

The mobile phone as technological artefact

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Rationale

One characteristic of the mobile phone as an artefact is that it may be considered an emblem of the so-called “thumb culture”. This term refers to the reduction of the hand to just the thumb. Since Aristotle, the hand has always been a traditional unit of measure, “the instrument of instruments”. But why are we discussing this reduction today? Is talking of a thumb culture a form of minimalist approach or is there really a specific process of specialization of the thumb as opposed to the rest of the hand? As far as my competence will allow me, I will try to focus on a reconstruction of the sociological framework within which this shift from the hand to the thumb is occurring. There are two elements to which I would like to draw attention.

Firstly, there are two different types of organ in a machine (Maldonado 1974: 72):

“[...] indication devices (dials, meters, cathode ray tubes, visual and sound alarm instruments, etc.) and control devices (buttons, keys, switches, levers, pedals, knobs, and so on). To receive messages from the machine’s indication devices, we use the sense organs (mainly sight, hearing and touch); to operate control devices, we use the organs of sense and the motor system (generally, the limbs). The first are also called ‘receptor’ organs, the second ‘effector’ organs.”

Generally, in the current development of machines, indication devices tend towards hypertrophy and control devices towards atrophy. The mobile phone is in this sense an exception, given that its interface largely consists of control devices (keys), which require the use of fingers, thumbs included. This leads to the dimension of power of control over the machine, the same dimension of power that is present in the use of a remote control. The similarities here are no coincidence; some mobile phones can also work as remote controls. In reality, an important reason for the convergence between these two technologies might obviously be found in the “rapture” of power, which both of them

transmit to their users. This rapture of power, with all the pleasure that it implies, goes some way towards explaining the huge popularity of the mobile phone.

The flip side of this pleasure is given by the transformation of the space occupied by the mobile phone. This space is very limited, as the mobile phone has taken great risks in its miniaturization. This miniaturization is paralleled by the gestures required for its use, which have become minimal (Montanari 1999: 187–88). For example, the bodily gestures needed to take the mobile phone from a pocket or bag are generally of a short trajectory. Those required for texting messages are not only minimal but also specialized. Message texting in fact needs great agility of the fingers and a certain amount of speed. Among adolescents it is girls who are keener than boys on text messaging, probably because of their greater propensity for writing.

The mobile phone is generally analyzed as a device that puts social behaviour in motion and is continuously re-interpreted and reshaped by it. But technological objects, says Riccò (1999), should be seen not only as shapes that release certain functions, but also as elements bringing about an aggregate of sensations. This is a path that should be further explored empirically. It would in fact be extremely useful to collect data regarding both the interiority of sensations and the exteriority of elements of the senses, such as sounds, colours and so on. As Simondon (1958) has taught us for all technologies, it is also worth looking at the mobile phone as a technological artefact, since this technical object is the site of important acculturation processes. The issue of the design of technological devices is crucial to the development of social studies on information and communication technologies (ICTs) and is an area of increasing interest to the scientific community, the terrain of theory development, and the field of empirical investigations (see, for example, Latour & Woolgar 1979; Maldonado 1987). Scholars who study communication and information technology share today a complex vision of its design: ICTs bring with them user design (Akrich 1992; Oudshoorn & Pinch 2003) but, at the same time, ICT users are increasingly able to invent functions and services and then to foresee future developments for these devices (Bijker, Hughes & Pinch 1987; Sørensen 2004). In other words, ICTs are seen as artefacts that change in a society in which they contribute to making change and which, in turn, changes them. Unfortunately, a limit to this debate is its abstraction and its lack of articulation in the production process of the specific technological devices (Stewart & Williams 2005). The mobile phone provides an excellent example for a concrete and specific analysis of this complex interaction between artefacts and users. Although, for reasons of space, we can only focus on two points: the mobile phone as “factish” and the design variants introduced by its users. We will try to develop them within this theoretical framework.

The mobile phone as “factish”

The aim of this section is to deal with the design and implementation of a specific technological device: the mobile phone. From this point of view, among communication and information technologies, this has not so far received adequate attention from scholars. To illustrate the current reading of the mobile phone as a technological device, let us begin by asking some questions. What are the patterns of behaviour that the mobile phone projects onto its users, to use an expression of Latour (1998)? What programme of actions is inscribed in the mobile phone? What are the affordances, but also ties, requisites, and side effects of the mobile phone, which impose conditions on the subjects that interact with it, completely modifying the nature of human communication? (Norman 1993) The mobile phone, as an “intellective” machine (Maldonado 1997), has an internal representation and design that presents increasingly complex problems, although the user has been subsumed in the production process from its very beginning. In order to understand them, we briefly recall and analyze various approaches from the general debate on technology.

The first approach is that of those who consider the technological device to be a neutral object which is only a transitory support for social relations. The users only are important, not what they have at their disposal. The technological artefact limits itself to satisfying some needs and to carrying out certain functions. This vision does not take into account the power that our capitalist system attributes to objects, commodities, as depositaries of exchange value. As such they have been raised in the social hierarchy almost to the same level as individuals.

The second approach is that of those, including Gibson (1986), who view each technological device as a vehicle for a script which conditions the behaviour of users, obliging them to act a certain role. In other words, the mobile phone provides not only itself, but also gives instructions, and indicates a communicative and entertainment function by its very presence. The abstractness of this perspective does not specify that this script is often generic, not very predictive, and cannot assure any automatic degree of constraint. Moreover, it would be much clearer to state that this script is the text in which the command and control embodied in each commodity, mobile phones included, is expressed.

The third approach is that of the protagonists of the German debate on technology and culture between Bismarck and Weimar (Maldonado 1991). They have seen another aspect, which is the creation of a new situation, not corresponding to the behaviour patterns that the user had in mind. Users may simply want to have a technological device in order to communicate, if need be, while on the move. But as

they have a mobile phone, they do what can be done with it: talk when they feel like it, anywhere they feel like. There is an Italian adage that fits this situation perfectly: opportunity makes a thief out of a man. Individuals with a mobile phone in their hand become a different person; they are changed. In this case, the scheme of command and the script that is embodied in the mobile phone produce changes in social behaviour that go beyond what has been prefigured and configured in the artefact. At the same time, however, these social changes (see Sombart 1911) rebound on the mobile phone, which is also forced to change. As part of this third approach we cannot ignore the fact that the mobile phone, probably more than any other intellectual machine, is characterized by *metis* (the feminine intelligence of astuteness) (Latour 1998: 18).

Being a great bearer of invisible tricks, this technological device, in the eyes of the common user, has something magical about it. To borrow an expression from Propp (1988), the mobile phone seems to present itself as a “magic helper” par excellence. Although, as Weber (1918: 227) points out, technology in principle presupposes the “disenchantment of the world”, this process involves more the macro than the micro-social sphere, where individuals’ perceptions can still be placed under a spell by what appears to be magic. This magical aspect of the mobile phone is also referred to in the title of this section. To express the ambivalent and hybrid identity of the mobile phone, we have used the term that was chosen by Latour (1998: 32) to describe the special status of technical or scientific objects: “factish” (fetish and fact). Here we concentrate on the first term: fetish. The mobile phone is a typical fetish, because we project on to it, mistakenly, fantasies, work, feelings, emotions, dependence and memories. So this device becomes an object to which we entrust the task of convincing us, through a process of inversion of the origin of the action, that it is it (the mobile phone) which creates the artificer, and not vice versa. Simmel (1900) had already observed this reversal of means into aims through technology. But in the particular case of the mobile phone, this shift is probably connected to the magical element strongly present within it.

Finally, there is a fourth approach, in which people twist the embodied script to create unexpected uses at a social level or even to introduce innovations in the mobile itself. These innovations on the part of users are so important that Fleck (1988) has suggested considering the innovation process a chain that continues in the sphere of consumption, calling it “innofusion” (innovation and diffusion). We will dedicate the next section to this fourth approach, in order to produce a taxonomy of the innovative behaviour of users, leaving further discussion of their meaning for another time.

On a physical level, the mobile phone has a highly mutant body, to the extent that in semiotics it is referred to as a highly variable geo-

metrical machine (Montanari 1999). In relation to other communication and information technologies, the mobile phone is the most rapidly changing artefact because it is held very close to the body or stays on the body surface. This has led to its attraction to the sphere of fashion, that is, to that typical phenomenon of modernity defined by Simmel (1900: 41) as "the inconstancy in the domain of tastes and styles". The mobile phone is therefore the communication and information technology that is destined to change most in the future too. For example, it will be the technological device that is implemented with scents and perfumes and other senses, giving rise to new synaesthetic practices. In other words, it will have a greater possibility than other information and communication technologies to fight against the coldness and hardness that its technological frame and serial production lend it (Bloch 1973, original date: 1918-23).

As many authors have pointed out, there are several general tendencies for the bodies of machines, with a common denominator of avoiding the nightmare of the black box. In addition to becoming a "fashion object", another tendency is for it notionally to disappear and become a part of attractive surfaces that conceal their "new intelligence". Another tendency for the bodies of machines is to become softer, more coloured, less mineral and more biological and sensitive. This last tendency shows how women are today informally influencing the design of technology, shaping it in a more suitable way to their world. These general tendencies of course also include the mobile phone. Moreover, the mobile phone is the most suitable observation point from which to see the unfolding of these tendencies. In fact the mobile phone is being transformed into a more fashionable and seductive object, somewhere between accessory and jewel. In the same way as the computer, it is disappearing too, but inside watches, belts or even inside garments themselves. And finally, the mobile phone is becoming to all effects a soft machine. This last change obviously started from the materials used, which are today not only soft, rather than rigid, but also "intelligent".

The mobile phone is an artefact that is not only changing but is also multiform, multifunctional. It has become an agenda, pager, calculator, Internet terminal, video game, watch, alarm clock, radio, camera and more. In this sense, it shares with other technical objects the destiny, so well understood by Baudrillard (1968) many years ago, of becoming more complex than individuals' behaviour relating to these devices. The mobile phone's multifunctionality, as well as that of other ICTs, testifies to the desire for reunification that modern society expresses in the face of its opposing tendency to divide, fragment and pulverize. However, this need for reunification, which in this case is the assembly of many different functions, in the end clashes with the limits of lack of specialization. These machines, which apparently can do a large num-

ber of things, in reality do only one well and the others badly. Moreover, the dystonia between the complexity of the devices and the dream of simplicity which circles among users ends up resolving itself in a strong process of simplification.

Consumption and use mean severe selection of functions. In this sense, the mobile phone is an “open work” in which hermeneutics plays an important role. Finally, the mobile phone lends itself to being individualized by means of a particular logo, a special musical motif, a little teddy bear, or an original cover. Its domestication passes through the negation of its serialization and anonymity as a commodity. And this individualization works at a social level so efficiently that it is almost impossible to find a mobile phone completely equal to another. Attention to this process allows us to understand the behaviour by which we “humanize” its physical body, while research into its social representation helps us to understand how we “humanize” it mentally, by integrating it in our conceptual sphere. The destruction of the aura that surrounds the mobile phone as an artefact, as a product of an industrial process, is in a certain sense rebuilt in the consumption process. Here users liberate the creativity, inspiration and imagination compressed in the production process.

Design variants introduced by users

We have stated previously that the mobile phone is an excellent concrete example of how users change the behaviour patterns that are inscribed inside a technological device. So what are the design variants that people have introduced into the mobile phone? The answer is very important because when we speak in general of the active and innovative role of users we always remain on a vague level, giving at most one example: text messages. Whereas, from the research carried out so far, a very rich picture of user modifications emerges. A map of the design variants registered in the current literature should begin from the *individualization* of the mobile phone. Born as a mobile device to be used during commuting, walking, travelling and so on, that is, while the user is moving around, the mobile phone was very soon transformed into an individual technological device, used mainly by its owner. We can say that the mobile phone is the first communication technology that, through the precise initiative of people, has been put to a personal use and not a collective (familiar) one.

Another important variant is its *sedentary use*, which has been a secondary consequence of its transformation from a mobile technological device to a personal one. This transformation was brought about by a widespread desire for access to mobile communication, which ended up by individualizing the instrument. Despite the fact that the mobile

phone was designed as a technology to be used while moving from one place to another, users have basically redesigned it as an instrument of individual communication. The inevitable consequence of this different reading of the technological object has been to use it anywhere where individuals might find themselves, so no longer specifically during their moving from place to place, but also at home, in the workplace, the restaurant and so on.

The third variant is the fact that the mobile phone, after being designed as a complementary and secondary means of communication to the landline telephone, has become the absolute protagonist of the scene, *overtaking the landline phone*. The mobile phone has not only been able to become the leading technological device among mobile technologies, but also, in the field of telephony, to cannibalize the landline market. This variant may be considered to be the result of the first two, but it also has a life of its own, since it has radically modified the core business of telecommunication companies and handset manufacturers, obliging them to reconfigure their planning and internal organization.

The mobile phone, and here we arrive at the fourth important variant, has also been the occasion for modern-day individuals to reconfigure public spaces by introducing a *new dynamic between the private and public dimensions*. In effect the mobile phone has allowed people to shake up the modern phenomenon of the cult of intimacy as a centripetal experience. The bourgeois idea of an aesthetic of intimacy, of separateness, of detachment, in short, self-reclusion and self-segregation, as a defence against the outside world, is no longer able to discipline the ritualization of sociability (Maldonado 1993: 8-10). The spread of the mobile phone, as if by enchantment, showed in the public space the two different sides of modern individuals: their "being bully heroes on the outside and humble anti-heroes on the inside." Although this contradictory attitude persists, the mobile phone has, in a certain sense, allowed people to open themselves out to the world.

A design variant which does not concern normal users but rather entrepreneurs, public administrations and so on, and which risks remaining hidden in the background, is the fact that these agencies, taking advantage of the mobile phone, have found a way of making people under them use it for work, *without paying for the costs*. From this point of view, the widespread use of the mobile phone has created a still more radical shift of the boundaries between the sphere of work and social reproduction or civil society and the silent re-appropriation by employers of part of the wages that should have been paid to employees.

In our list we now arrive at the most cited design variant created by mobile phone users (in particular, adolescents): the mass use of text messages, which had been conceived by the designers as a possibility

for technicians to send each other short written messages during work. This function, in no way advertised by telecommunication companies, has been discovered and activated on a large scale by young people looking for a way of spending as little as possible to communicate. In this case it has been adolescents' lack of money that has led them to find alternative ways of "mobile" communication. One effect of this discovery has been the development in mobile communication of writing activity and a specific language.

Another design variant again comes from adolescents: the use of *special ring signals*, again sent for the purpose of communicating without paying. This is an international practice and is widespread in many countries. It has been a way for many young people to learn a new communicative register linked to strong ritualization and a non-verbal language. In this case the mobile phone, in the hands of individual children, has become the instrument for rebuilding a kind of virtual brotherhood and sisterhood. This practice has ended up by depriving adolescents of many hours of sleep, completely reshaping the moments of the days suitable for communicating with friends and girl/boyfriends outside of the home.

Still on the subject of variants introduced by adolescents, it is worth mentioning the practice of deliberately *calling random numbers* in order to widen one's social circle. If you think about it, only adolescents can allow themselves such freedom of behaviour. Their social identity, being still considered socially immature, might be a justification; moreover they can always, if things go wrong, put it down to a mistake or a joke. This communicative behaviour, however, reveals a difficulty in enlarging their social sphere, which too often tends to close in on itself and become sclerotic. At the same time, it also shows the intolerance of young people towards a schema of sociability that is too readily expected and inexorably local (school friends, district, sport etc.).

It is from a more composed world, however, that the use of the mobile to *interact with the media* comes (voting during programmes by means of text messages, phoning while in the car, etc.). The mobile phone fills a gap in the relationship between audiences and the media and has resolved some technical problems for both. The landline phone, for example, has never really been able to deal with the mass of people who want to take part in TV or radio programmes. The line has often been engaged and calls expensive; ultimately very few people have been able to express their opinions, respond to a quiz, and so on. The mobile phone has not represented a panacea for resolving every problem, but it is a useful aid. In this respect, text messages have turned out to be a great resource.

A variant that applies to everyone, unaffected by gender or generation, is the use of the mobile phone *to present oneself*. It is a fantastic

resource for the construction of a public image, of self-assured and easy behaviour, to fill in gaps or empty moments with a precise ritualistic. In other words, it helps to overcome timidity and discomfort in one's performance and to maintain one's image in a public space, with its anonymous crowds or threatening emptiness. Women, when they are alone, in some situations use the strategy of demonstrating that they are using their mobile. As a form of self-defence, this display shows that they are connected to another person who can come to their rescue if need be.

One variant undoubtedly reinforced by women is the importance attributed to the *aesthetic aspect* of the mobile phone. Simmel (1900: 43) had already underlined that even machines can exercise aesthetic charm: "The absolute functionality and safety of movements, the reduction to a minimum of resistance and friction, the harmonious fitting of the most minute and the biggest components: all this gives the machine, even from a superficial view, a characteristic beauty." The mobile phone is probably the ICT that has most quickly transformed itself into a seductive and fashionable technological device. The reason for this may be that, much more than other information and communication technologies, the mobile phone stays close to or on the human body and has therefore been the technology most destined to fall under the influence of looks and more generally of fashion.

So far we have presented design variants regarding social changes that have been supported or made possible by the mobile phone. These social changes, brought about by people, are innovative and unexpected in relation to the behaviour pattern inscribed in mobile phones. But many of them concern society much more than technology or the world of telecommunications. There is, however, another type of design variant, which involves changes to the body itself of our technological device. Women, for example, have obliged telecommunication companies and handset manufacturers to remember that they often have fingernails that are much longer than men's. Therefore, these companies have had to modify the *keys* to allow women to press them more easily.

Moreover, a genuine design variant has been the attribution of *great importance to music* on the mobile phone. Starting from ring tones, but continuing with the possibility of listening to the radio on the mobile, young people in particular have imposed this additional form of convergence: between music and mobile phone. The widespread love of music by adolescents and young people in general has certainly led to the implementation of this component, which was totally extraneous to the original mobile phones.¹ It is sufficient to remember that music

1. On 2 September, 2004, the rock upstarts Rooster made history when they became the first band to broadcast a concert live by mobile phone. One thousand third-genera-

has been the main key by which people have been able to individualize their mobiles.

Our mapping of users' unexpected and innovative behaviour must end here for now. Our study, whilst necessary, is not yet sufficient because we need to also try and understand its meaning. Our impression is that, in order to achieve this, the theories at our disposal (co-construction, "innofusion", domestication, social learning theory on design) are in themselves insufficient. It might be more fruitful to refer to political economics and sociological studies on consumption (Codeluppi 2004). User innovations and modifications of the mobile phone must be seen first of all as the expression of consumer subjectivity. As buyers, consumers have to defend their purchasing power by trying to cut down costs and make best use of what they have bought, also in new ways. Secondly, these innovations should be seen as the results of users who have for some time begun to see themselves as an independent variable of the whole economic process. They try to use what they have bought according to their needs and desires, thereby avoiding the command scheme embodied in every commodity and applying all the modifications they consider suitable (the famous "dystonias of consumption"). In this context, seeing oneself as an independent variable of the capitalist process generally means at the same time keeping buying strategies secret (the acknowledged "unknowability" of buyers), whilst revealing those of consumption so that they will have a beneficial effect on the improvement of the technological devices to be bought in the future.

Conclusion

With this chapter we have merely begun to discuss the mobile phone as an artefact. A proper analysis would require much more space and time for reflection. We hope that this attempt will serve as a stimulus to draw the mobile phone more completely into the wider theoretical debate on technologies and technological devices.

tion (3G) video phone users of the UK mobile network '3' had to pay £5.00 to be able to follow the 45-minute show on their handsets. The broadcast of the band's concert at the Institute of Contemporary Arts in London was aimed at 18-25-year-olds (see Barton 2004).

References

- Akrich, M. (1992), 'The description of technological objects', In: W. E. Bijker and J. Law (Eds.), *Shaping technology/building society: Studies in sociotechnical change*, Cambridge, MA: MIT Press, 205-24.
- Barton, L. (2004), 'The first phone-in concert: Rooster herald new era of technology by broadcasting gig live by mobile', *The Guardian*, 3 November.
- Baudrillard, J. (1968), *Le Système des Objets: la consommation des signes*, Paris: Gallimard.
- Bijker, W., Hughes, T. P. and Pinch, T. (Eds.) (1987), *The Social Construction of Technological Systems*, Cambridge, MA: MIT Press.
- Bloch, E. (1973), 'Die technische Kälte', In: *Geist der Utopie (1918-1923)*, Frankfurt/Main: Suhrkamp Verlag, 20-29 [tr. it.: 'La freddezza tecnica', In: T. Maldonado (1991), *Tecnica e cultura. Il dibattito tedesco tra Bismarck e Weimar*, Milan: Feltrinelli, 236-246].
- Codeluppi, V. (2004), *Il potere del consumo*, Turin: Bollati Boringhieri.
- Gibson, J. G. (1986), *The Ecological Approach to Visual Perception*, London: Lawrence Erlbaum Associates.
- Latour, B. & Woolgar, S. (1979), *Laboratory life*, London: Sage.
- Latour, B. (1998), 'Fatti, artefatti, fatticci', In: M. Nacci, *Oggetti d'uso quotidiano. Rivoluzioni tecnologiche nella vita di oggi*, Venice: Marsilio, 17-36.
- Maldonado, T. (1974 [1959]), 'Comunicazione e semiotica', In: T. Maldonado (Ed.), *Avanguardia e razionalità*, Turin: Einaudi, 67-77.
- Maldonado, T. (1987), *Il futuro della modernità*, Milan: Feltrinelli.
- Maldonado T. (1991), *Tecnica e cultura. Il dibattito tedesco tra Bismarck e Weimar*, Milan: Feltrinelli.
- Maldonado, T. (1993), 'Le ambiguità dell'interno', *Ottagono*, XXIII (3), 9-12.
- Maldonado, T. (1997), *Critica della ragione informatica*, Milan: Feltrinelli.
- Montanari, F. (1999), 'Dall'oggetto al fatticcio', In: G. Marrone, *C'era una volta il telefonino*, Rome: Meltemi, 169-192.
- Norman, D. A. (1993), *Things That Make Us Smart. Defending Human Attributes in the Age of the Machine* [tr. it.: D. A. Norman (1995), *Le cose che ci fanno intelligenti. Il posto della tecnologia nel mondo dell'uomo*, Milan: Feltrinelli].
- Oudshoorn, N. & Pinch, T. (Eds.) (2003), *How Users Matter: The Co-construction of Users and Technology*, Cambridge, MA: MIT Press.
- Propp, V. (1988), *Morfologia della fiaba*, Turin: Einaudi.
- Riccò, D. (1999), *Sinestesie per il design. Le interazioni sensoriali nell'epoca dei multimedia*, Milan: Etas.
- Simmel, G. (1900), 'Die Herrschaft der Technik', In: *Philosophie des Gel-*

des, Leipzig: Duncker and Humblot [tr. it.: 'Il dominio della tecnica', In: T. Maldonado (1991), *Tecnica e cultura. Il dibattito tedesco tra Bismarck e Weimar*, Milan: Feltrinelli, 37-46].

Simondon, G. (1958), *Du mode de l'existence des objets techniques*, Paris: Aubier.

Sombart, W. (1911), 'Technik und Kultur', *Archiv für Sozialwissenschaft und Sozialpolitik*, 33, 305-347 [tr. it.: 'Tecnica e cultura', In: T. Maldonado (1991), *Tecnica e cultura. Il dibattito tedesco tra Bismarck e Weimar*, Milan: Feltrinelli, 136-170].

Sørensen, K. (2004), 'Cultural Politics of Technology: Combining Critical and Constructive Interventions', *Science, Technology & Human Values*, 29 (2), 184-190.

Stewart, J. and Williams, R. (2005), 'The Wrong Trousers? Beyond the Design Fallacy: Social Learning and the User', In: H. Rohracher (Ed.), *User involvement in innovation processes. Strategies and limitations from a socio-technical perspective*, Munich: Profil-Verlag.

Weber, Max (1918), *Wissenschaft als Beruf*, Berlin: Duncker und Humblot [tr. it.: 'La scienza come professione', In: T. Maldonado (1991), *Tecnica e cultura. Il dibattito tedesco tra Bismarck e Weimar*, Milan: Feltrinelli, 225-235].