing a more human rights-centered approach to governing the export of cyber surveillance technology received by the US and Chinese governments. However, it remains unclear how this will interact with competing geopolitical, commercial, and security agendas¹⁰⁰⁴. At this stage, external backlash from liberal democratic countries against the authoritarian capitalist dynamic producing surveillance technology has been observed¹⁰⁰⁵.

From an ethical perspective, the use of these technologies must be carefully supervised, as they can easily be abused by political interests, which would violate political rights and freedom from unwarranted search and seizures, if the usage is not transparent. Spy software has reportedly been used to manipulate democratic processes¹⁰⁰⁶ and suppress freedom of speech. Moreover, the categorization and ADM that is subsequently based on this information may be discriminatory.

To conclude, the automation of weapons presents several challenges from an ethical perspective, since such weapons violate individual rights when deployed. Careful supervision is required going forward to ensure that they are not used to undermine basic capabilities to live a dignified life.

1001 Liu/Zhao 2021

1002 Baptista 2022

1003 Bernot 2022

1004 Kim 2021

1005 Huang/Tsai 2022

1006 Priest et al. 2021

4.8 Automation of the rule of law

Advancing automation increasingly affects the rule of law, whereby enforcing and protecting individual rights has major implications for living with human dignity. For example, legal work is increasingly influenced by AI-driven “law”, and humans in government jobs may become increasingly replaced or assisted by robots that make decisions that have wide-reaching influences on civilians. Although legal work will likely not entail the complete replacement of human labor, as jobs require skills that technology still lacks—human capacities, such as social intelligence, creativity, and general intelligence¹⁰⁰⁷—the reduced involvement of humans will nonetheless have an impact, including the growing use of so-called e-government solutions to automate the public services value chain¹⁰⁰⁸. For example, in light of the dependence on an ever-smaller group of technicians who control the deployment of automation technologies such as AI¹⁰⁰⁹, the rule of law must ensure a “rule of persons, not machines”¹⁰¹⁰. Moreover, the rule of law is a mechanism designed to curtail the abuse of power and to ensure that society upholds certain values, including human rights¹⁰¹¹. Commonly, the rule of law is viewed as a notion that is worth protecting despite its exposure to political abuse. Modern technologies, including AI and machine learning, have improved so that they can assist human decision-makers across almost all fields, and their decision-making abilities will also be enhanced, allowing more control and responsibility to be transferred to them. These technologies challenge the ideals associated with the rule of law as a concept of traditional law—for example, treating everyone equally before the law. The ethical evaluation of these developments is highly relevant.

4.8.1 Legal services

In legal services, automation tendencies have meant that law is increasingly considered to be algorithmic, at least from a business and efficiency-driven perspective. This involves efforts to transform objectivized “facts” into outputs (agreements or litigation stances) via the application of a set of rules

1007 Furman 2018: 320

1008 Bwalya 2020

1009 Coeckelbergh 2013

1010 Pasquale 2019: 1

1011 Greenstein 2021: 28

(law), and technology increasingly automates these processes¹⁰¹². The consequence is that many tasks typically performed by lawyers and attorneys, traditionally white-collar workers, can now be performed by technology. Automation of labor in the legal area is often advertised as improving access to justice, reducing legal costs while enhancing performance¹⁰¹³, and promoting the rule of law, compared with the democratization of law and consequent empowerment of ordinary citizens. It is promoted as a new form of law that will emerge to provide the benefit of rules and standards without the costs of traditional legal services¹⁰¹⁴. One example of increased algorithm usage is the use of automated document view¹⁰¹⁵ or tax statutes that are no longer prepared by lawyers or accountants but rather in the form of computer code, eliminating the interpretive process, which has become standardized¹⁰¹⁶. As technology is already assisting civil lawyers in their traditional roles as advocates and advisors, it will continue to do so in the future, particularly given that the digital world will continue to yield more information and data. Software could thereby offer considerably more support, rather than writing documents by itself. This would lead to a “legal singularity”, whereby the accumulation of data and improved methods of inference would render legal uncertainty obsolete¹⁰¹⁷, albeit at a great cost to the individual consideration of cases. In addition, automation technology is automating other activities, such as litigation review, generating expertise, legal research, or contract analysis¹⁰¹⁸.

It is commonly assumed that technology has the potential to reduce the errors made by human attorneys or limit their biases, particularly given that human judges can likewise be influenced by such factors. Therefore, automation can elevate the legal system above the fallibility of any particular person¹⁰¹⁹. Promising developments in legal automation target people who need and deserve but cannot afford to enlist the services of an attorney. This is the case in many low-income households: in the United States, for example, thousands of children have juvenile records for crimes such as

1012 Pasquale 2019

1013 Remmers 2018

1014 Susskind/Susskind 2015; Katz 2013: 939-941; Casey/Niblett 2015

1015 Thomson Reuters n.d.

1016 Lawsky 2017

1017 McGinnis/Pearce 2019; Susskind/Susskind 2015

1018 Davis 2020

1019 Eren/Mocan 2018; Smith 1998; Radin 2005

marijuana possession or vandalism¹⁰²⁰. In such cases, attorneys can usually quickly arrange an expungement, but not everyone has access to a lawyer. Another example of how software automation can help is the use of tax software that offer ordinary citizens considerable time savings by relieving them of the need to provide tax documentation in paper form. In that sense, the greatest potentials in the automation of legal work are those that encompass a wider consumer sphere, as represented by fields such as tax, will preparation, or everyday disputes, such as traffic or parking fines. Several start-ups and legal technology innovations are working on improving access to justice for more citizens¹⁰²¹. Accordingly, substitutive legal automation may also be a fortunate phenomenon from an ethical perspective, as more individuals are empowered to claim and enforcing their rights. In this sense, low- to middle-income socioeconomic households may have their legal needs met more as software would be the only form of advice available to them. The same would apply, for example, to small business¹⁰²². In that regard, certain ethical opportunities arise from the use of automated legal services, whereby political rights may be easier to assert owing to lower costs and consequent better access to these services while improving the ability to be treated as a dignified being whose worth is regarded as equal to that of others.

Legal questions, however, quickly become more complex, making it more difficult to use computer code to translate legal code in a way that is intelligible to the layman¹⁰²³. In this regard, the role that lawyers and attorneys play as the main crafters and maintainers of social order¹⁰²⁴ by representing the rights and interests of individuals in the rule of law is changing, as equal treatment may become difficult when the intention of the deployed technology remains opaque¹⁰²⁵, posing an ethical risk. In addition, without ethical guidance, law firms and third parties from the technology sector risk deploying “AI-driven tools that fail to provide effective client-centered services, inhibit wide-spread access to justice, and undermine lawyers’ ethical obligations to current and former clients, including the obligations to practice competently, maintain confidentiality, effectively supervise third

1020 Pinard 2013: 967-968

1021 Sonday 2020

1022 Chu et al. 2013: 965-966; Pasquale 2019: 17

1023 Pasquale 2019: 7-8

1024 Abbott 1988; Pasquale/Cashwell 2018

1025 Greenstein 2021

parties, communicate with clients, and exercise independent judgment and render candid advice”¹⁰²⁶.

Legal processes typically deal with explanation and judgment—a different set of activities to the predictive modeling and pattern recognition common to most legal automation technologies. A decision-maker aims to ensure that a certain result (guilty or innocent, etc.) not only follows a certain pattern of past documents and words contained therein¹⁰²⁷, but also considers the situational context. For example, tax administrations may violate privacy when profiling individuals for tax non-compliance based on certain keywords¹⁰²⁸, which could be an issue from an ethical perspective if these profiling mechanisms discriminate against certain groups.

Regarding DLTs (see impact on financial industry above) or blockchain, smart contracts are expected to expand the automation of legal services without the need for intermediaries. Nonetheless, debate surrounds the question as to whether this kind of automation renders contract law obsolete or whether smart contracts are simply another iteration of traditional contracts¹⁰²⁹. One key issue relates to the question of how to align the powers of government with blockchain contract automation in the absence of a central authority to settle disputes¹⁰³⁰, where one option would be to provide the state authorities the status of a superuser and another would be to rely on traditional remedies in “offline mode”. In any case, blockchain technology appears to provide certain opportunities if a legal system is unable to serve its citizens—for example, in developing countries. However, the absence of authority to rule in the case of dispute represents a risk from an ethical perspective, when certain services and functions can no longer be supervised. In general, the automation of the legal sector must be carefully observed, as, on the one hand, access to services can be enhanced owing to lower costs; on the other hand, however, ethical guidance is specifically required in terms of controlling and supervising the design and deployment of the specific automation technology.

1026 Simshaw 2018: 173

1027 Brennan-Marquez 2017; Pasquale/Cashwell 2018

1028 Scarella 2019

1029 Ruehl 2021; Raskin 2016

1030 Savlyev 2017

4.8.2 Public services

Governments are increasingly pressured to deploy automation technologies in a bid to become more efficient in the operation and provision of public services. This inevitably also affects how the rule of law works. The aim of reducing government spending worldwide is growing, and decision-making is increasingly influenced by automated processes. This operative set-up reduces employment, as governments are major employers in most global economies. In addition, those remaining in government jobs will be obliged to make decisions that are influenced to a greater extent by preceding decisions made by automation technologies, such as sorting or categorizing relevant information.

Ultimately, labor accounts for 20–25% of government expenditure¹⁰³¹. Austerity and debt have forced governments to cut costs in recent years, and automation has considerable potential—for example, for low-level clerical and data entry positions and other repetitive tasks, such as general maintenance and operations positions¹⁰³². Some positions may be partially automated, while others can relieve human workers of the need to perform mundane tasks, splitting jobs into smaller tasks or augmenting and complementing the skills of workers¹⁰³³. As an example of automated public services, we may cite algorithms in social work¹⁰³⁴. These determine which family receives what kind of social assistance¹⁰³⁵ or policing as part of the legal system¹⁰³⁶. It is anticipated that automation in the UK public sector workforce may reduce the workforce by up to 25%, based on study estimates¹⁰³⁷. Automation in public services promises financial resource savings in the form of taxpayer money, better service quality, and lower transaction costs¹⁰³⁸ a more equal treatment of citizens through standardization¹⁰³⁹ and decisions that are less prone to error than human decisions¹⁰⁴⁰. Ethical

1031 Cribb et al. 2014; IMF 2016

1032 Viechnicki/Eggers 2017

1033 Eggers et al. 2017

1034 Ranerup/Svensson 2022

1035 Gillingham 2021

1036 Adensamer/Klausner 2021

1037 Deloitte 2016

1038 Dickinson/Yates 2021: 7-8; Petersen et al. 2018; Eggers et al. 2017; Borry/Getha-Taylor 2019

1039 Steelcase 2010

1040 Weitzenboeck 2021

opportunities and risks thus arise whenever fewer humans work in governmental services.

4.8.2.1 Access to services

Access to public services is not a given in large parts of the world¹⁰⁴¹, and digital transformation can enhance access for individuals when standardizing services are increasingly provided, despite the fact that personal costs are saved in times of declining state revenues in line with a narrative centered on reducing legal spending¹⁰⁴². In this regard, procedural fairness may be enhanced through an automated system, depending on the decision-makers' circumstances and based on the assumption that the decision is supported but not supplanted¹⁰⁴³. Furthermore, the specific process does not involve complex issues, such as family-related circumstances that would require individual attention. An applicable example would be chatbots and intelligent assistants for public engagement, providing information about ongoing cases or responding to citizens' questions¹⁰⁴⁴. Robot advisors could also support civil servants, thereby improving service or response time.

Liability is an issue when the provision of public services is not fair or transparent, particularly when the automation process has been outsourced. In that sense, lawyers could challenge government decisions based on algorithms but may face claims that they are proprietary¹⁰⁴⁵. This issue also applies in terms of traceability, as the growing complexity of AI systems involving machine learning and neural network has diminished human operators' ability to keep track of outputs and inputs of public services. Potential approaches to resolving this issue might include clearly assigning accountability in terms of externalized services to the government¹⁰⁴⁶ or extending responsibility to vendors to close the "AI accountability gap"¹⁰⁴⁷. Nevertheless, from an ethical perspective, automation represents an opportunity when standardization is implemented under the guidance of certain ethical requirements, involving services that do not require further indi-

1041 Hewett/Montgomery 2001; Batley et al. 2012

1042 Pasquale 2019: 17-18; Synergist 2018

1043 Nagtegaal 2021

1044 Engin/Treleaven 2019

1045 Roberts/Wernstedt 2019; Gilman 2020; Crawford/Schultz 2020

1046 Alford/O'Flynn 2012

1047 Crawford/Schultz 2020

vidual consideration of a particular case. In addition, in many countries, access to public services can be achieved only by means of bribes, owing to widespread corruption among the government employees providing or making decisions regarding these services¹⁰⁴⁸. In this regard, automation of public services could support a dignified life, based on the assumption that accountability—in that regard, “public accountability”¹⁰⁴⁹—and other ethical standards as discussed below, such as equity as part of a functioning rule of law, are enforced. This would bolster the right to political participation.

4.8.2.2 Equity

Equity is an important legal ideal that may be regarded as consistent with the ideal of the rule based on an Aristotelian view and is defined as “doing justice in particular cases under appropriate circumstances”¹⁰⁵⁰. The public sector workforce enshrines four prominent values: economy, efficiency, effectiveness, and equity. The equity value derives from the expectation that a good administration is equally good for everyone, rooted largely in a democratic viewpoint¹⁰⁵¹. It forms part of the aim to social equity as part of fairness and justice with a direct public policy implication to reduce the influence of social characteristics, such as economic circumstances, for access to public services¹⁰⁵². This is also essential in the provision of public goods and resource allocation with the aim of furnishing the conditions necessary to support a dignified life¹⁰⁵³, representing the ability to be treated as a dignified being whose worth is recognized as equal to that of others.

As mentioned, standardization provides certain potential for equity treatment from an ethical perspective when rules and appropriate supervision with transparency as to how the automated decision tools are used are applied in the provision of public services. This is even more essential since the interest in automation technologies is broad from a governmental perspective, where organizing social security more efficiently is just another example in addition to the more efficient prioritization of legal cases. In

1048 Robinson 2012

1049 Busuioc 2021

1050 Solum 1994

1051 Frederickson 2005: 31; Norman-Major 2011

1052 Johnson/Svara 2015: 282

1053 Perin/Panfilis 2021

any form, the aim would be to reduce human involvement, and human decision-making in government is increasingly replaced, which substantially affects the rule of law itself and its operation¹⁰⁵⁴. The promise to make governments and whole democratic systems more accurate, efficient, and fair has accompanied the use of automation technology in recent years. Several nations have become enthusiastic adopters—for example, in areas such as welfare allocation and the criminal justice system, where social equity must be even more carefully reviewed when automation technologies are applied, particularly for law-related public services that require individual case attention.

The use of automation technology paired with increased standardization has the potential to have a critical impact on the ideal of equity in two key ways: first, considering the workforce in public services, automation could reduce diversity, as certain groups could be more affected by automation than others. This has the potential to affect workforce equity¹⁰⁵⁵, as female and non-white employees appear to be the most affected by automation in the public sector when administrative jobs are replaced by robots, at least in the United States¹⁰⁵⁶. This may raise equity concerns, and if automation targets positions that are heavily populated by these groups, it is also important to consider how automation efforts may impact the public sector's commitment to a diverse workforce and ensuring equal employment opportunities. If workforce diversity no longer represents the general population, citizens using government services may be less likely to encounter any staff members with whom they can identify¹⁰⁵⁷, particularly when fewer humans are employed to provide government services. This could result in higher social inequities and injustices¹⁰⁵⁸, on the one hand, owing to a lack of common understanding in tandem with the decline in representative bureaucracy, as fewer citizens will be able to identify with government agents. On the other hand, deciding algorithms may follow predefined patterns that impose disadvantages on certain groups, for example, in the context of policing¹⁰⁵⁹. In that respect, as biases in policing may occur, and algorithms are used in decisions regarding proceedings of the rule of law,

1054 Zalnieriute et al. 2019

1055 Borry/Getha-Taylor 2019; Clifton et al. 2020

1056 McClure 2018

1057 Borry/Getha-Taylor 2019

1058 Butcher/Beridze 2019; Dwivedi et al. 2019; Carney 2019

1059 Eubanks 2018

the threat of unwarranted search and seizure may increase, particularly if the underlying rationale is to a greater extent based on ethnicity or other discriminatory characteristics. Surveillance techniques used in China exemplify how automation technology increasingly determines whether or not a certain individual should be regarded as a criminal¹⁰⁶⁰.

Second, equity may be threatened if the bots entrusted with programming decisions, which are supposed to be minimized in terms of bias, turn out to be less neutral than initially believed because they also have been programmed by humans¹⁰⁶¹, which would mitigate the “standardization” advantages. In addition, the removal of “street-level bureaucrats” expertise¹⁰⁶², for example in social services, gives rise to questions as to how IT professionals shape public service encounters when there are fewer human case workers¹⁰⁶³, particularly given that automation technologies will sort gathered information based on a predefined algorithm that will subsequently be used for decision-making by those government workers that remain.

A risk in this context would be that IT professionals may begin to dictate how government agencies organize their processes and interactions with citizens—in most cases, without understanding the nature of public service provision and, often, without ethical awareness. This may cause mistakes as programmers may incorrectly translate regulatory requirement into source code¹⁰⁶⁴, including biases. Exposure to other services also generates risk when complex services, such as welfare programs, engage in “cream-skimming”, whereby the easiest tasks or clients are selected while the least profitable clients are put on hold¹⁰⁶⁵. This again would be an example of a bias in an algorithm that threatens equal treatment. Regarding AI decision-making, the algorithm may miss essential policy questions that should be considered in specific cases—for example, in terms of administrability, efficiency, or fairness, a rigid rule cannot be applied to a set of facts¹⁰⁶⁶, which is also relevant when hiring public servants¹⁰⁶⁷ in a diversified manner. Furthermore, AI automation may not be appropriate where caseworker

1060 Mozur/Krolik 2019

1061 Feldman et al. 2015: 259-268

1062 Zouridis et al. 2020

1063 Lindgren et al. 2019: 434

1064 Gilman 2020

1065 Bovaird 2016; Considine 2011

1066 Pasquale/Cashwell 2015

1067 Borry/Getha-Taylor 2019: 8

discretion is required to prepare a case and make decisions. In this regard, AI should only be used to undertake a pre-handling of the case before passing it to a human for a final decision¹⁰⁶⁸. One example, the Robodebt case, illustrates how an algorithm incorrectly calculated welfare recipients' incomes and automatically issued thousands of debt notices to clients, causing considerable stress, anxiety, and even depression for Australia's most vulnerable individuals¹⁰⁶⁹. This illustrates that an implementation of automated systems in public services without attention to procedural fairness and human intervention causes significant issues from an ethical perspective. The involvement of algorithms may assist perceptions of justice if it supports human managers' decision-making of human managers, but not the other way round. In this sense, it would not be ethically viable to automate entire processes, and humans will need to be involved in at least all decision-making elements¹⁰⁷⁰.

The COVID-19 pandemic supported the advanced use of automation technologies in the public sector, as remote access to tools became particularly relevant¹⁰⁷¹. Nevertheless, the high development costs and limited availability of costly expertise must be considered¹⁰⁷² when implementing automation technologies in the government, particularly when enforcing compliance with data protection and privacy law¹⁰⁷³, where high-pressure situations, such as a pandemic, suddenly increase the demand for automation. This typically comes at a higher price, including "shadowing costs", when human contact is reduced on labor that is reduced¹⁰⁷⁴, such as in the typical case of public services, in which clients should be treated with empathy and perceived fairness¹⁰⁷⁵. In this sense, if the implementation of these tools is not carefully evaluated, both equity and privacy may be easily violated¹⁰⁷⁶, specifically when these technologies are used in governmental legal activities and might displace the traditional understanding of law with technology-driven prediction¹⁰⁷⁷. For example, data concerning minority

1068 Lindgren et al. 2019; Nagtegaal 2021

1069 Huggins 2019

1070 Dickinson/Yates 2021: 10

1071 Dickinson et al. 2021

1072 Wirtz et al. 2019

1073 Pencheva et al. 2020: 34

1074 Korinek/Stiglitz 2021

1075 Alford/O'Flynn 2012

1076 Pujol/Machanavajjhala 2021

1077 Pascuale/Cashwell 2018; Hildebrandt 2018

groups may be used to discriminate based on private data, which, on the one hand, is a violation of privacy, and on the other hand, violates equity. Therefore, any technology deployed must be controlled by humans who evaluate and decide what government processes regarding the rule of law are sufficiently useful, appropriate, and consistent to be automated¹⁰⁷⁸.

The same applies when outsourcing to third parties or AI providers, as the government needs to maintain the capacity to effectively manage these providers¹⁰⁷⁹. The issue of algorithms' opacity may create systems that target some populations or disproportionately exclude certain non-typical citizens, particularly if designed in ways that reinforce the norms of certain specific social or political actors while excluding those of others by using historical datasets that include biases and inequalities to inform automation technology¹⁰⁸⁰, which is an issue from an ethical perspective. At this point, human programmers may input their own judgments and biases into algorithmic processes¹⁰⁸¹, which may be traced back to the lack of diversity in the workforce that designs, codes, and programs AI technologies¹⁰⁸², a dimension that may become more salient because private companies tend to be more market-oriented, using biases for client targeting, than programmers in the public sector, owing to the equity principles in the government.

Similarly, when AI assists judges in making judicial decisions¹⁰⁸³, these decision-making systems may further be considered a “black box”, as they are complex in their set-up and lack transparency. In addition, decisions are becoming difficult to explain if based on inputs given by a machine. In that regard, fully automated decisions may logically be based on two premises¹⁰⁸⁴. First, the data representing every relevant fact of the case must exist in machine-readable form and be digitally available in the appropriate format. Second, it must be possible to process all case data using computer programs containing correct and complete representation of all applicable legal rules. However, these premises would require transparency regarding the usage of the algorithm.

1078 Zalnierieute et al. 2019: 455

1079 Souza et al. 2020

1080 Eubanks 2019; Asaro 2019

1081 Gilman 2020: 5

1082 Clifton et al. 2020

1083 Greenstein 2021: 1

1084 Schartum 2020

The rule of law is essential for dignified life in terms of political rights but also wealth distribution¹⁰⁸⁵. Therefore, the incorporation of unfamiliar tools without transparency into governance structures raises ethical issues with respect to the legal labor conducted (i.e., partially or wholly automated). This may also affect the legitimacy of the rule of law when legal labor is automated and deny the idea that the rule of law is “good for everyone”¹⁰⁸⁶. This is especially relevant since automation may cause a reduction in humans working in government positions while those remaining are heavily influenced by ADM.

4.8.2.3 Market pressure and efficiency

The disruption caused by AI is currently approached primarily from an economic perspective, as calls for efficiency and market pressure have been the main drivers, while “law” on the public side is regarded as equivalent to the work conducted as “legal services” in the market¹⁰⁸⁷. This leads to a similar pressure in the service market but also in the rule of law relating to the public sector¹⁰⁸⁸, as they heavily influence one another. In general, the increasing pressure influences the social aspects of the work performed by legal service firms, challenging norms, traditions, and culture, which in turn affects the rule of law. In tracing the impact, we may distinguish between the deployment of technologies in the “business of professional services”, which are associated with business process management and increased workflow efficiency, while automation in the public sector largely leads to a loss of human shaping in legal decision-making. The interdependence between humans and machines must always be considered to meet the goals of ethical integration, particularly the requirement that the human be kept in the “loop”¹⁰⁸⁹ at a minimum when taking decisions.

An example of this ethical gap may be found in the collaboration between lawyers and computer scientists who engineer and design the technologies¹⁰⁹⁰. This may be crucial in sustaining democratic participation in

1085 Sunde 2017

1086 Tamanaha 2012

1087 Hildebrandt 2017

1088 Brooks et al. 2020

1089 Jones 2015

1090 Hildebrandt 2016: 1-2

law-making, contestability of legal effect, and transparency around how citizens may be manipulated by the invisible computational backbone, which is also relevant from an ethical perspective. This could help to safeguard human autonomy and human conditions, where “at the last stage of the laboring society, the society of jobholding, demands of its members a sheer automatic functioning, as though individual life had actually been submerged in the over-all life process of the species and the only active still require of the individual were to let go, so to speak, to abandon individuality”¹⁰⁹¹.

Market and efficiency pressure also leads to outsourcing efforts in services that are socially complex and highly reliant on description, such as child protection services. Several voices have raised concerns about the outsourcing of public services, claiming that the evidence suggests that it does not consistently lead to improvements but largely causes challenges and problems from an ethical and legal perspective¹⁰⁹². Outsourcing and AI-supported automation may be conceptually compared, as both processes involve the transfer of work from public sector employees to another agent, either through a non-government organization or an automated system, which is typically externally provided¹⁰⁹³. The related problems and informational asymmetry occur in both processes, as work is undertaken by people external to the government organizations. The same occurs with automation powered by AI, as the purchasers may lack the requisite knowledge or insights into the algorithms used, which is also, in many cases, justified by their proprietary nature. Machine learning can further exacerbate this issue, as the system learns from data and is not simply an algorithm that follows a series of pre-programmed rules but rather adapts itself to the circumstances, exemplifying the issues surrounding the supervision of governments’ outsourcing of services to third-party providers. In these circumstances, systems operate in processes that have not been designed as such by the purchasing governmental organizations and may represent a significant informational asymmetry with respect to public work. Nonetheless, the growing importance of ethics AI can positively contribute to governance with respect to outsourcing arrangements¹⁰⁹⁴.

1091 Arendt et al. 2018: 322

1092 Sasse et al. 2019; Petersen et al. 2018; Reichard 2016

1093 Dickinson/Yates 2021: 3-4

1094 Beulen et al. 2022: 23

Monitoring and supervising legal administrative processes may thus become a major task to be fulfilled by legal workers, as assistive tools, such as document review bots, and even interpretation of the law looks set to become increasingly automated. This includes ensuring that the final decision is invariably made and justified by a human, though automated tools may support the decision-making process. This is essential in terms of political and social inclusion, as human¹⁰⁹⁵ agency is arguably a cornerstone of society that has become threatened by machines. Among the major upcoming challenges will be the use of these technologies' benefits while simultaneously protecting society from their harms. This includes, for example, promoting innovation while simultaneously balancing it against the interests of society. One key challenge would be to determine which values to balance technology against, whereby a functioning rule of law and its values of equality or protecting human rights would be a starting point.

To conclude, the automation of the rule of law offers certain opportunities from an ethical perspective—namely the provision of enhanced access to services for “standard” cases requiring only minimal human interpretation. Nevertheless, threats occur specifically with the reduction of human involvement, where automation technologies subject to biases threaten to be substantially influential in the decision-making process and legal work conducted.

4.9 Evaluation of policy instruments from an ethical perspective

The capabilities approach intends to critically evaluate and inform policy from an ethical perspective. To this end, the subsequent policy instruments, which are frequently discussed in terms of possible actions regarding digital transformation and human labor, are assessed under the ethical point of reference addressing the specific question of whether they might be beneficial in terms of the ethical opportunities and risks identified in previous sections. These instruments include labor market policies in addition to other regulatory measures, such as technology restrictions or taxation. Furthermore, companies can act self-responsibly as part of corporate social responsibility (CSR) in self-regulatory efforts. The list of tools mentioned and outlined is not exhaustive. Nonetheless, the wealth of material for discussion and available literature reveals that the instruments outlined

1095 Greenstein 2021

below are improved options for dealing with the direct outcomes and consequences of automation from an ethical perspective. In that sense, they will be evaluated from the perspective of the ethical point of reference.

4.9.1 Minimum wage

Minimum wage is a classical labor market policy instrument designed to regulate the lowest remuneration that employers can legally pay their employees and may be defined as “the minimum sum payable to a worker for work performed or services rendered, within a given period, whether calculated on the basis of time or output, which may not be reduced either by individual or collective agreement, which is guaranteed by law and which may be fixed in such a way as to cover the minimum needs of the worker and his or her family, in the light of national economic and social conditions”¹⁰⁹⁶.

The application of a minimum wage is regarded as a mechanism designed to reduce inequality¹⁰⁹⁷, as it ensures earnings for those at the bottom of the pay scale. It is considered an effective tool for compressing wage distribution while serving to lessen the incidence of low pay in both developed and developing countries. Nowadays, more than 90 per cent of the ILO member states have a minimum wage system in place, and even in developing countries, where enforcement mechanisms tend to be weak, minimum wages appear to be effective in reducing inequality.

In terms of the impact on unemployment, controversy surrounds the question of whether minimum wage directly influences the rise of unemployment, as employers may cease hiring more people¹⁰⁹⁸. Minimum wage advocates emphasize its positive impacts, such as the increased standard of living, reduced poverty and inequality, and the boost in morale it provides¹⁰⁹⁹.

Views differ regarding how minimum wages might affect manual labor that is under the threat of being wholly automated. Concerns have recently been voiced that firms would engage in labor-displacement capital investment that could harm workers¹¹⁰⁰, explained by the fact that the higher

1096 ILO 2014: 19

1097 Berg 2015

1098 Black 2003: 300; Card/Krueger 1995

1099 Bonte-Friedheim 2019

1100 Mourdoukoutas 2019

the labor cost, the greater the incentive for companies to invest in automation technologies. According to this capital–labor substitution hypothesis, a minimum wage would accelerate automation¹¹⁰¹. Nevertheless, a minimum wage could, as stated, increase the salaries of the remaining workers. In that sense, the instrument appears to be beneficial for manual labor in the short term, as in the long term, automation appears to be an attractive means of reducing or even eliminating labor costs. In that regard, it would support individuals in accessing education, since they will need to transfer out of the job in the mid- or long term. This is particularly relevant given that skills and the ability to adapt to shifting skill requirements will be crucial in granting access to the future labor market, and a minimum wage would enhance the opportunities for these individuals to have a functioning income that is sufficient for the time being.

Where the risk of wholesale automation as a result of the need for a “human touch” tends to be low, such as in elderly care, a minimum wage could also be helpful in the long term as a means of raising income¹¹⁰² and helping individuals in these sectors to support all capabilities, which would be beneficial from an ethical perspective. This effect may also play out in the public sector; in most cases, however, government servants’ salaries are regulated based on predefined criteria such as certificates, years of experience, position, and so on.

4.9.2 Universal basic income (UBI) as a social assistance scheme

The provision of a universal basic income (UBI) may be a useful measure for ensuring the necessary conditions for a dignified life if paid work becomes obsolete, and has been cited frequently as a potential response to advancing automation¹¹⁰³. UBI may be regarded as a necessary element in the social contract afforded to the new workforce, as the social safety net must to be adjusted to consider a workforce that is increasingly independent or without work¹¹⁰⁴. The concept of UBI is not new but was favored by activist Martin Luther King Jr and libertarian Milton Friedman alike¹¹⁰⁵. It is a source of fascination for many because it is an idea rather merely a

1101 Geng et al. 2022

1102 Vadean/Allan 2021

1103 Dermont/Weisstanner 2020; Cabrales et al. 2020

1104 Sundararajan 2017: 10–11

1105 Gentilini et al. 2019: 17–18

program, a lesson, or an economic policy¹¹⁰⁶. Discussions surrounding UBI are often a proxy for debates concerning the role of the state and markets and revolves around the distribution of power within societies. Therefore, it is not merely a form of redistribution of wealth but rather represents a moral statement¹¹⁰⁷.

Social assistance schemes may generally be codified according to three features or dimensions¹¹⁰⁸. These encompass what modalities they provide, whether and how they are conditional, and whether and how they are targeted. A UBI would represent a combination of three choices—a transfer that is provided universally, unconditionally, and in cash. Within this framework, however, proposals vary across a range of key parameters, such as transfer level and frequency, citizens or residents, or age of eligibility. The modality and coverage of such a universality are thus already controversial. A further point of criticism concerns the issue whereby universality must be progressive and ensure that those who are most in need receive adequate support to address their greater vulnerabilities and demands, which would go beyond the basic income targeted. In that regard, debate surrounds the question of whether universality should be interpreted¹¹⁰⁹ in terms of outcomes (i.e., all people should be guaranteed a minimum level of welfare) or receipt (i.e., everyone needs to be covered). Therefore, the understanding of universality (i.e., what and who a UBI should cover) varies.

Frequently raised criticisms warn that an unearned income would lead to people working less; however, the existing literature indicates that UBI-type schemes have little to no impact on participation in paid work¹¹¹⁰. Furthermore, conditions of paid work may even improve because guaranteeing everyone access to an unconditional income would enable workers to turn down insecure, low-paid, or exploitative work while simultaneously enjoying greater empowerment to demand improved work conditions¹¹¹¹. However, a contrary effect might also ensue, whereby the UBI might serve as a subsidy to low wages and make low pay increasingly acceptable—for example, by promoting casual work and job insecurity by increasing the supply of labor for insecure jobs. In this context, the literature indicates that additional cash through basic income-type or transfer can initiate a

1106 Lowrey 2018: 191

1107 Atkinson 2011: 4

1108 Gentilini et al. 2019a: 20-25

1109 Gentilini et al. 2019b; Rutkowski 2019; Packard et al. 2019; Parjis 2004

1110 Bastagli 2019: 114-116; 100

1111 Bastagli 2019: 100; 115

process of emancipation by addressing the constraints to improved working conditions and providing workers with an exit strategy by strengthening their position in the bargaining process.

Another important topic is the valuation and distribution of unpaid work¹¹¹². Many of the discussions surrounding cash transfers and work incentives focus on paid work, and concerns have evolved that the UBI might reduce incentives to spend more time in paid employment. Nonetheless, UBI could also free up time for engagement in voluntary work that is valuable to society or the individual. In that case, when it comes to domestic and care work, this could lead to a redistribution between the genders, as such work is overwhelmingly performed by women. On the other hand, a UBI might actually reinforce the gendered division of work, increasing the incentives for women to reduce their participation in paid work when their position in the labor market is weaker. This might occur when women are secondary earners; however, women's participation in paid work may actually increase if they are empowered to overcome the barriers to employment participation, such as meeting childcare costs. A solution approach would be to pay everyone individually, avoiding targeting the main breadwinner, a feature that would be enabled by universality. Together with the unconditional nature of an UBI, this could help prevent the risk that women will be relegated to care-provider roles, which may occur when conditionalities target women. Nonetheless, these impacts vary according to the specific circumstances and are not elaborated sufficiently at present.

From an ethical perspective, as the implementation of a UBI would have different effects on different industries based on its nature, no evidence exists to suggest that it would be an overall instrument under the ethical point of reference. For example, manual laborers have coexisted with the ever-growing threat of the machine since the industrial revolution¹¹¹³, and in this area a UBI might be useful in countering the well-grounded fears and anxieties associated with technology. Owing to the heavy competition with machines, one advantage for workers would be that a UBI would cover their basic needs, affording them a stronger position for negotiation with their employer, while providing them with a minimal income that could help to support them while transitioning from one job to the next when leaving one of these manual industries. The same applies in the

1112 Bastagli 2019: 100-101; 115-116

1113 Gentilini et al. 2019a: 50

context of existing social assistance schemes, for example in Europe, which would allow individuals whose jobs were automated to access healthcare or education. Depending on the characteristics of the UBI scheme, it might be sufficient to support other family members, particularly relevant for women in working-class communities, and strengthen their individual capabilities to receive a sufficient income independently from that of the breadwinner. In any case, social assistance schemes are crucial for enabling capabilities with advancing automation. A UBI, however, might place the cohesion of a society and the social contract at stake, as work, in accordance with the ethical point of reference, plays a key role in capabilities such as identity and receipt of co-mutual recognition. In that sense, the unconditionality must be acknowledged as critical, as, although an income would be provided, other capabilities facilitated through work would not be taken into account. Furthermore, the needs of ill or disabled people would still require additional measures as part of the social safety net. Conclusively, the implementation of a specific social assistance scheme or safety net is necessary for optimizing the opportunities of automation from an ethical perspective; however, a UBI, if provided unconditionally, would neglect the importance of work for a dignified life.

4.9.3 Educational programs and awareness campaigns

Education is a key feature in the capabilities approach to a dignified life, not only as its own capability but also in terms of accessing the labor market. To date, education has been one of the main drivers of wage inequality owing to the wage gap between those who have high school education and those with college graduation, which has doubled since 1980¹¹¹⁴. In terms of automation, if a human worker's job is replaced by a robot, the human worker can return to school to retrain. Or, in the best-case scenario, the worker may anticipate their job loss and commence education prior to losing the job. This could be supported by government policy to benefit a dignified life.

For example, higher education institutes could start offering specific technology programs, such as AI programs¹¹¹⁵, that provide students with the skills necessary for current and future digital transformation. This would include training in human-computer communication and interac-

1114 Mann 2019; Moretti 2012: 107

1115 Cantú-Ortiz et al. 2020

tive design manufacturing. In addition, the interaction between organizations and academic institutions requires further attention, particularly in the context of such programs, as the dimensions affected are interdisciplinary, as correspondingly outlined above in the section on skill sets in today's labor market. These involve disciplines such as natural science, social sciences, arts and humanities, and health sciences.

Educational programs could provide policy with a tool and become increasingly important, as automation increases the skill premium, resulting in a greater share of people obtaining higher education¹¹¹⁶. The increased use of robots has increased the competitiveness of the unskilled sector and will help to narrow the technology gap; meanwhile, however, it has exacerbated wage inequality, as unskilled workers are replaced or substituted by robots¹¹¹⁷.

The increased importance of digital skills has been recognized in the OECD's¹¹¹⁸ learning framework 2030, which regards digital literacy as a core fundamental competency for future education. Until recently, however, coordination between programs has been weak, with no globally accepted definitions of key concepts, such as digital literacy¹¹¹⁹. Moreover, the impact of digital skill education programs has remained limited even as digitalization has accelerated. To address this issue, a coalition for digital intelligence, comprising the OECD, the IEEE Standards association, and the DQ institute in association with WEF, published a recently approved IEEE Standard for Digital Intelligence (DQ) framework for digital literacy, skills, and readiness¹¹²⁰. This standard established a common framework to coordinate global skilling efforts, which may be beneficial in enabling a dignified life for an increasing number of individuals.

The digital skills education focuses on eight competencies: identity, use, safety, security, emotional intelligence, literacy, communication, and rights. The competencies are elaborated across the three levels of citizenship, creativity, and competitiveness¹¹²¹. The DQ framework has now been adopted by numerous government agencies, non-profit organizations, and schools¹¹²². The program also has a strong awareness-building aspect as it

1116 Afonso/Forte 2021: 4; Prettnner/Strulik 2020: 26

1117 Afonso/Forte 2021

1118 OECD 2022

1119 Jackman et al. 2021: 543-544

1120 IEEE SA 2022

1121 Singh Chawla 2018

1122 Jackman et al. 2021: 543-544

aims to empower one billion people and ensure that they receive adequate information and education on universal human rights and enable sustainable development of nations with more inclusive growth, well-being, and prosperity. The project seeks to work with stakeholders such as developers, initiative leaders, academic researchers, and educators. In this regard, this project's aims also enshrine an ethical agenda in addition to empowerment and upskilling by advancing an inclusive agenda. The mentioned skills may be beneficial from an ethical perspective, particularly given that they reinforce political rights, thus benefiting the capability to political control over own environment and affiliation.

In addition, civil society may be instrumental in educating and raising awareness in terms of the potentials and challenges that occur with digital transformation and automation, particularly with respect to rights. Civil society may be defined as social institutions that lie beyond the borders of households, the market, and the state¹¹²³. Traditional examples include not-for-profit organizations or charities, which are formed on a voluntary basis to address issues that have not yet been covered by state or market. Civil society plays a significant role in communities in terms of addressing unmet public needs—for example, by raising awareness of ethical issues in terms of technological advancement. In that sense, it also warrants the provision of policy guidance that specifically weighs the ethical advantages of machines automating “dull, dirty, and dangerous” work against large-scale job losses and unemployment¹¹²⁴.

Regarding social contribution, it is also important to reduce the competitive factor in terms of automation so that workers still have the sentiment of contributing to the company's efforts, which is aligned with awareness and is further relevant to ensuring that the worker's voice continues to be heard in terms of political activities. The recent Amazon¹¹²⁵ case offers a relevant example of how strikes can still help to exert pressure on corporate bodies to ensure that decent working conditions are maintained. In this regard, awareness with respect to political activity appears to be key, paired with educational programs that will allow workers to transition between jobs. In that respect, the manual labor industry has always been vocal in advocating for workers' rights, supporting the conditions beyond manufacturing itself (e.g., working hours, family time, and so on). In this regard, the political

1123 Lynn et al. 2022: 91-101

1124 Byard 2017

1125 Gurley 2022

voice is becoming increasingly silenced by advancing automation, which may affect working conditions in other sectors in the long term.

Furthermore, strengthened educational policy is important given that workers who find themselves threatened by automation are consistently less likely to participate in job-related education, independent of the specific welfare regime¹¹²⁶. In this regard, social assistance schemes would require the inclusion of educational programs, whereby chances of reintegration into the labor market could be improved, reinforcing the right to work and a sufficient income.

From the perspective of machines' increased decision-making capacity, AI literacy and awareness must be distributed so that workers can maintain their political influence and voice, not only with respect to working conditions but also in terms of the receipt of public services. Daily interaction with machines and robots, such as care robots, is also increasingly to be expected, requiring awareness and education. Furthermore, financial literacy is increasingly important given that additional income may be generated by suitable householding of finances¹¹²⁷.

From an ethical perspective, awareness and education are also relevant in medical services, since health information is increasingly available and ADM regarding diagnoses will be available. The automation and transformation there will shift further toward interacting with telemedicine, which was enforced by the COVID-19 pandemic¹¹²⁸, and machines to find solutions to health problems. Knowledge is thus required to strengthen the capability to bodily health.

In terms of communication automation, robots are increasingly responsible for distributing and creating content, which requires additional awareness and knowledge for the sake of political and social inclusion and the stability of a democratic system. In this regard, awareness campaigns and educational programs may affect our ability to maintain our “biopolitical potential of human communication”, as the political discourse is threatened by the control of an ever-smaller group of people who understand how the algorithms work. In addition, mental health issues are on the rise owing to social media, another field in which civic society and educational institutions must increase their activity, particularly regarding the process by which the youth are socialized.

1126 Ioannidou/Parma 2022

1127 Demarco 2021

1128 Koonin et al. 2020

Adolescents should be made aware of health issues that may arise as a result of social media use, although these may also affect adults. Work on selfhood in the real world through real social interactions must also be incentivized for pedagogically valuable purposes as opposed to mere commercial values in addition to bolstering mental and cognitive health. All these efforts should be represented in educational policy, where digital skills affect everyday lives across all the specific contexts and capabilities mentioned.

4.9.4 Self-regulation

Self-regulation would delegate the responsibility to the private sector. In that respect, CSR, which may be understood as self-imposed standards set by companies seeking to implement fairness in their economic behavior, such as their working conditions or social aspects¹¹²⁹. The focus lies on the institutional responsibility of the private sector and the dimensions it affects—for example, the fulfillment of human rights is frequently demanded from companies on account of their power and influence in a globalized economic order¹¹³⁰, and the right to work is enshrined in the Universal Declaration of Human Rights¹¹³¹. In the context of potential lack of paid labor associated with digital transformation and automation, the private sector must face social responsibility in an environment in which fewer individuals can find suitable work¹¹³². In this context, companies' calls to upskill employees become redundant when there are no jobs at all. Furthermore, transparency with respect to how automation technology is used is becoming increasingly important.

There is substantial debate over whether CSR is part of marketing and how it actually affects society or whether it is merely self-serving for corporates as an aspect of prestige, with the advantage of lower costs than traditional marketing activities¹¹³³. For example, CSR managers in the past have had a rather utilitarian perspective on job losses as a result to advancing automation¹¹³⁴, with a relatively meager sense societal responsibility.

1129 Hilty/Henning-Bodewig 2014: 4

1130 Pogge 1998; Raith 2013; Kaufmann et al. 2014

1131 UN 1948

1132 Frey/Osborne 2017; Sachs 2019

1133 Michael 2003; Coelho et al. 2003; Donaldson/Fafaliou 2003

1134 Bhattacharyya 2021

Local-level firms providing education to individuals with respect to social dimensions and vocational training may be regarded as a manifestation of CSR¹¹³⁵. In that sense, automation, employment, staff training, and profitability may be regarded as interconnected when firms move toward the age of automation. In this regard, for example, companies may set up technical training on robotics and AI not only to train and upskill their employees but also to support local communities and schools with the necessary knowledge.

The corresponding term “corporate digital responsibility” (CDR) has emerged in recent years, highlighting the emerging responsibilities of companies regarding digitalization-related impacts, risks, challenges, and opportunities¹¹³⁶. Whether CDR should be considered part of CSR or regarded as its own topic, distinct from the traditional stakeholder approach, continues to be debated, as artificial/technological actors linked to digital technology and data would require different conceptualizations¹¹³⁷. To ensure a holistic approach to policy guidance in this research, however, CDR will be considered a part of CSR, comprising all levels of corporate responsibility¹¹³⁸ and all domains of the Environmental, Social, Governance (ESG) framework.

CDR contains various topics that relate to education and automation. On the one hand, corporates are required to engage in digital empowerment, which includes the ever-evolving skill of digital literacy¹¹³⁹, while on the other hand, they must engage in awareness-building. This involves more democratic corporate processes on the part of employees using digital tools¹¹⁴⁰ and the nurturing of awareness and education by creating well-educated digital citizens who are empowered to contribute to a more ethical, safe, and responsible digital environment¹¹⁴¹.

Specifically, with the rise of automated systems, students and workers must be prepared by modernized education systems that encourage them to obtain sought-after skills and competencies rather than specific academic degrees¹¹⁴². Company policies on retraining and redeploying employees

1135 Ure/Skaug 2019

1136 Herden et al. 2021: 14

1137 Lobschat et al. 2021

1138 Caroll 1991

1139 Hill et al. 2015: 415

1140 Burnett/Lisk 2019

1141 Heick 2018

1142 Chamorro-Premuzic/Frankiewicz 2019

that are subject to automation systems could ensure productivity, economic growth, and the creation of new jobs in this regard. This “socially compatible automation” is further represented by organizations’ responsibility to ensure that new roles are created with new emerging technologies and that humans retain their value in the future. In that sense, they must also be prepared in advance for such business shifts and technological changes¹¹⁴³.

In addition, corporates may have a responsibility for fostering trust with society, and societal fears surrounding AI automation and job losses may be alleviated by “fairer access for all”, showing more transparency when using these technologies¹¹⁴⁴. In that regard, increased productivity through AI and economic growth arising from innovative endeavors can benefit society. Another term to have recently emerged is “technological social responsibility” (TSR), which considers the importance of social stability, prosperity, and cohesion¹¹⁴⁵.

In terms of manual labor industries, corporates are frequently called on to take responsibility and an active role in furnishing employees with transferable skills that equip them for a working life after their jobs have been automated, allowing them long-term access to the labor market. This would also prepare them for transitioning between jobs. Selecting suppliers based on maintaining labor standards that include access to further education is thus crucial with respect to CSR area in the manual industry¹¹⁴⁶, which also requires awareness on the part of the consumer, including the consumer’s attitude when purchasing goods¹¹⁴⁷.

One important aspect with respect to the mentioned standardization and connected “democratization” of financial services, as discussed above, is financial literacy (i.e., education regarding how to manage one’s finances). As the educational system in most parts of the world is hesitant to prepare individuals and citizens for managing their finances properly, this skillset will become increasingly important, and provide opportunities owing to the lower maintenance costs of financial products as a result of advancing automation. An increased educational standard for ordinary citizens will also enhance the financial system’s political control owing to the influence of votes, as more people will understand and observe the background of

1143 Bean 2017

1144 Elliot et al. 2021: 185; Pasquale 2020

1145 Polak 2021

1146 Xu et al. 2013

1147 Goyal/Kumar 2017

the machinations in the industry. Moreover, it would support citizens in managing their economic risks more appropriately¹¹⁴⁸. This would also lead to greater pressure to provide the necessary conditions that humans require to live with dignity. In that sense, the first step in such a development and “democratization” would be improved wealth distribution. As the financial sector has a rather indirect influence on the state of the economy by financing other services sectors, CSR constitutes an important tool for assessing whether certain technology projects should be financed. Historically, the financial sector has performed poorly in terms of sensitivity toward labor issues¹¹⁴⁹, and thus the situation has improved in this regard.

Media corporates and social media corporates must assume responsibility, particularly for the sake of democratic stability from an ethical perspective. Moreover, they must be transparent with respect to how they use AI and machine learning technologies and how the algorithms work. For example, companies providing metaverse services and environments must be addressed by CSR demands and regulated, as they can represent human, social, and consumer elements¹¹⁵⁰. This applies to codes of ethics in the virtual world, tax questions, land ownership, and how the particular currency used in a given virtual environment should be handled. In the medical field, corporates are responsible for ensuring transparency around how they use robots and automation technology, not least for patients’ relatives. This is within the remit of meeting the patients’ needs paired with the call for accountability for actions taken by a medical provider¹¹⁵¹. In terms of CSR, legal companies must be transparent regarding how they use technology, particularly if they have an influence on government legal decision-making. Correspondingly, assessments must be conducted as to how the deployment of a specific automation technology might affect how the government is influenced, specifically with respect to biases toward certain groups of people. This is particularly important in preventing discrimination.

In terms of CSR, for example, the mining industry has projected an overwhelmingly positive narrative around automation technologies and their economic benefits, having invested heavily in them¹¹⁵². Nevertheless,

1148 Arthur 2012: xi

1149 Weber et al. 2014

1150 Papagiannidis et al. 2008: 618

1151 Russo 2016: 332

1152 Keenan et al. 2018

how these technologies are experienced by the local communities most immediately affected requires further attention, and companies must understand the social impacts that the deployment of their technologies have and provide assurance that their use will not risk host communities. The employment of new technologies is generally sold as overwhelmingly positive by mini executives positioning the industry as progressive, primarily through the adoption of accelerating innovation that can make mining safer and more energy efficient¹¹⁵³. In addition, the narrative frames these technologies as enhancing these companies' sustainability credentials by supporting environmentally friendly operations¹¹⁵⁴. Nevertheless, this would require due diligence¹¹⁵⁵ whereby companies should, at a minimum, self-responsibly check their efforts in tandem with using international CSR instruments to evaluate the resulting social impact, including environmental standards¹¹⁵⁶ and working standards¹¹⁵⁷.

Self-regulation appears to be an insecure policy instrument from an ethical standpoint, since it leaves all freedom to the market and the companies themselves. Companies may start educating their employees as part of CSR, but it is largely undertaken out of self-interest—that is, for profit¹¹⁵⁸. In this regard, it remains unclear whether the education provided will help workers on the labor market once the job has been automated. In addition, corporates have not been transparent in the past when it comes to revealing how algorithms are deployed¹¹⁵⁹. Consequently, CSR does not appear to be suitable as such for the support of capabilities when human labor is increasingly automated and work is increasingly fulfilled by automation technologies (i.e., ADM).

4.9.5 Technology restrictions

One approach would be to ban the use of automation technologies, either partially or completely¹¹⁶⁰. Moreover, the employment of technologies could be restricted so that their use only contains algorithms that have been

1153 Jurgens 2017

1154 O'Neill 2015; Resolution 2022

1155 Keenan et al. 2018: 753-759

1156 IAIA 2015; IFC 2012; UN 2011

1157 ILO 1993

1158 Jarvis 2019

1159 Collins 2021

1160 Meier 2022

proven from an ethical perspective to serve the benefits of humanity and respect human rights (i.e., the dignity of every human being) rather than being purely efficiency-driven and serving the interest of a few technology corporations.

From a legal standpoint, much discussion has surrounded the question of whether the use of automation technologies should be regulated to ensure that transnational corporations respect human rights¹¹⁶¹. One of the demands may be that global institutions, such as the World Bank, adopt policies that limit loans for development projects that use products that could negatively affect human rights through the application of AI.

In that sense, legal action may also be taken to impose asset freezes or travel bans for transnational corporations that cause or perpetrate human rights abuses through AI, and laws may be used as a deterrent and an instrument for accountability. In that context, increasing regulation, particularly incorporating the human element, appears to be increasingly essential as the legal profession and legal field itself moves ever further toward the use of automation technologies, bringing underlying risks connected to the technology itself¹¹⁶². Consequently, in the legal field, attention should be directed toward the application of these technologies, as this would have a broader impact on their use in other sectors as well. From an ethical perspective, capabilities affecting political rights may benefit from such restrictions.

Total bans on technologies (i.e., prohibiting their employment in specific sectors or applications) can be found in other areas, such as environmental protection. For example, the aim of reducing greenhouse gas emissions led to discussions on banning internal combustion engine vehicles¹¹⁶³ in favor of electric energy technology. Regarding automation technology, bans are frequently discussed in the context of weapons, and recently the discussion has intensified around the question of whether AI should be banned when using lethal autonomous weapons systems (LAWS), which may increasingly take decisions on hurting or even killing suspects¹¹⁶⁴.

Another means of confronting this challenge would be an “ethics of care”¹¹⁶⁵ that focuses on the critical understanding of the relevant datasets.

1161 Schwarz 2019

1162 Soukupova 2021

1163 Meckling/Nahm 2019

1164 Lauwaert 2021

1165 Asaro 2019

This might include how data are collected, biases and social structures that might be embedded within these data, and potential consequences of pre-judging people according to statistical patterns and categories. This would support the restraining of automation, which would aim to control, stigmatize and cheat innocent people. There remains greater potential for public discussion regarding the role of machines and software in ordering human affairs¹¹⁶⁶. Nevertheless, the efficacy of restriction seems to depend based on the specific task at hand. For example, in manual labor, inventions benefit workers by making work safer and they may also benefit the environment. In that regard, a regulatory restriction would only make sense if corporates begin to use technology to abuse workers or do not use technology to improve working conditions. In the financial industry, the implication of restrictions currently seems unclear. Some approaches for example, aim to build human-level AI that will provide a clear structure to automation technologies as to how to serve humankind¹¹⁶⁷, which may be relevant owing to the influence of the financial sector on wealth distribution.

In terms of communicative labor, restrictions are helpful as private information may be used to manipulate human relationships through bots, while technology corporations make vast profits by transforming individuals into unpaid products¹¹⁶⁸. In that sense, a ban on the employment of automation technologies in social media and communication may be necessary, as individuals are performing unpaid labor by providing time, creativity, and content in the form of data, which is problematic from an ethical perspective. In general, privacy rules and regulations are an important aspect of restricting technology use to ensure human agency. Respectively, the legal and public sectors may be charged with regulating and controlling the usage of automation technologies, while themselves being affected by automation and fewer government employees. In the spirit of equity, technology restrictions should specifically counter discriminatory biases, which, for example, could affect the capability to enjoy freedom from unwarranted search and seizure.

1166 Pasquale/Cashwell 2015

1167 Lab42 2022

1168 Meier 2022

One step might be to rely on “open source” software, whereby all actors would be able to observe how bots work¹¹⁶⁹. Moreover, technology restrictions could prevent robot vulnerability to hacking and cyber-attacks¹¹⁷⁰.

Conclusively, more technological governance and restriction is required, particularly to prevent biases when providing services, such as in health and social media areas, but also in the context of the automation of rule of law. In this regard, restrictions may help to enforce a more humane treatment by robots, secure political rights, and save lives, for example, regarding autonomous weapons. In social media, technology restrictions must ensure that technologies do not foster consumer addiction or maximized screentime¹¹⁷¹ by keeping users hooked, which would negatively affect their mental health.

4.9.6 Taxation

The question of whether taxation might help as a policy instrument in terms of steering the effects of advancing automation has been the subject of considerable discussion. On the one hand, ideas have been proposed with respect to tax automation technologies like robots (i.e., their usage in production processes), and on the other hand, through a progressive wage tax that would mainly affect those who are still employed in an increasingly automated labor market¹¹⁷². Likewise, a capital tax is discussed below. In addition, the decreasing costs of automation technologies have generated interest among policy makers in changing the tax system, particularly as an alternative, to complete investments in education and training, or to enhance social benefits¹¹⁷³, which may be beneficial from an ethical perspective. Furthermore, under the current tax system, a drop in automation costs could generate a large rise in income inequality and a decline in welfare for those working in routine occupations¹¹⁷⁴. Taxes are considered a key element in the achievement of global justice¹¹⁷⁵. Specifically, tax dodging leads to severe inequality on a local, national, and supranational level.

1169 Keogh/Henry 2016; Jakku et. al 2019

1170 Sparrow/Howard 2021: 828-829

1171 Lewis 2018

1172 Prettnner/Strulik 2020

1173 Abbott/Bogenschneider 2017

1174 Guerreiro et al. 2022

1175 Pogge/Mehta 2016; Murphy/Nagel 2005

Outflows may be reduced through structural reforms and improved policies at the national level, and in addition, through modifications of existing supranational fiscal and financial arrangements¹¹⁷⁶, in particular, multinational use differences in local tax systems to avoid taxation on their services in developing countries¹¹⁷⁷. This may be an issue in terms of funding the additional social assistance required to support a dignified life.

Generally, automation has the potential to significantly reduce government tax revenue, since most comes from labor-related taxes and therefore, when firms replace employees with machines, the government will lose out on taxation¹¹⁷⁸. This is enforced by higher productivity—i.e., capital for corporates—while fewer people are employed at the same time. This may be illustrated by the differences that emerge retrospectively from recent decades. In 1990, the three largest corporations in Detroit had a combined market capitalization of 36 billion USD, while employing 1.2 million workers. A mere 24 years later, in 2014, the three largest companies in Silicon Valley combined a market capital of 1.09 trillion USD and employed only 137,000 workers¹¹⁷⁹.

In that sense, considerable portions of fiscal solvency may decrease owing to reduced tax revenue¹¹⁸⁰. The current tax system is formulated to charge labor and not capital, so tax schemes may lead to situations wherein companies opt for human workers. In this sense, with robots there is considerably less tax per amount produced compared to an automated worker, which encourages automation by providing employers with preferential tax treatment for robot workers. Consequently, automation allows firms to avoid employee and employer wage taxes on the federal, state, or local levels. In addition, firms are permitted to claim accelerated tax depreciation on capital costs for automated workers and creates various indirect incentives for machine workers. Tax policies may thus generate situations wherein firms may favor automation over human workers. This would be one reasoning behind robot taxation, as companies could bypass the employee and employer wage taxes demanded by authorities¹¹⁸¹. Since technology corporations are increasingly accumulating capital¹¹⁸², taxation

1176 Pogge/Mehta 2016: 1-2

1177 Corrick 2016: 173-174

1178 Abbott/Bogenschneider 2017

1179 Manyika/Chui 2014

1180 Abbot/Bogenschneider 2017

1181 Ionescu 2019

1182 Manyika/Chui 2014

on capital is becoming more important as a means of providing for larger portions of the population, including when it comes to framing a suitable educational policy. This would also support the use of the capitalization effect of automation¹¹⁸³ (automation leads to new services and goods demanded from a market perspective and therefore creates new jobs), and so capital accumulation may be reduced while investments are held back.

4.9.6.1 Robot and digital taxation

Robot and digital taxation may thus be beneficial in supporting a dignified life, to compensate for government revenue to support education and social assistance schemes but also to supervise processes and ADM, for example, in the provision of health services. Furthermore, taxation of robots would facilitate societal benefit from enhanced productivity as opposed to simply benefiting private corporations when work processes are automated.

In certain sectors, such as the manual labor industry, robots can have a positive impact on workers' health. In that sense, it is necessary to adopt a balanced view as to whether taxation would harm positive innovation from an ethical perspective. Nonetheless, in a completely automated value chain, robot taxation may be a suitable measure since revenues can be generated without the need to pay wages. Thus, the tax system, which still focuses on taxing wages, should also shift its focus so that although human work would generate lower wages, access to a sufficient income could be improved through tax exemption.

In the financial industry, taxation of bots may be beneficial in supporting additional funding of social assistance, etc., as trade activities will also significantly involve lesser human workers¹¹⁸⁴. In that respect, value chains that can autonomously gain profit on the capital markets through investments, without any taxation on these tools, should be prevented, as this would even further promote social inequality.

Robot tax is of critical importance to the automation debate, as tax policies should not encourage automation unless there is a deliberate strategy based on sound public policy¹¹⁸⁵, which is the case in the current system, which taxes labor. In that context, another solution would be to adjust the

1183 Schwab 2016: 37-43

1184 Hsu 2012

1185 Abbott/Bogenschneider 2017

system so that it would be “neutral” between robot and human workers¹¹⁸⁶. This would be connected to a change in tax policies to compensate the loss in government tax revenue attributable to automation, which would help to finance education and social benefit programs¹¹⁸⁷ relevant to ensuring a dignified life.

A different approach that may help make up for losses in governmental revenue as a result of labor taxation would be to implement digital taxes that mainly target technology companies and differentiate them from traditional businesses¹¹⁸⁸. Digital taxation could apply a framework in which neutrality is aimed at different types of business. Digital businesses have benefited largely from preferential tax regimes in recent decades owing to missing regulatory requirements in the age of digital transformation. They include, for example, tax advantages for income earned from intellectual property, shorter amortization for intangibles, or R&D tax reliefs. Another advantage that digital business enjoy is the possibility to operate without maintaining a physical presence in countries by serving customers through remote sales and service facilities. This allows profits through cross-border sales without a physical presence that challenges the traditional corporate income tax rule. Hitherto, corporate taxes have only been paid by digital businesses in those countries in which they had a permanent establishment—for example, a headquarters, factory, or storefront. In that sense, when online users are located in other countries, there are no taxing rights over the firm’s income.

The current lines of the OECD-Inclusive Framework (IF)¹¹⁸⁹ aim to change the distribution of tax revenues paid by digital enterprises, whereby countries imposing low corporate tax and with investment hubs are likely to lose revenues as fewer profits will be directed toward them¹¹⁹⁰. Thus, countries in which multinational enterprises are not headquartered but which serve customers would likely receive revenues from the reallocation.

1186 Meisel 2013; Ford 2009

1187 Abbott/Bogenschneider 2017: 151-152

1188 Merola 2022

1189 OECD 2021

1190 Merola 2022: 6-7

4.9.6.2 Progressive and capital taxation

Another alternative to robot taxation would be progressive wage taxation, leading to reductions in higher education and growth through reduced supply of high-skilled labor, as opposed to a robot tax that would reduce demand for machines and growth through diminished R&D¹¹⁹¹. This approach, which may be regarded as a wage subsidy for low-income workers, could be combined with a cut to payroll taxes, which overly burden low-paid workers, while increasing taxes on the richest (i.e., high-skilled) labor remaining in the market¹¹⁹². This shortcut to making human labor cheaper could reduce inequality in the short term but would likely slow down productivity in the long term, as it preserves unskilled labor employment, which is less productive than robot labor. Thus, a balancing of trade-off effects in the long and short terms is required from a policy perspective¹¹⁹³.

A different approach would be to tax capital rather than wages¹¹⁹⁴—namely, to tax return on financial investment. Classic economic literature rejects the notion of taxing capital income as inefficient with few benefits, mainly owing to the fact that capital is “mobile” and offers abundant off-shore moving opportunities¹¹⁹⁵. Tax authorities have a restricted influence over capital, and taxing capital would discourage savings¹¹⁹⁶.

In general, capital tax rates are typically lower than the rate on labor income, which may become increasingly relevant when fewer individuals are able to convert labor income into capital income¹¹⁹⁷. In that sense, those taxpayers who receive income from capital benefits based on the current tax system, including those who receive business profits¹¹⁹⁸, would be targeted by an increasing capital tax rate.

Conclusively, robots and automation technologies may be treated as capital or labor. If they are replacing labor and classified as such, they should be classified correspondingly. Nevertheless, the taxation of capital may offer a viable approach to robot taxation, as high labor taxes have generally

1191 Prettnner/Strulik 2020: 264

1192 Merola 2022: 7

1193 Berg et al. 2021

1194 Mann 2019

1195 Zodrow 2010

1196 Block/McBride 2012

1197 Banks/Diamond 2008: 3, 27

1198 Mann 2019

been blamed for unemployment, particularly in developed countries¹¹⁹⁹. In this regard, changing the taxation of capital toward the approach of taxing labor may resolve the robot tax issue in two respects¹²⁰⁰: first, taxing capital at higher rates confronted by labor would raise revenue; and second, taxing capital at the same rate as labor would eliminate the tax-induced preference for capital investments, which involves investment in automation technologies, such as robots. In that regard, taxation may emerge as a useful instrument in the future in terms of facilitating a dignified life for an increasing number of individuals when governmental activities in terms of social assistance and educational policies require additional funding.

1199 Radu et al. 2018: 687-689

1200 Mann 2007

5 Outlook: Ethical guidance for Swiss Public Policy

This final section elaborates the findings of the ethical evaluation in the context of Switzerland and its public policy by providing an outlook to the future. It gives brief inputs with regard to the different topics elaborated above and how the ethical point of reference could help to inform.

5.1 Automation in Switzerland and suitable policy instruments from an ethical perspective

Given that the Swiss labor market is generally characterized by high salaries¹²⁰¹—that is, labor costs—the economy is likely to be under considerable pressure to automate work processes and reduce the employment of human labor. The discussion around automation in Switzerland has accelerated in response to the basic income initiative, which may be regarded as one of the policy approaches toward risk and likelihood of automation. In addition, the aging population represents a challenge in the context of labor and automation, as these socio-demographic shifts on the one hand call for more automation, since fewer individuals are part of the labor market, while on the other hand, there is greater need for work characterized by a “human touch”, particularly in the caring domain, where an increasing number of elderly patients require services.

Employment types and required skills are expected to change substantially in Switzerland in the coming decade¹²⁰². In light of the country’s aging population and comparatively slow productivity growth as a result of the already advanced economy, the productivity boost promised by automation technologies has been lauded as a step toward future economic growth. It is anticipated that one-fifth to one-quarter of work activities in Switzerland—representing approximately 1 to 1.2 million jobs—could be replaced by 2030. In addition, the pace of job change could double. Regarding the above estimate, whether it will accurately reflect the total number of job losses remains unclear. Correspondingly, 400,000 new jobs may be created, mainly in the technology sector, as companies implement digital solutions.

1201 BFS 2021

1202 McKinsey Global Institute 2018

The increase in jobs may be driven by real income growth that boosts consumption and raises demands for domestic employment. In general, the competitiveness of Switzerland's export-oriented economy is influencing the creation of new jobs and global digital leaders. Various sectors are affected differentially by automation. In that sense, jobs linked to exports either by supplying digital technologies or services may increase employment, as approximately 1.4 million jobs in Switzerland rely on exports—for example, in pharmaceuticals, machinery, financial services, and so on. Accordingly, it is important to reinvest in the economy to ensure inclusive growth where the productivity growth achieved through automation is converted into rising consumption, and investment and robust demand, opposing to the accumulation of wealth at the top. At this stage, no signs of declining labor shares are evident in terms of income or polarization of wages in the Swiss context, in contrast to the United States.

5.1.1 Manual labor

The manufacturing sector is expected to undergo substantial displacement of activities in Switzerland¹²⁰³. Nevertheless, digitalization may create new jobs¹²⁰⁴, although close to half of all current existing positions are subject to automation by 2025. This would require that robust attention be invested in education and upskilling, since jobs stay in the industry but might change in nature. In addition, the so-called “reshoring” may lead to the development whereby companies that outsourced industrial activities return to Switzerland, as automation allows for remote control of machines and production, increasing the demand for industry labor in Switzerland¹²⁰⁵. Nevertheless, reshoring primarily affects highly skilled labor, which is connected to process automation and digitalization¹²⁰⁶. This may also affect the Swiss mining sector, which forms an important source of tax returns as domicile for various large mining corporations, although mining activities are not particularly common in the Swiss context. Nevertheless, in times of automation, mining activities will be increasingly conducted remotely. “Reshoring” appears to be increasingly connected to automation¹²⁰⁷, which

1203 McKinsey Global Institute 2018

1204 Hock 2016

1205 Handelszeitung 2018

1206 Beerli 2021

1207 Beerli 2021

may also be the case in Switzerland, if headquarters of mining businesses increase the number of individuals employed. Glencore, Switzerland's most notable mining company, represents the 17th-largest company in the *Fortune* global 500 List and employs 135,000 people worldwide¹²⁰⁸, with around 9,400 employees in Switzerland¹²⁰⁹.

In that regard, educational aspects are crucial for policy from an ethical perspective in ensuring that the impact of job availability in the context of reshoring is ensured, particularly for individuals who are part of the Swiss labor market. In that regard, individuals working in the industry may benefit from increased bodily health owing to the reduction in physical labor and work more in jobs that require senses, imagination, and thought.

In contrast to the high-tech development of the mining industry, the agricultural sector in Switzerland remains rather traditional and family-driven, which differs substantially in nature to the situation of the mining industry in Switzerland, particularly from a labor perspective. Digital technologies are still less commonly used in Switzerland than in other countries¹²¹⁰ and are used primarily to monitor animals' behavior and attitudes. Milking robots are also increasingly utilized, as well as technologies designed to detect sicknesses. Farmers in Switzerland also launch separate business ventures, such as restaurants, rather than investing in digital technologies that could help them to optimize their production. Many farmers would like to receive more information regarding how to use new systems, and digital technologies would need to be part of this education. Although Switzerland's agricultural areas are relatively small, automation technologies may support the efficient distribution of fertilizers, for example to protect the environment.

The risk in Switzerland appears to be that smaller farmers may miss the deployment of new technologies or are unable to raise sufficient funding for investment in new technologies, which may lead to a stronger centralization of property and the agricultural areas¹²¹¹. Automation in the Swiss context could also lead to bigger farms with larger herds¹²¹², while simultaneously employing fewer workers. A key aspect to be considered in traditional agriculture is the situation of women, who rely largely on the overall household or farm income, which is managed by their husband. In

1208 Murray 2021

1209 ZoomInfo 2022

1210 Freigang/Benz 2020

1211 Haldimann 2020

1212 Quendler et al. 2020: 63

this sense, their work, which might amount to even more than a full-time position in terms of hours worked, is unpaid.

From an ethical perspective, in the agricultural sector, automation requires guidelines in Switzerland to ensure nutritional safety in terms of the use of pesticides to limit harms to the environment and to farmers. In addition, price pressure on agricultural products must be monitored, as automation might exacerbate the existing political unrest among Swiss farmers, as in the case of milk prices. Automation may also yield benefits such as reduced working hours for farmers and other agricultural workers, the generation of more free time, and relief from life-threatening physical activities, provided that educational access is granted to workers to empower them to negotiate an increasingly automated working environment.

5.1.2 Automation of communication

The automation of communication is increasingly affecting the work performed by public relations and communication units of Switzerland's corporates¹²¹³. Marketing communication, for example, has already affected the nature of work, and it is anticipated that automation technologies will affect marketing to an even greater extent than social media. Moreover, personnel expenses are expected to decline, which represents a main aim for most companies using automation technologies in marketing or other communicative labor activities. There is a certain pressure in this area to reduce cost on the part of Swiss corporates. Nevertheless, a human element should always remain—for example, automated answers provided by a chatbot may be considered devastating if they appear overly “robotized”.

The threats to political rights that automated journalism poses may apply to Switzerland if the technology behind the “creation of news” remains opaque. Nonetheless, the particularity of Swiss direct democracy and concordance system, which limits the power of individuals, also limits media influence. The stable political landscape has hitherto remained unsusceptible to visible impact, including social media influence. The active nature of Swiss citizens' political involvement, paired with the country's traditional “Stammtisch”-democracy, still enables human-to-human political opinion-building and expression of freedom of assembly and political speech. One particular example would be the fact that several municipalities, and even certain states, continue to rely on the physical presence of the citizen

1213 Kuenzli 2019

assembly in making political decisions. In this regard, from an ethical perspective, the threats of automation in communication appear to be less urgent than they are in other countries.

Also from a Swiss policy perspective, data protection continues to require close monitoring, including in relation to the unremunerated trade of private and personal data. For example, taxability of these incomes must be strengthened and technology restrictions applied to ensure that Swiss citizens are not exploited by US technology corporations, which apply all tax tricks possible.

The impact on children should also be closely monitored with respect to social media and the unremunerated work it incentivizes. The long-term impact of addictive screen time must also be further evaluated to ensure that the capability to emotional development is protected. These manipulations may also affect individuals' political education if political decision-making increasingly takes place in the virtual world as opposed to real-world discussions and exchanges.

5.1.3 Financial services

Switzerland's financial services sector is expected to undergo substantial displacement of activities¹²¹⁴. The banking sector traditionally employed a large number of individuals; however, with digitalization, financial institutions are seeking more efficient business models as clients increasingly handle bank transactions via the Internet¹²¹⁵. It is expected that there a cost pressure to automate routine work will emerge, accompanied by a blurring of company and industry boundaries and a flattening of hierarchies. Regarding job profiles, fields of activity and the competence profiles required for them will attain greater importance going forward, as bills, controlling and financial advisory will be subject to increasing automation¹²¹⁶. This will also likely increase performance pressure for remaining workers in the financial industry, as compliance orientation does not benefit workers with flexibility¹²¹⁷.

Financial industry workers' fears that they will lose their jobs in the coming decade owing to digitalization and automation, which is above average

1214 McKinsey Global Institute 2018

1215 Rhyner 2017

1216 Sachs et al. 2016

1217 Woerwag/Cloots 2018: 19

in Switzerland (Fritschi/Oesch 2018: 42), are intense. This causes stress and emotional exhaustion among these workers. Nevertheless, other voices claim that because of automation—for example, through RPA—workers are happier with their tasks as they are liberated from repetitive work and can progress toward more “meaningful” work (Langmann/Turi 2021: 91).

As automated finance increases, financial sector jobs may soon be difficult to come by, whereas access to financial services is increased, with more options available to users. This requires that workers have greater education and financial literacy in Switzerland as elsewhere. This would also be beneficial for individuals planning their lives from a financial perspective, supporting the capability to practical reason. In that sense, educational policies are required for those who transfer out of the financial industry and become redundant, such as financial advisors replaced by robot advisors, but financial literacy would also increasingly need to be a part of general education.

5.1.4 Medicine

Healthcare is expected to create most jobs in Switzerland, apart from the technical and professional services¹²¹⁸. Socio-demographically, the country is confronted with an aging population, and so the automation risks in healthcare—for example, for individuals working in elderly care—are comparatively low. The potential of automation must be fully unpacked so that the impact can create even more jobs in the medical field than there are today¹²¹⁹.

Technology governance must ensure that robots are used in a way that does not impact or replace human care, which is required for its emotional capabilities and the ability to exercise self-respect and non-humiliation. In addition, it must be guaranteed that patients can still relate to other humans—for example, their relatives. This is also required to ensure, specifically in the case of Switzerland, that the potential of automation is used correctly to support the lives of patients and older people, whose bodily health may be supported by robots.

Access to healthcare could be increased and therefore the capability to bodily health. Nevertheless, given the existing nature of the healthcare system in Switzerland, access for everybody is already covered by the

1218 McKinsey Global Institute 2018

1219 Punkt4info 2022

mandatory health insurance. In addition, automation could benefit the capability to life, since processes such as diagnosis could be optimized and expedited, leading to quicker medical help when required. The same applies to deploying robot surgery, whereby a quicker process could be provided and increase health, and—if the robot is able to reduce the error rate—bodily integrity.

5.1.5 Rule of law

Legal tech is advancing in Switzerland, where lawyers increasingly use software for document automation, for investigation, or to analyze legal texts, such as contracts or sentences¹²²⁰. Chatbots are also increasingly used to advise clients as to what legal action should be taken. In general, however, digital skills still do not appear to have been incorporated into most universities' law programs. In terms of the discussed digital ledger technologies (DLT), in the case of Switzerland, the application does not appear to have had a substantial impact on jobs, as the trust issue appears not to have been solved when the technology is applied to real-world issues.

Switzerland's public sector is expected to undergo a displacement of activities¹²²¹. Digital administration in particular will be adopted in connection with the deployment of automation technologies¹²²², whereby automation is projected to reduce costs that may lead to a reduction in tax burdens for the society and economy. Process automation is closely linked to the value levers of cost reduction and productivity increase. Personnel can thus be relieved of routine work and deployed for other, more demanding activities.

It is clear that in the short term, simple process automations are possible. However, more complex automations require more time¹²²³ and specific guidelines for the deployment of the relevant technology. Discrimination is a major threat when public services are automated, also in the case of Swiss Cantons¹²²⁴, paired with the issue of third-party responsibility when outsourcing the development of algorithms, a development highlighting the necessity of human agency and data protection. Nevertheless, there is the

1220 Baumgartner 2022

1221 McKinsey Global Institute 2018

1222 Brueesch et al. 2017

1223 Brueesch et al. 2017: 37-45

1224 Braun Binder et al. 2021: 6

potential that automation of government administration would lead to a fairer process based on the Swiss idea of the state, with a depersonalization of the administration without any arbitrariness¹²²⁵.

In that regard, from an ethical perspective, technology regulations are key to ensuring that non-discrimination is ensured when public services are provided. In that sense, the political instruments of direct democracy may be used to increase the transparency and accountability of these technologies. Moreover, the deployed automation technology must ensure that search and seizure are aligned with constitutional rights, when policing or other activities are granted increased access to data bases, which then form the basis for decision-making.

5.2 The crucial importance of social assistance

All capabilities should be supported from a policy perspective in the context of advancing automation with a working social safety net. As automation increasingly affects and pressures workers in many sectors, their situations are shaped by whether or not they are assured a social safety net in the future. This includes the availability of a sufficient minimal income and access to healthcare in case their labor is no longer required. In this context, there is a vast difference between the United States and Europe. As the United States has hitherto struggled in terms of incorporating mandatory social support or healthcare, many countries in Western Europe, including Switzerland, have excelled in implementing these crucial instruments as part of a social contract. This is also relevant in terms of the ability to grant access to education for people who have been dropped from the labor market upon losing their jobs. In addition, a working social safety net will provide the immediate required help for those in need. It will also empower employees to embrace the potentials of automation technologies without fearing their own replacement.

For example, a US worker who applies automation technologies might fear replacement of their own employment, which not only provides their income for subsistence and maintenance of family but also secures their healthcare. This enormous pressure may in many cases lead to automation anxiety on the part of the worker. By contrast, in European countries with existing social safety nets, workers can accompany the deployment

1225 Ringeisen et al. 2018: 53

of automation technologies in a relaxed manner, in the knowledge that even their replacement will not devastate their existence. In addition, a social safety net typically offers certain educational possibilities, such as the job placement agency *Regionale Arbeitsvermittlungszentren RAV* in Switzerland, which provides courses to benefit labor market reintegration. Alignment of these public services is required in times of automation, when changing job profiles and alteration in employment situations become more frequent.

This structure would also be preferable than UBI from an ethical perspective, and the aftermath of the Swiss vote on a UBI accelerated the discussion as to how the costs of a UBI might be controlled¹²²⁶ as it is the first country in which a popular vote has been submitted. The debate mainly centered on the cost objection, which is a common argument against the introduction; however, from the ethical perspective and above analysis, a UBI does not appear to be suitable as it negates on the one hand, the importance of work for society and to enable other capabilities and on the other hand fails to address the problem of how those who require specific assistance (in cases of disability, etc.) should be treated.

In Switzerland, political rights as such do not seem to be endangered thanks to the political system's stability, including all major political parties and affording citizens the opportunity to directly influence policy decisions through the instruments of initiative and referendum. Nevertheless, changing identities as a result of the shifting pace in the workplace may affect how individuals behave in the political system. The social assistance scheme again emerges as critical in allowing individuals to continue exercising their political rights with access to information and education.

In that sense, from an ethical perspective, it is crucial to have a social assistance scheme that can provide individuals with human dignity in the attempt to create a "decent society" when confronting the challenges and opportunities of advancing automation in the policy environment. Individuals of the future will likely live in a society that is heavily reliant on suitable social security measures aimed at ensuring that people are not out of work or unable to access the minimal requirements for a dignified life.

1226 Joerimann 2017

6 Conclusion

The automation of human labor is an ongoing development, affecting human lives from multiple angles and increasingly challenging the universal notion of what it means to live a life with human dignity. This dissertation initially discussed the key terms used in this research, pointing out the importance of eschewing marketing-related terms in the technology field to clearly focus on the aspects that affect human dignity.

Subsequently, the ethical point of reference was introduced, explained, and justified: first, the universal moral relevance of human dignity based on the principle of vulnerability was explored; second, the notion of living a life with human dignity was explained based on the capabilities approach; and third, the approach was specified based on the role that work fulfills in relation to human dignity and enriched to develop a suitable and justifiable framework to ethically assess human labor automation.

The ethical assessment discussed opportunities and challenges based on the ethical point of reference and yielded the following key findings: first, the wholesale replacement of manual human labor with machines is occurring increasingly in labor-intensive areas, such as manufacturing and supply chains, mining, and agriculture. Humans are stripped of their jobs, while new jobs are no longer available to inhabitants in certain regions, leaving them without access to financial income. Despite the ethical opportunities provided by releasing humans from dangerous work, entire regions are afflicted with unemployment and thus individuals' ability to live a dignified life is severely compromised, as their ability to earn an income shapes their lives in multiple respects.

Second, education and skills change in the context of advancing automation, creating new opportunities from an ethical perspective as new modes of education become available. Nonetheless, the quality of education must be monitored closely. Risks arise owing to the constantly changing labor market, and stable incomes may be put at risk when job profiles and requirements alter on a short-term basis.

Third, the automation of communication, including developments in terms of social media, poses considerable threats from an ethical perspective, not only endangering freedom of expression through guided information and the development of crucial human cognitive skills, but also

increasing the possibility of exploiting humans through data slavery by failing to remunerate them for their work on selfhood.

Fourth, automation in the financial industry provides ethical opportunities if financial literacy is provided, as lower costs and new automation technologies mean that individuals now enjoy more robust access to financial services that were formerly restricted. This could strengthen the possibilities to live a dignified life, if through education, a fairer distribution of income is made possible by this democratization of financial services when work is no longer available.

Fifth, the opportunities in medicine and care result from reduced costs in the provision of access to healthcare. This development improves the availability of drugs for poorer people if transport and productive costs are reduced as a result of automation. Nonetheless, it must be ensured that care treatments maintain their “human nature” to ensure that patients are not objectified and that human workers remain in decision-making roles for health-related services.

Sixth, weapons and the rule of law are increasingly affected by automated decision-making, where policing decisions and even decisions as to who should be killed in war contexts may be executed by algorithms and longer as a work result of humans. This constitutes an ethical risk, as it may easily lead to unwarranted and unjustified actions from a rule-of-law perspective. Ethical opportunities arise in the area of public and legal service if they are increasingly delivered more efficiently and simply to previously marginalized communities.

Regarding ethical guidance for policy, various policy instruments have been discussed and evaluated, addressing the question of whether they could support a life with human dignity in light of the ethical point of reference. It may be concluded that, first, a minimum wage may be useful for those working in manual industries in supporting their transition to another profession to guarantee their dignity and access to education; second, social assistance schemes are crucial for stability reasons and provide for those who drop out of the labor market. Nevertheless, a UBI provided on a non-conditional basis would jeopardize the societal structure by devaluing work, which substantially influences human identity and the receipt of co-mutual recognition. Third, adequate educational programs and awareness with respect to automation are critical in ensuring that individuals can transition between jobs. In addition, the importance of education relates to other areas, such as health and financial literacy, and receiving the right information is crucial in the long term to live a dignified life in addition

to enjoying labor market access. Fourth, companies' self-regulatory frameworks, such as CSR, are not adequate instruments, as corporate interests typically deal with short-term educational interests and generally focus on the wholesale replacement of human employees. Fifth, technology restrictions are crucial from a legal and technological perspective—for example, to prevent biases and ensure that the interests underlying the deployment of automation technologies are transparent. Sixth, new forms of taxation are required to compensate for reduced revenue when less income tax can be gathered as productivity rises and jobs are automated. This is necessary to, for example, maintain crucial social assistance schemes.

For Switzerland, this means that governmental action must focus on social assistance from an ethical perspective. This includes, on the one hand, ensuring access to healthcare for all individuals and, on the other hand, enabling the availability of education, which is increasingly assuming a key role in allowing individuals to remain on the labor market and enjoy appropriate working conditions. Nonetheless, the current social assistance set-up, which aims to integrate individuals into the labor market while supporting those who are no longer able to work, is a suitable approach that is aligned with the ethical point of reference. In addition, the direct democratic system, with its strong participatory approach, ensures that despite the increased automation of communication, political discourse and exchange are maintained on a regular basis, which strengthens political rights in the long term.

Looking to the future, further research is required to ensure that the ethical opportunities of automation may be taken advantage of while their harms are simultaneously mitigated. This point becomes relevant when we consider how quickly new technology can come on the scene and affect human labor, such as the debut of Chat GPT-4 in 2023. More specifically, additional legal research may be needed on how to maintain control over technologies and algorithms and how to guarantee that appropriate social assistance is granted to every individual. In terms of technological development, clear guidelines for the development of automation technologies are necessary to ensure that they do not infringe on the right to pursue a dignified life.

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