Kevin Rudolph

Analyzing Dynamic Capabilities in the Context of Cloud Platform Ecosystems

A Case Study Approach

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Preface

This thesis is made as a completion of the Master of Science in Industrial Engineering and Management (IEM). Yours truly has a Bachelor of Science in Industrial Engineering from the Karlsruhe Institute of Technology, Germany and this thesis is the product of the master period, which is the last part of the IEM study at the Berlin Institute of Technology – School of Economics and Management, Germany.

A motivation for this topic comes first of all from my personal interest in the research areas of strategic management, (open, digital, business model) innovation, platform ecosystems and value co-creation. Furthermore, in this day and age we see high economical dynamism among all kinds of industries. We see companies that need to reinvent themselves. Especially, in the cloud computing industry some players tend to have strong competences in reshaping their companies and services frequently in order to gain market share and to grow in revenue – they have developed dynamic capabilities (DCs). This thesis examines the dynamic capabilities in cloud platform ecosystems. An in-depth case study investigates the microfoundations of dynamic capabilities within a market-leading cloud platform ecosystem. Further research addressing nearby challenges is about to come.

I would like to thank many people who have supported me through the completion of this thesis. First of all, thank you for my supervisor at the Chair of Information and Communication Management at the School of Economics and Management of the Berlin Institute of Technology for guidance – Dr. Christopher Hahn. Furthermore, I would like to express my sincerest gratitude to my family and friends who have supported and encouraged me during the process.

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Abstract

Dynamic capabilities (DCs) refer to a firm's abilities to continuously adapt its resource base in order to respond to changes in its external environment. The capability to change dynamically is crucial in business ecosystems that are composed of a variety of actors.

Amazon Web Services (AWS), the leader in the cloud platform industry, is a promising cloud platform provider (CPP) to show a high degree of dynamic capability fulfillment within its highly fluctuating ecosystem. To date, the full scope of dynamic capabilities in cloud platform ecosystems (CPEs) has not been fully understood. Previous work has failed to deliver a combined perspective of explicit dynamic capabilities in cloud platform ecosystems applied on an in-depth practical case.

With our mixed-method case study on the AWS ecosystem we deliver a thorough understanding of its sensing, seizing and transforming capabilities. We generate a set of strategy management frameworks that support our expectations, lead to unexpected insights and answer the questions of what, how, why and with whom AWS uses DCs. In detail, we provide an understanding about DC chronological change, DC network patterns and DC logical explanations. Our research is based on a self-compiled case study database containing 16k+ secondary data pages from interviews, blogs, announcements, case studies, job vacancies, etc. that we analyze qualitatively and quantitatively. We find out that AWS develops and holds a large set of interacting dynamic capabilities incorporating a variety of ecosystem actors in order to sustain tremendous customer value and satisfaction.

The thesis infers significant theoretical and practical implications for all CPE actors, like partners, customers, investors and researchers in the field of IT strategy management. Managers of all CPE actors are encouraged to critically evaluate their own maturity level and complement a CPP's DC explications in order to boost business by implementing sensing, seizing, transforming and innovating capabilities.

1. Structure

1.1 List of figures

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1.4 List of abbreviations

CPE	Cloud Platform Ecosystem
DC	Dynamic Capabilities
SaaS	Software-as-a-Service
PaaS	Platform-as-a-Service
IaaS	Infrastructure-as-a-Service
CPP	Cloud Platform Provider
quant	quantitative data
qual	qualitative data
RDI	Research, Development and Innovation
IP	Intellectual Property

1.5 Appendix overview

2. Introduction

In this first introductory chapter we justify the ground of our investigation and set the topological frame for the research. It is organized as follows: We (1) present the motivation and problem area for the work ahead, (2) review related work that lead us to (3) research questions. Lastly, we (4) outline the structure of this thesis.

2.1 Motivation and problem area

In today's modern digital society platforms are pervasive and support human life in manifold ways if not just even enable the digital aspect. A platform in this way is an intermediate, a tool or a place to be interconnected with a wider social group or computers in order to innovate and consume, produce and exchange. Famous and historical examples such as

- operating systems (Microsoft Windows, Linux OS),
- microprocessors (Intel, ARM),
- digital distribution services (iTunes, Apple App Store, Google Play),
- social networking sites (Facebook, Twitter, LinkedIn),
- videogame consoles (Sony PlayStation, Microsoft Xbox) and
- payment technologies (PayPal, Visa)
- show that platform offerings can advance to the most diverse areas of modern living (Gawer & Cusumano, 2014).

This importance of platforms can be captured in models of value creation and value appropriation (Jacobides et al., 2006). The economic value is justified by a study of Hidding et al. that shows that 3/5 of the largest companies in this world make more than half of their revenues through platform markets (Hidding et al., 2011).

Innovation today is not purely done by single individuals, more innovative services and products have their origins in the minds of many different actors - especially in high tech industries, such as information and communications technology (ICT) industry (Gawer & Cusumano, 2002).

A steadily growing ICT driver are cloud computing platforms (cloud platforms). Those are the cause for a huge amount of important innovative business models and disruptive innovator for manifold industries, e.g. internet of things (IoT), sharing economy, media and entertainment, gaming and retail (Marston et al., 2011).

Managing the complexity of cloud platforms is enormously difficult because of the usually tremendous growth, dynamic environmental changes and variety of actors in the created ecosystem landscape (Cai et al., 2009).

A vast amount of researchers have tackled platform management research topics, such as platform organization (Venkatraman & Lee, 2004; Kapoor & Lee, 2013), platform architectures (Langlois & Robertson, 1992), platform strategies

(Almirall & Casadesus-Masanell, 2010) and platform leadership (Gawer & Cusumano, 2002).

Not only cloud platforms are important. Moreover, theory and management practice has identified the business ecosystem around CPP as enormously important. For the success of a technology system platform the proper management of the surrounding ecosystem is essential (Gawer & Cusumano, 2002).

These business ecosystems consists of a variety of actors, like customers, developers, researchers, complementors and investors (Teece, 1986; Shapiro & Varian, 1999; Iansiti & Levien, 2004; Tiwana, 2013).

Another crucial aspect of cloud platform ecosystems is their volatility. As technology and consumers change over time, intelligent identification and response abilities are necessary to gain competitive advantages. These managerial and strategic responses to environmental changes can be summarized as dynamic capabilities. The development and management of dynamic capabilities is highly complex and important for companies' success in dynamic environments (Teece, 2007; Eisenhardt & Martin, 2000).

Also professional service firms have specialized in the consulting of dynamic capabilities. This confirms the importance of this research topic for a broad set of industry managers in practice (Michel, 2015).

A cloud platform's success is strongly connected with its dynamic capabilities. Nonetheless, those are not thoroughly understand up to date (Thomas et al., 2014).

2.2 Related work

Although there has been a vast amount of research in the area of (cloud) platforms (Sun et al., 2015) and dynamic capabilities (Barreto, 2009; Eriksson, 2013) few research has been done on dynamic capabilities in the context of platforms and ecosystems but can be seen broadly as related work (Isckia & Lescop, 2009; Salazar, 2012; Tsai, 2013; Thomas et al., 2014; Venkatraman et al., 2014). Thus, the focus of recent research has been a broader view on dynamic capabilities in platform ecosystems.

In an early work by Isckia & Lescop AWS's open innovation strategy (as one explication of dynamic capabilities (Teece, 2007) was examined in a case study approach in order to comprehend the technical and organizational leverage based on web services (Isckia & Lescop, 2009). Salazar indicates from a case study that ARM's (microelectronics manufacturer) success is truly based on its dynamic capabilitites within a larger platform ecosystem (Salazar, 2012). A framework by Tsai proposes a variety of strategic movements that can be performed by platform owners in dynamic platform surroundings in order to gain future competitive advantage. His research is based on a cross-case analysis (Tsai, 2013). The results offered by Thomas et al. suggest that architectural leverage creates platform value

and success. This is accompanied by IP protection, platform control and leadership and trend following (some explications of dynamic capabilities (Teece, 2007; Thomas et al., 2014)). Venkatraman et al. developed a series of concepts showing the characteristics of digital business innovation platforms while being dynamic capabilities one dimension to deliver potential value created by the platform characteristics (Venkatraman et al., 2014).

2.3 Research questions

What is not understood well is what specific dynamic capabilities (DCs) cloud platform providers (CPPs) use in their ecosystems, especially how, why and with whom. Up to this point we define the following broad research questions:

- RQ1: What specific dynamic capabilities do CPPs use within their ecosystem?
- RQ2: Why do CPPs use dynamic capabilities?
- RQ3: How do CPPs use dynamic capabilities?
- RQ4: With whom do CPPs use dynamic capabilities?
- RQ5: What outcomes caused by strategic responses of CPPs that are based on dynamic capabilities can be identified?

2.4 Thesis structure

We elaborate a set of answers to our research questions in a four-step-methodological concept that is shown in Figure 1 (research design inspired by (Van de Ven, 2007)). Part I helps to refine the previously stated research questions. Firstly, a thorough literature review leads us to a series of conceptual frameworks. Furthermore, we sketch our expectations. Consequently, Part II will discover the methodological standards in this research field. Specifically, we introduce our research design and tools, as well as how our mixed-methods research design is overlaid on top. Part III can be classified as the core of this work where we apply our research methodology on the case of Amazon Web Services (AWS). After a short introduction of AWS we expose the data preparation, collection and conversion processes as well as apply analytic techniques in order to gather valuable insights about the answers to our research questions. The results are condensed in conceptual frameworks. Finally, we discuss the implications on theory and practice in Part IV. Even if we cannot fully generalize the insights of the case study, lessons can be drawn about dynamic capabilities in the context of cloud platform ecosystems.

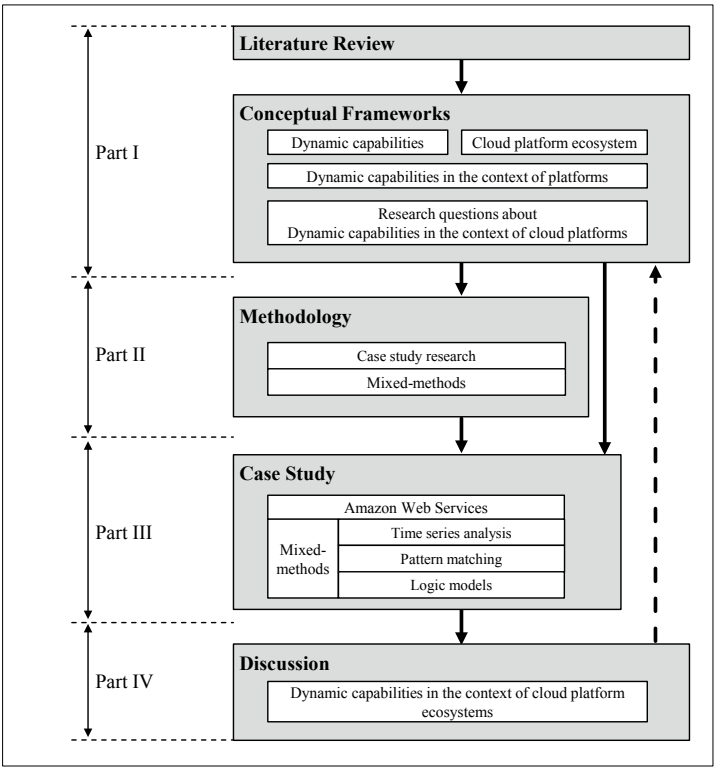

Figure 1: Thesis structure

3. Part I: Literature review

In this chapter we compose a literature review that should introduce unexperienced readers quickly into the topic, reveal state-of-the-art research insights and generate conceptual frameworks for the refinements of previously defined research questions.

After a short methodological justification, we first expose a general theoretical background introducing the topics of cloud computing, platform management, ecosystem theory and strategy management. After this, we develop coherent conceptual frameworks based on recent literature about a) dynamic capabilities (DCs), b) cloud platform ecosystems (CPEs), c) dynamic capabilities in the context of platforms (DCs in CPEs) and d) a specification of the previously stated research questions. We compare the typologies of each domain that will help us to define mutually exclusive and collectively exhaustive code schemes. Lastly, we state our expectations.

In this initial phase of investigation we make use of conceptual frameworks in order to guide the research. As we address a qualitative research problem, we create conceptual frameworks inductively after synthesizing and integrating existing models. Later, we compare previous research outcomes with the case of AWS to ensure that we identify discrepancies and define our research contribution (Imenda, 2014).

3.1 Theoretical background

We present the fundamentals of cloud computing and platforms, as well as ecosystem theory and origins of dynamic capabilities. Since a comprehensive symbiosis of these topics has not been addressed before, we consider each topic separately.

Cloud computing and platforms

Cloud computing and platforms have emerged during the last years extensively (Qian et al., 2009). Much is known about specific technical specification (Furht & Escalante, 2010) and business models (Strømmen-Bakhtiar & Razavi, 2011). But less is known about organizational and managerial aspects of complex cloud platforms and companies that respond to enormously dynamic environment. What about the strategies, organization, governance and innovation?

Cloud computing platforms

When we talk about cloud platforms we always mean cloud computing services that cover the whole set of "as-a-service"-models, including, software, platforms and infrastructure. As stated by Landis & Blacharski (2013) "cloud platforms are offered 'as a service', [...] taking advantage of underlying cloud infrastructure, elasticity and as-a-service models". The corresponding advantages are manifold, e.g.

lower costs and risks and faster time-to-market by use of rapid prototyping (Landis & Blacharski, 2013).

Buyya et al. (2008) compares a set of cloud platforms. They name examples as Amazon's Elastic Compute Cloud (infrastructure) and Google's App Engine (platform) (Buyya et al., 2008). Cusumano et al. (2010) focuses on SaaS platforms as platform mode and shows examples such as Microsoft Azure, Google App Engine and Amazon EC2 (Cusumano, 2010).

Cloud computing deployment models

Cloud deployment models determine the degree of openness of a cloud infrastructure. A public cloud is accessible to the general public. A private cloud is provisioned for an exclusive user group only. At last a hybrid cloud is an aggregation of singular private/public cloud infrastructure (Mell & Grance, 2011).

Cloud computing definition

Cloud computing is a characterized as a service model delivering network-based access to a variety of computing resources that are configurable, e.g. servers with computing power, storage, networks, applications and services. This means that services do not need to be established, installed, configured and run on a local machine, but rather on remote machines usually accessible through the internet. Those services generally have a set of features that are highly desirable for the optimization of IT architectures and business models. The National Institute of Standards and Technology (NIST) categorizes the features as follows:

- "On-demand self-service": Customers can make use of the services instantly and without provider intervention.
- "Broad network access": Services can be utilized through a broad network (e.g. internet), through standard interfaces. Furthermore, the integration of heterogeneous systems and platforms is provided.
- "Resource pooling": The provider aggregates various resources (e.g. CPU time, storage) physically and virtually to allocate capacities to several customers.
- "Rapid elasticity": The provision of resources can scale out or up at any time, thus also automatically adapt to changing demand.
- "Measured service": A measuring service is offered to supply proper measuring, monitoring, steering and reporting functions (Mell & Grance, 2011).

Cloud computing services models

A range of service models specify the extensive cloud computing offering. The NIST defined three services models that can be imagined as a stack going from Software-as-a-Service (SaaS) over Platform-as-a-Service (PaaS) to Infrastructure-as-a-Service (SaaS). To distinguish those we give a definition of each.

- SaaS: Consumers access cloud applications of the provider through a web interface in order to use software without managing any applications, platforms or infrastructure.
- PaaS: Consumers access cloud platforms of the provider through a web interface in order to acquire, program and configure applications without managing any platforms or infrastructure. The provider offers the means of managing the applications on a platform.
- IaaS: Consumers access cloud infrastructure of the provider through a web interface in order to set up deployments, operating systems, security mechanisms etc. without managing the infrastructure (Mell & Grance, 2011).

Platform management

Platform definition

According to Tiwana: "A software platform is a software-based product or service that serves as a foundation on which outside parties can build complementary products or services. A software platform is therefore an extensible software-based system that provides the core functionality shared by “apps” that interoperate with it, and the interfaces through which they interoperate." This definition highlights the important role of complementors (Tiwana, 2013).

Platform strategies

Since platforms are highly dependent on its surrounding ecosystem mechanisms, managing this is of highly strategic importance. This is highlighted by the degree to which the platform owner opens up its technology and business, as well as direct activities to oversee complementors and the market.

The degree of openness of a platform in all its attributes outlines the innovation extent and is concisely managed by platform owners. Platform openness defines the willingness and execution of platform owners to make platform technology available to external complementors, such as innovators and partners. Furthermore, platform openness includes all ambitions to effectively cut all applied technology barriers, whether they are due to access, utilization and commercialization or value appropriation (Schilling et al., 2009; West, 2003; Boudreau, 2010). A few measures have been investigated that indicate platform openness, such as platform control, ownership, integration, contributions, access, complementarity and intellectual property. Studies show that the degree of openness has high impact on the innovativeness of the entire platform ecosystem (Boudreau, 2010).

The concept of open innovation spans the idea of opening technology and business capabilities to outside actors in order to generate external ideas and knowledge. Additionally, it serves as a mean of boosting up innovations around (and inside) technology platforms with the goal of generating value-added services

and products. As a result the innovation potential increases and implies a valuable strategic tool. Based on this we distinguish three different concepts. In case of outbound innovation, the platform owner sets free assets (knowledge, invention, etc.) to externs. This can be done via free revealing or selling assets. With inbound innovation activities the platform owner gathers assets, either it is freely sourced or acquired. As a third the mixed innovation approach means that partly assets are set free but at the same time assets are gathered (Chesbrough, 2006; Dahlander & Gann, 2010).

The degree of platform openness is strictly related to the activities to protect intellectual property (IP), i.e. technology licensing. Platform systems that pursue a strong openness protect IP differently than closed systems. Such open projects are based on public licenses, such as GNU GPL. By opening up the platform control and ownership is by far waived and passed to complementors and other ecosystem actors. For proper value appropriation technology licensing is a common mean. Also hybrid strategies are common which open up specific portions of a platform and place the platform technology in the public more restrictively (Teece, 1986; Rey & Salant, 2012; (Boudreau, 2010; Schilling et al., 2009; Simcoe et al., 2009; West, 2003).

We can distinguish two different modes that reveal the direction to which the openness is led. A vertical openness strategy directly concerns complementors. This can be measured by the extent to which complementors are incorporated into the platform, access is allowed to others and backward compatibility to former platform generations and services is ensured. A horizontal openness strategy affects cooperation with competing platforms, i.e. the extent to which platform systems are interoperable, licensed and jointly developed (Eisenmann et al., 2008).

Specifying the certain degree of platform openness has valuable effects on the complementary innovativeness of the entire platform ecosystem. There is a strong trade-off between an open platform strategy that leads to value adoption and a closed (proprietary) platform strategy that results in more value appropriation (Economides & Katsamakas, 2006; Almirall & Casadesus-Masanell, 2010; Boudreau, 2010; Gawer & Cusumano, 2014; Eisenmann et al., 2008; Schilling et al., 2009; West, 2003). A strictly open strategy leads to slower cost amortization speed and thus lower intensity of appropriate returns because of no barriers to entry and imitation. The conditions for beneficial innovativeness are a strong external network and means for co-specialization. One the other hand, a strong closed platform strategy leads to fastest cost amortization and highest return appropriation. Because of high IP protection the barriers to entry and imitation are high. Competitive advantages in service or products are essential for this strategy type (West, 2003; Schilling et al., 2009).

We once more highlight that the openness is highly important to encourage the external environment to develop complements. The successful establishment and orchestration of the entire ecosystem leads to higher scale, scope and speed of

complementary innovation (Gawer & Cusumano, 2014; Venkatraman et al., 2014). Furthermore, hybrid platform approaches enable complementors that even have not been imagined by the platform provider (West, 2003). Studies have shown that the optimal degree of openness is a hybrid approach with more or less limited licensing policies. This is based on an inverted-U correlation between accessibility and complementary innovation (Boudreau, 2010). To a certain point more IP licenses lead to a more diverse product and service portfolio (Rey & Salant, 2012).

Depending on the degree of platform openness the platform leadership role becomes more and more important. Furthermore, wise strategic choices have to be made as a platform provider whether to collaborate and/or compete with complementors.

Platform leadership is characterized as successful ecosystem management and proper technical service and product engineering. Essential for a successful management of the ecosystem are (1) occupying a visionary product/service role in an ecosystem (2) encouraging complementors to share the vision and co-create products/services, (3) dominating the platform as a central part and (4) provoking the growth of the platform. Enhancing the (architectural) connectivity and appropriability of the platform supports a systematic service and product engineering (Gawer & Cusumano, 2014; Gawer & Cusumano, 2002; Gawer & Cusumano, 2008).

The configuration of competitive and cooperative relationships another important strategic aspects that needs to be investigated in order to encourage complementary innovation. Those relationships can appear between all possible actors of a platform ecosystem (Economides & Katsamakas, 2006; Gawer & Cusumano, 2002); Shapiro & Varian, 1999); Casadesus-Masanell & Yoffie, 2007; Parker & van Alstyne, 2008; Hagiu, 2009b). A few measures indicate a rather competitive environment: (1) developing own platform complements, (2) acquiring complementor companies, (3) entering complementor markets (Gawer & Cusumano, 2002) and (4) pricing the platform components aggressively (Economides & Katsamakas, 2006).

Further important concepts of platform management

Other important platform management concepts include platform architectures (modularity, technical boundaries as resources), platform organizations (internal and interfirm organization) and platform governance (decision rights, pricing and control portfolio) (Tiwana, 2013).

Further important concepts of cloud platform management

Specifically, for cloud platform ecosystems management decisions refer to modes of innovation (whether architectural, radical, increment or modular), platform

governance (autonomy, integration, pricing) and modularization (decoupling, interface standardization) (Tiwana, 2013).

Ecosystem theory

Originally, platforms evolved from the concept of business ecosystems, where innovation happens because companies and other actors acquire capabilities in order to develop new services and products directly based on customers' needs (Moore, 1996). Complementary innovation is promoted among a variety of stakeholders that are organized in structures and alliances with specific relationships (Kapoor & Lee, 2013; Venkatraman & Lee, 2004). On top of those ecosystems 'ecosystem leaders' serve as central points to allow some verticality (Gawer & Cusumano, 2002).

One of the most valuable and interesting effects in business ecosystems is the network effect. Once the number of users of an ecosystem grows the value of that service or product increases (Iansiti & Levien, 2004). Those network effects is it what makes cloud platform ecosystems so interesting, as with modern internet technology (i.e. web services) the barrier to interconnect diminishes to a minimum. A variety of actors surround the cloud platform provider, e.g. independent service providers, partners and customers (Huntgeburth et al., 2015).

Especially, the cloud platform ecosystems are characterized as multisided platforms, where two sides interact directly with each other, but use the platform as an intermediary. Thus they also have a relationship with the platform. An example would be if a private user watches a movie on Netflix that is built on top of AWS. The user has a direct relationship with Netflix (payment, service) and an indirect one with AWS (data streaming), whereas Netflix pays AWS and builds its services on its infrastructure (Hagiu, 2014).

A combined view on the current understanding of value co-creation and value networks in cloud ecosystems (Figure 2) shows that there are usually three relations that can occur between cloud platform providers and other ecosystem actors: exchange, integration and addition of resources, application services, consulting services, data and money. Cloud ecosystem actors exchange know-how, accumulate trends and use computing capacities. They can integrate knowledge and services in order to innovate and secure intellectual property. Complementary services can help to orchestrate services and deliver additional value to customers (Huntgeburth et al., 2015; Leimeister et al., 2010).

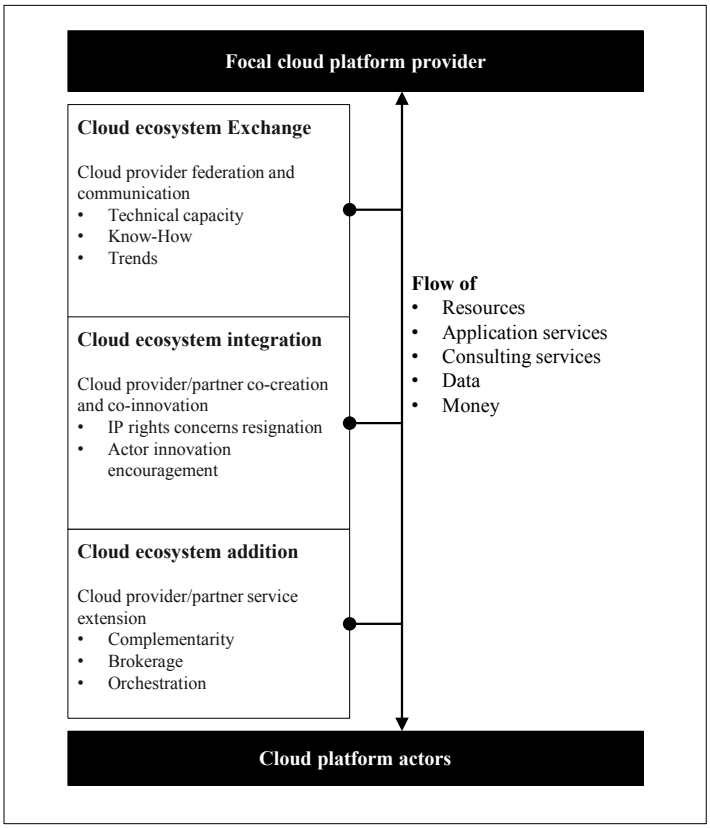

Figure 2: Cloud platform ecosystems theory
(following (Leimeister et al., 2010; Huntgeburth et al., 2015))

Origins of dynamic capabilities

The research field of dynamic capabilities has its origin in the theoretical research field of strategic management. The theoretical foundation is grounded in the fields of resource-based view and evolutionary economics (Di Stefano et al., 2010). The resource-based view lays out that a firm's performance in relation to competitors is based on its ability to bundle and manage its resources to the best extent (Wernerfelt, 1984). Those resources should be valuable, rare, in-imitable and non-substitutable (VRIN) (Crook et al., 2008). The idea of evolutionary economics focuses on the analogy to transfer the idea of biological evolution to economics, so that technological change and innovation build central methods for service and product variation and leads to the 'survival of the fittest' (Nelson & Winter, 1982).

3.2 Cloud platform ecosystems

As already mentioned before the specific actors probably play important roles while analyzing the dynamic capabilities of CPEs. For further investigation it is essential to have an accurate understanding of the various different actors. Thus, we compile the most important literature of actors in cloud platform ecosystems and synthesize them. With the help of a matrix and concise comparison we guarantee a high level of detail as well as generalizability. In addition to that we want to create an agreement and confirmation by previous work (Table 1) to have a valid overview (Figure 3).

The papers by Mayevsky and Tsujimoto et al. can be seen as the leading CPE actor network-defining work to date. Mayevsky rather concentrated to deliver a detailed view focusing on a variety of cloud service support providers (like cloud auditors, cloud architects, cloud integrators, cloud software vendors and cloud hardware vendors) and cloud service brokerage (service aggregators, resellers and consultancies) (Mayevsky, 2014). Contrary, Tsujimoto et al. delivered a much more generalized and thus broader framework where they also integrate suppliers, outside innovators (like research institutes), entrepreneurs (like investors) and competitors but lack in detail. By this, suppliers can be seen as cloud hardware vendors (Tsujimoto et al., 2015). Further research about cloud platform ecosystems confirms the work of the former two papers (Leimeister et al., 2010; Martens et al., 2011; Porch et al., 2015).

From this work we deduce four levels of cloud platform ecosystem actors (Table 1).

Cloud platform ecosystem actors				Typology				
Level I	**Level II**	**Level III**	**Level IV**	*Mayerszky, 2014*	*Tsujimoto et al., 2015*	*Leimeister et al., 2010*	*Porch et al., 2015*	*Marrens et al., 2011*
Cloud recipients				x	x	x	x	x
	Private actors and communities			x	x	x	x	
	Business actors and communities			x	x	x	x	x
	Officials, state and local government			x				
	IT residents and communities							x
		Developers		x				
		IT organizations		x				
Cloud partner ecosystem				x	x	x	x	x
	Cloud platform provider			x	x	x	x	x
		Software-aaS			x			x
		Platform-aaS		x	x	x		x
		Infrastructure-aaS		x	x			x
	Complementors/ Partners			x		x	x	
		Cloud service support provider		x		x		
			Cloud architects	x				
			Cloud auditors	x				
			Cloud integrators (Sis + MSPs)	x		x		
			Cloud software vendors (ISVs)	x				
			Cloud hardware vendors	x				
		Cloud service brokerage				x		
			Service aggregators	x		x		
			Resellers (VARs)	x				
			Strategy/ Management consultancies	x		x		
Governmental bureaucrats / Policy Makers / Regulators				x	x			x
Outside innovators / Research institutes					x			
Entrepreneurs / Investors					x			
Competitors					x		x	

Table 1: Synthesis of 'cloud platform ecosystem actor'-typologies

Level I summarizes cloud recipients. Among those we see private actors, business actors, state officials and local government as well as IT residents (Level II). Additionally, we also include all connected communities. We count developers and IT organizations (Level III) to IT residents. We define cloud recipients in general, as actors that directly consume cloud services.

The large level I group are all members of the cloud partner ecosystem. A smaller ecosystem within the larger cloud platform ecosystem that consists of cloud platform provider and complementors (partners) (Level II). The cloud platform provider are separated into Software-as-a-Service, Platform-as-a-Service and Infrastructure-as-a-Service companies (Level III). But a differentiation here is not strict at all. Some CPPs can even offer the whole set of -aaS's. We define CPPs as companies that directly offer cloud services to customers and consumers. Complementors such as cloud service support providers (deliver technical service support and complementarities) and cloud service brokerages (deliver non-technical service support, usually sales) (Level III) can even be further subdivided into level IV actors. Further level I actors identified are governmental agencies (regulators, policy makers, bureaucrats), outside innovators (research institutes), entrepreneurs (investors) and competitors.

Framework 1: Cloud platform ecosystem actors

With the help of the former investigation we can accumulate a combined view of actors in cloud platform ecosystems (Figure 3). We also attached some examples as logos with website links in the appendix B1 for interested readers. The focus here clearly lies in the depth of the cloud partner ecosystem where we reach a fourth level of cloud platform ecosystem actors. The boundaries inside cloud platform providers are usually not very strict as they become blurred. For example AWS at the first sight seems to be more an IaaS-provider but also has clearly some PaaS if not even SaaS elements combined in their offering. We also cover the width of the various ecosystem actors. We do this by incorporating also more external actors like regulators, innovators and research institutions. Note that we can also distinguish between various cloud recipients. Beside classic private and business consumers we also incorporate IT residents, such as developers.

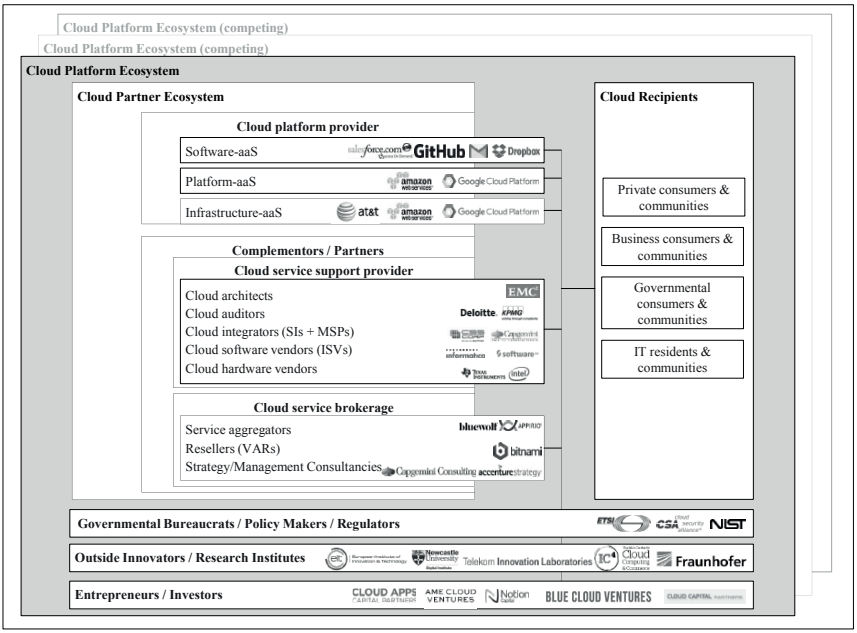

Figure 3: Framework 1: Cloud platform ecosystem actors
(following a synthesis of (Mayevski, 2014) and (Tsujimoto et al., 2015))

3.3 Dynamic capabilities

Introduction

Dynamic capabilities is a construct that describes "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997). The research agenda for dynamic capabilities is very comprehensive. A lot of reviews show high evidence for vast research in the past (Cavusgil et al., 2007; Wang and Ahmed, 2007; Easterby-Smith et al., 2009; Barreto, 2009). Up to this point there is no clear understanding about what typologies comprise dynamic capabilities. Also, here we identify the need for a comprised framework that covers depth and width of this topic, preferably a framework with subdomains representing analyzable dynamic capabilities.

Synthesis of 'Dynamic capability'-typologies

Mapping dynamic capabilities typologies

We want to draft the dynamic capability surroundings. Thus we build a value chain that reflects dynamic capability-typologies, is based on a literature review and helps us to identify possibly overlapping schemes. Davis et al. analyzed the

environmental dynamism around companies that is composed of velocity, complexity, ambiguity and unpredictability (Davis et al., 2009). This dynamism can be investigated further leading us to hyper environments for the use of regenerative DCs, dynamic environments for renewing DCs and stable environments for incremental DCs (Ambrosini & Bowman, 2009). Wang et al. identifies features of dynamic capabilities that were analyzed more by Salazar, leading to adaptive, absorptive and innovative capabilities (Wang & Ahmed, 2007; Salazar, 2012). Eisenhardt and Martin explored the dimensions of dynamic capabilities, such as processes, routines, abilities and resources, whereby Wang and Ahmed investigated this further into integration, re-configuration, renewal and recreation processes (Eisenhardt & Martin, 2000). Outcomes such as competitive advantages, products and services ultimately lead to good financials and general company growth (Wang & Ahmed, 2007).

Again dynamic capabilities directly affect the resource base, such as business development, research, development & innovation, knowledge, culture, human capital and governance (Wernerfelt, 1984).

Figure 5 shows the typology overview so far. It reveals that enterprises are confronted with environmental dynamism. Various different dynamic capability features, explications and dimensions reform the resource base and lead to better outcomes and performance.

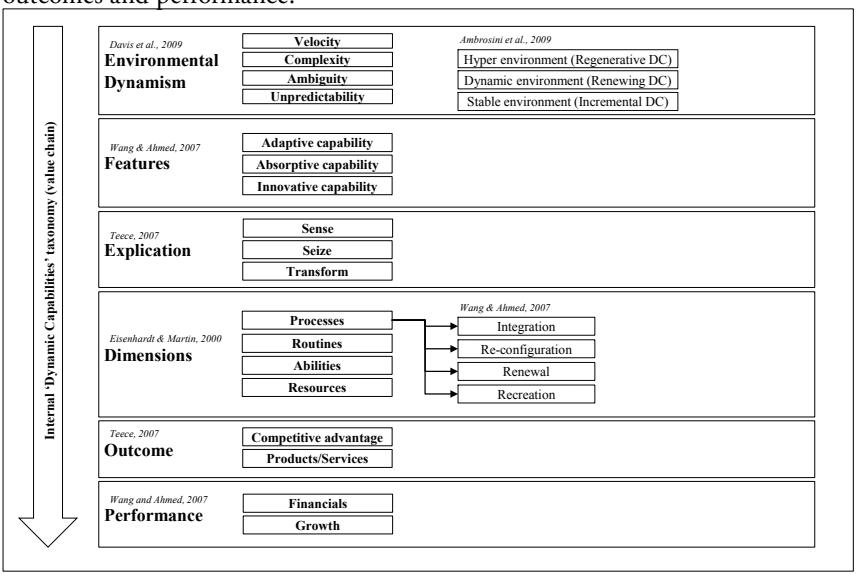

Figure 4: 'Dynamic capabilities'-typologies

Teece's Dynamic Capabilities

First, we analyze the most cited typology of dynamic capabilities (Teece et al., 1997) (cited by 25.700 on 4.9.2016) that covers the aimed width and depth to good extent. Dynamic capabilities by Teece are defined as "sensing", "seizing" and "transforming" processes that ultimately lead to broad dynamic capabilities. Those are divided into three levels. Whereas the level-I DCs comprise the sensing, seizing and transforming processes, level-II DCs explain the microfoundations of DCs. Figure 5 illustrates the deduced relationship. Teece describes sensing capabilities as processes that are aimed towards analytical systems that identify and exploit opportunities. Those could originate in external or internal structures that are comprised out of a lot of ecosystem actors. Seizing capabilities are procedures that should define and reshape the business model based on the prior investigated opportunities. Here the notion of open innovation becomes important too as the platform boundaries maybe realigned. Lastly, transforming capabilities focus on proper knowledge management, the building of governance structures and cospecialization procedures.

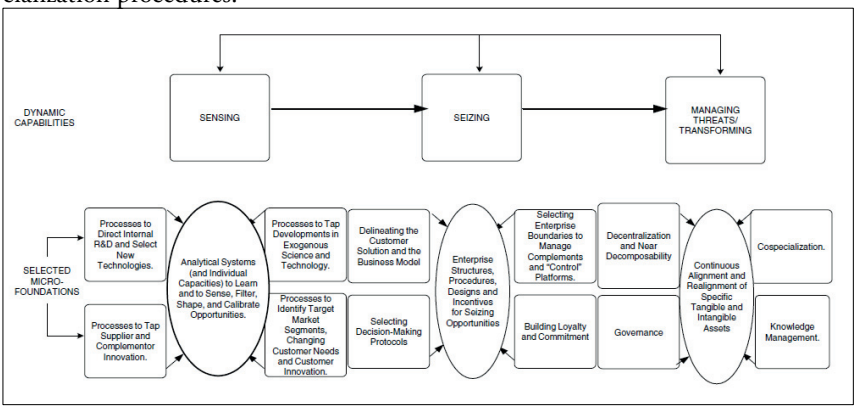

Figure 5: Dynamic capability microfoundations (Teece, 2007)

Because Teece's dynamic capability typology is well understood and accepted we already include those into our codebook. We adapt the Teece's structure on level-II for better mutual exclusivity. Furthermore, we add a third level (level-III) that covers the dynamic capability explications. Later we compare other schemes with Teece's original schema to verify this possibly sound and comprehensive typology. The following tables show our dynamic capability level scheme as well as the assigned DC codes. Sensing capabilities (Table 2) describe the abilities to identify, target, select and exploit research and development activities. Further, it leads to selections and analyses of the environment, with it all actors the company holds relationships with. Seizing capabilities (Table 3) represent the capability to redesign the business model, select decision making processes, building loyalty and commitment processes as well as selecting the enterprise boundaries for platform

and complementor management. Transforming capabilities (Table 4) relate to the knowledge management and co-specialization abilities. Furthermore, they reflect how open innovation, modularity and governance is strengthened (Teece, 2007; Wang & Ahmed, 2007; Salazar, 2012).

Dynamic Capability (Level-I)	Dynamic Capability (Level-II)	Dynamic Capability (Level-III)	DC Code
Sense	*Identify, target, select and exploit innovation, research and development*	Sensing external innovation	Sense 1
		Sensing and directing internal innovation	Sense 2
		Encouraging open innovation focused on a broad external base	Sense 3
		Sensing external R&D	Sense 4
		Sensing and directing internal R&D	Sense 5
	Analyze and select the environment	Identifying market segments	Sense 6
		Identifying changing customer needs	Sense 7
		Identifying and evaluating ecosystem and industry trends	Sense 8
		Using analytic frameworks to sense opportunities and threats	Sense 9

Table 2: Dynamic capability explications – "Sense" (following (Teece, 2007))

Dynamic Capability (Level-I)	Dynamic Capability (Level-II)	Dynamic Capability (Level-III)	DC Code
Seize	*Redesign business model*	Selecting technology/feature and product/service architecture	Seize 1
		(Re-)Designing revenue structures	Seize 2
		(Re-)Designing cost structures	Seize 3
		Selecting target customers	Seize 4
		Designing mechanisms to capture value	Seize 5
		Designing partnerships	Seize 6
		Having deep market and customer understanding	Seize 7
	Select decision-making protocols	Recognizing inflexion points	Seize 8
		Avoiding and mitigating decision errors	Seize 9
		Avoiding anticannibalization tendencies	Seize 10
		Encouraging creative thinking and action	Seize 11
		Encouraging removal of no value-adding assets and activities	Seize 12
		Learning from mistakes	Seize 13
	Build loyalty and commitment	Demonstrating leadership	Seize 14
		Communicating effectively	Seize 15
		Recognizing non-economic factors, value and culture	Seize 16
	Select enterprise boundaries to manage complements and "control" platforms	Calibrating asset specificity	Seize 17
		Arranging alliances to learn and upgrade	Seize 18
		Deciding and managing integration, outsourcing and insourcing	Seize 19
		Controlling bottleneck assets	Seize 20
		Assessing legal and natural protection through an appropriability regime	Seize 21
		Recognizing and managing complementarities	Seize 22
		Recognizing, managing and capturing co-specialization	Seize 23

Table 3: Dynamic capability explications – "Seize" (following (Teece, 2007))

Dynamic Capability (Level-I)	Dynamic Capability (Level-II)	Dynamic Capability (Level-III)	DC Code
Transform	*Manage knowledge*	Learning	Transform 1
		Transferring knowledge	Transform 2
		Integrating know-how	Transform 3
		Achieving know-how	Transform 4
		Protecting intellectual property	Transform 5
	Cospecialize	Managing strategic fit so that asset combinations are value-enhancing	Transform 6
	Support open innovation and modularity	Developing integration, coordination and reconfiguration skills	Transform 7
		Adopting loosely coupled structures	Transform 8
		Embracing open innovation	Transform 9
	Strengthen governance	Achieving incentive alignment	Transform 10
		Minimizing agency issues	Transform 11
		Checking strategic malfeasance	Transform 12
		Blocking rent dissipation	Transform 13

Table 4: Dynamic capability explications – "Transform" (following (Teece, 2007))

Wang & Ahmed's dynamic capability explications represent adaptive capabilities (identifying, focusing and balancing market opportunities), absorptive capabilities (evaluating and utilizing external and internal knowledge) and innovative capabilities (realigning the business model) (Wang & Ahmed, 2007).

We neglect other DC-related work that does not show any tangible results that could enhance the width or depth of our typology, e.g. (Ridder, 2011 about outside-in/inside-out sensing and inward/outward seizing).

Contentual comparison

We identify a potential overlap from the typologies of Teece and Wang & Ahmed. A nearer look confirms this expectation. In Wang & Ahmed's dynamic capability typology sensing is declared as adaptive DCs and transforming is declared as absorptive DCs. Thus, we can exclude Wang & Ahmed's investigation from our framework.

DC typology		Teece, 2007		
		Sense	Seize	Transform
Wang and Ahmed, 2007	**Adaptive Capability**	**X**		
	Absorptive Capability			**X**
	Innovative Capability		**(x)**	

Table 5: Dynamic capabilities typology comparison

External and internal view

Another important aspect we want to reinforce explicitly is the external view that needs to be incorporated directly when we investigate dynamic capabilities further. Complexity and uncertainty caused by external actors could directly and indirectly impact the focal firm. Figure 6 reveals this focus (Ambrosini & Bowman, 2009).

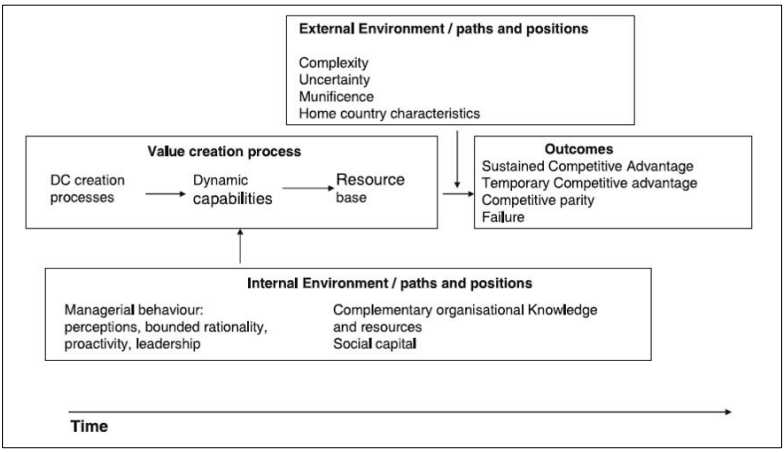

Figure 6: External and internal view of dynamic capabilities (Ambrosini & Bowman, 2009)

Framework 2: Dynamic capabilities

From this investigation so far we can create a framework (Figure 7) that separates the internal from the external view, includes Teece's dynamic capabilities (all levels) and lead to outcomes in the form of competitive advantage and performance.

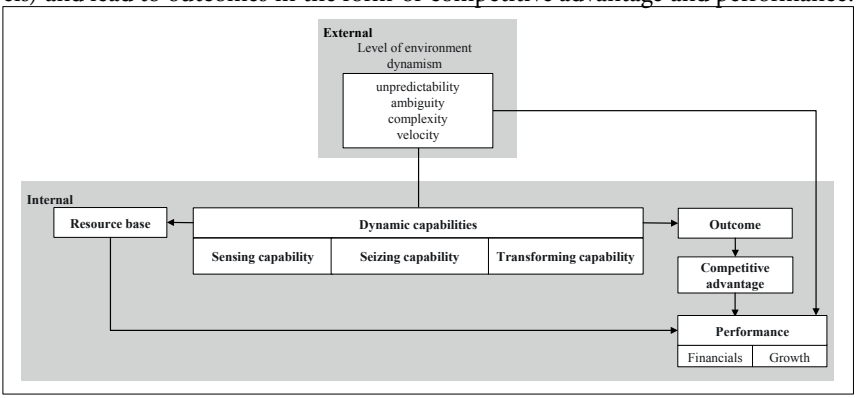

Figure 7: Framework 2 – Dynamic capabilities

3.4 Dynamic capabilities in the context of platforms

Synthesis of 'Dynamic capabilities in the context of platforms'-typologies

Mapping dynamic capabilities in the context of platforms

Dynamic capabilities also have been analyzed very roughly in the context of platforms. Salazar identified and analyzed three forms of dynamic capabilities that occur in platform ecosystems: learning, architectural and strategic capabilities. Learning capabilities comprise the management of tacit and explicit knowledge. Whereas architectural capabilities include those that change modularity, architectures and interoperability. Strategic capabilities concern the innovation and business model-related dynamics (Salazar, 2012).

In an in-depth case study Tsai investigated how focal firms in platform ecosystems respond to environmental changes. Strategic responses can be divided into realignments, updates, exploitations and extensions. Realignments occur when CPPs approach new markets, whether through acquisitions, partnering, service launch or platform opening. Updates are characterized by functional service improvements and complementor encouragement. Extensions can be categorized when CPPs launch existing services in new markets. By this they usually adapt their service portfolio to some extent in order to fit regional service preferences. Further they attract complementors to serve new markets. Exploitations happen when a CPP optimizes the performance/cost relationship for existing services. They add up an additional possible outcome (events) of dynamic capabilities (Tsai, 2013).

Thomas et al. also investigated some dynamic capabilities of platform ecosystems conceptualizing architectural, platform creational and control capabilities (Thomas et al., 2014). Thus, we have to adapt the dynamic capabilities typology overview (value chain) with these additional findings. Figure 8 illustrates the resulting overview.

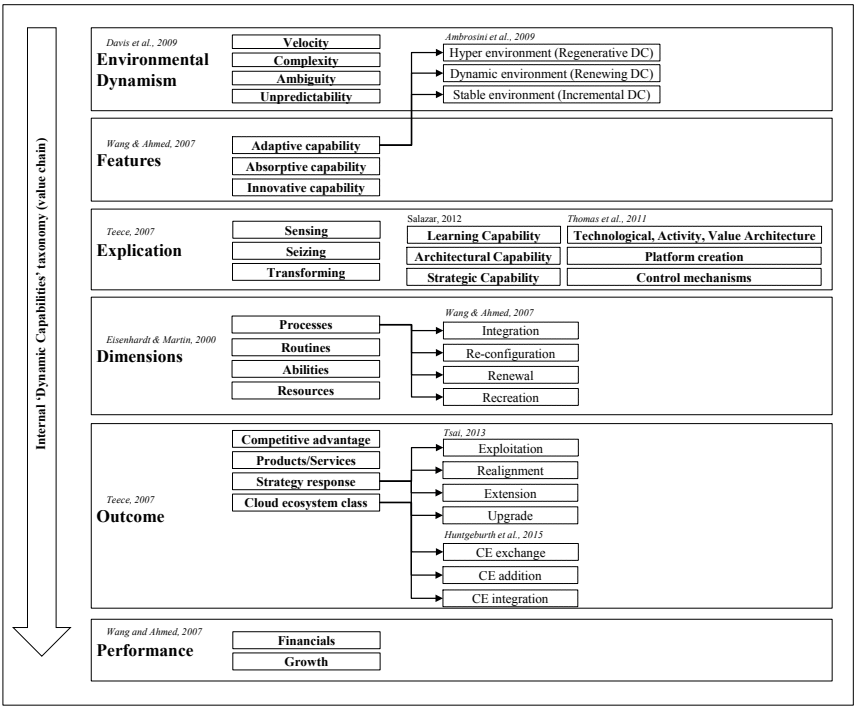

Figure 8: 'Dynamic capabilities in the context of platforms'-typology

Innovation Platform Properties

A further concept that emerges when we analyze dynamic capabilities of platforms is the concept of innovation platform properties. Venkatraman et al. analyzed how a platform's attributes that ground its success can be conceptualized. Innovation platform properties describe the innovation scope, scale and speed (Table 6). They can be seen as dynamic attributes and are of high interest for our investigation. Explicitly, innovation capabilities cover the innovation extent and dimension (scale), the innovation area (scope) and the innovation speed (rate of customer and complementor attraction, adoption and adaption). We include the explications into our code book, because they include further dimensions into our model. Additionally, we thus have a few measures explicating dynamic capabilities that could help us to operationalize some dynamic capabilities, such as customer attraction rate, complementor adoption speed and platform adaption speed (Venkatraman et al., 2014).

Dynamic Capability (Level-I)	Dynamic Capability (Level-II) (Innovation focus)	Dynamic Capability (Level-III) (Innovation dynamics)	DC Code
Innovate	*Innovation scale*	Customer network effects	InnoScale 1
		Complementor network effects	InnoScale 2
		Information-based decision making and applied analytics	InnoScale 3
		Modular product and service architecture	InnoScale 4
		Information and technology functionality and exchange	InnoScale 5
	Innovation scope	Customer scope	InnoScope 1
		Complementor scope	InnoScope 2
		Information and technology appliance to multi-industry ecosystems	InnoScope 3
	Innovation speed	Customer attraction rate	InnoSpeed 1
		Complementor attraction rate	InnoSpeed 2
		Customer adoption speed	InnoSpeed 3
		Complementor adoption speed	InnoSpeed 4
		Platform adaption speed	InnoSpeed 5
		Information and technology for open innovation and community	InnoSpeed 6

Table 6: Innovation platform properties (following (Venkatraman et al., 2014))

Contentual comparison

Nonetheless, we check whether Salazar's and Thomas et al.'s dynamic capability explications overlap with Teece's and Venkatraman et al.'s dynamic capability typologies. Table 7 shows that there is a huge overlap. Thus we can neglect Salazar's and Thomas et al.'s typologies at this point. We add Venkatraman et al.'s typology.

In order to make the review evidence even stronger we also compare Teece's dynamic capability typology with two further typologies. Hagiu analyzed multi-sided platforms and comes to the conclusion that they accommodate dynamic capabilities in the sense of opportunity identification, risk analysis, business model realignment and cost structure adaption. Also, here we cannot find new dynamic capabilities that are not already present in our concept (Hagiu, 2009a). Tan et al. showed that also high agreement with parts of Teece's dynamic capability typology. In this sense platform initiation, platform strategy enablement and platform leadership are crucial processes for successful development of multi-sided platforms (Tan et al., 2015).

Target DC taxonomy		Teece, 2007			Venkatraman et al., 2014
		Sense	Seize	Transform	Innovate
Salazar, 2012	Strategic DC	(x)	(x)		(x)
	Architectural DC	(x)	(x)		X
	Learning DC	(x)	(x)	X	X
Thomas et al., 2011	Technological, Activity, Value Architecture	(x)			(x)
	Platform creation		(x)		
	Control mechanisms		(x)		
Hagiu, 2006	Identify opportunities	X			
	Analyze risks				
	Realign business model		X		
	Adapt cost structure		X		
Tan et al., 2015	Platform initiation	X			
	Platform strategy enablement		X		
	Platform leadership		X		

Table 7: Synthesis of 'Dynamic capability in platforms'-typologies; typology from left row is covered by top column typology... X:=fully, ...(x):=partly

Framework 3: Dynamic capabilities in the context of platforms

Finally, we can add all conceptual frameworks and typologies about dynamic capabilities and dynamic capabilities in platform ecosystems into one framework that helps us to define the research questions. Figure 9 shows that the understanding is further advanced by strategy responses as possible outcomes. Furthermore, we have an additional layer of dynamic capabilities that we call "Platform Innovating Capabilities".

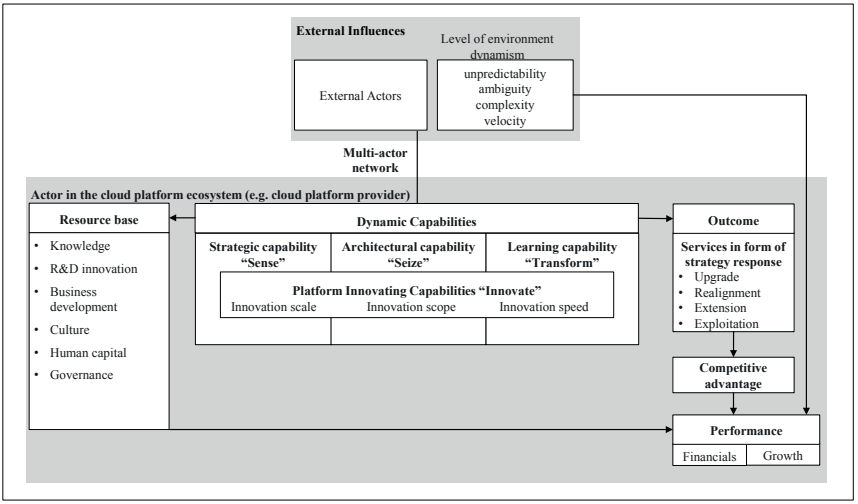

Figure 9: Framework 3 – Dynamic capabilities in the context of platforms

3.5 Specification of research questions

From the former created frameworks we can derive the potential and specific lacks in the literature. The open questions appear in the explicit dynamic capabilities (explications), in between the paths of dynamic capabilities and in the relations to actors of the cloud platform ecosystems (Figure 10).

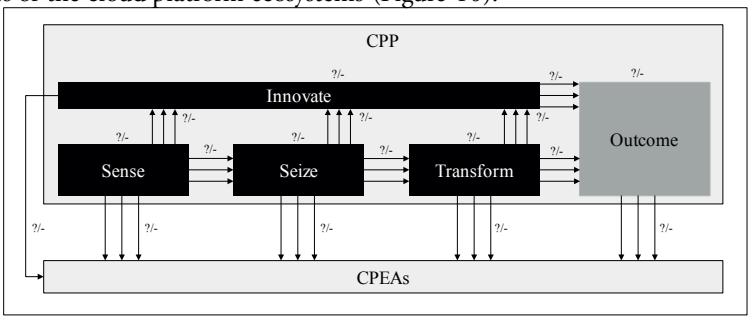

Figure 10: Refined research questions in context

Furthermore, this can lead us to the following research questions.

- RQ1: What specific dynamic capabilities do CPPs use within their ecosystem?
  - RQ1.1: What specific DC explications do CPPs use within their ecosystem?
  - RQ1.2: What paths of DC explications do CPPs use within their ecosystem?
  - RQ1.3: What trends are followed? Can we deduce and reconstruct roadmaps?
  - RQ1.4: What intensity distribution among different DCs can we detect?
  - RQ1.5: To what extent can we verify former research?
- RQ2: Why do CPPs use dynamic capabilities?
  - RQ2.1: Why do CPPs use specific DC explications?
  - RQ2.2: To what extent can we verify former research?
- RQ3: How do CPPs use dynamic capabilities?
  - RQ3.1: How do CPPs use specific DC explications?
  - RQ3.2: To what extent can we verify former research?
- RQ4: With whom do CPPs use dynamic capabilities?
  - RQ4.1: What interrelations occur between CPPs and other actors within its ecosystem?
  - RQ4.2: What intensity distributions among different ecosystem actors can we detect?

- RQ4.3: To what extent can we verify former research?
- RQ5: What outcomes caused by strategic responses of CPPs that are based on dynamic capabilities can be identified?
  - RQ5.1: To what extent can we verify former research?

3.6 Expectations

Strategic responses

In this sense we have a few expectations regarding the strategic responses of cloud platform ecosystems, in particular cloud platform providers. We expect them to have a vast set of strategic responses that they make available to the public in order to transform them into competitive advantages. Specifically, in the fast changing cloud platform industry it is highly likely that realignments and upgrades occur very often. Furthermore, the speed of strategic responses could be in line with the general company growth (Tsai, 2013).

Teece's dynamic capabilities in cloud platform ecosystems

We expect cloud platform providers to have a vast set of dynamic capabilities that they develop and apply in their corresponding platform ecosystems. Probably, AWS fulfills capabilities that define their cloud platform business with high intensity, such as "support open innovation and modularity". Furthermore, we should find the general paths in AWS's dynamic capabilities ("sense – seize – transform" and "sense – transform") (Teece, 2007). We further expect them to have intense relationships with the CPE actors, especially cloud recipients. As competition is very intense in the cloud platform industry we further expect AWS to have implemented strong competitor-sensing capabilities. In forms of platform innovating capabilities we expect CPPs to have strong notions of network effects both towards customers and towards partners. Their probably have high innovation speed, scope and scale and aim to increase each (Venkatraman et al., 2014). Additionally, we expect to find a lot of DC explications and reasons for developing dynamic capabilities.

4. Part II: Methodology

In this chapter we outline our methodological approach to answer the research questions. First of all we give a short introduction into case study and mixed-methods research design. Secondly, we give an overview about the methodology we composed and verify the most important research design decisions based on a review of methodological flaws initiated by former research.

4.1 Case study research

Case study characteristics

A case study is a research method that allows to view, investigate and evaluate specific records in history and drawing conclusions from them. The subject unit can range from a single person to large systems and organizations. One of the biggest advantage of a case study compared to other methods is its suitability for in-depth explorations and explanations of research domains. This method is most appropriate when dealing with behavioral or social problems with large amounts of qualitative data. We choose the case study method because we want to answer the "what"-, "how"- and "why"-related research questions stated earlier. Furthermore, we want to understand the real-life context of the procedural and network-related phenomena of the platform ecosystem domain. Last, the case study method can include a variety of sources for higher construct validity (Yin, 2009).

Case study design

Design components

Starting points of a case study design are predominantly fundamental aspects that are linked between research questions and possible outcomes. In chapter 4.5 we already have stated our research questions and in chapter 4.6 our propositions. Once again, we want to make clear that the units of our analysis is 1) the individual company unit (subsidiary) of Amazon.com called Amazon Web Services, 2) broader groups of CPE actors that consist of individual companies and private entities, 3) certain enterprising events, 4) enterprising decisions, 5) enterprising structures as well as 6) enterprising processes. We link the previously stated qualitative expectations to qualitative data that needs to be interpreted before conclusions can be made. Furthermore, quantifications of the qualitative data and further application of analytic techniques help for the interpretation. In the end a proper quality assessment is needed to judge the generalizability and validity (Yin, 2009).

Assuring high quality of research design

The quality of good case study design is measured on the basis of four categories that we fulfill in good extent in this study (see chapter 7.4). The categories are construct validity, external validity, internal validity and reliability (see Table 8).

Construct validity refers to the concept itself. With that the accuracy of the procedure leading from observed facts to real mechanisms should be as high as possible. Moreover, external validity shows the generalizability, thus the feature to abstract from case-specific results to other setups and finding the same results. Internal validity refers to the correctness of logical reasoning. Last, reliability points out the traceability and reproducibility of the entire method application (Yin, 2009; Miles et al., 2013; Gibbert et al., 2008).

Criteria	Description	Tactics
Construct validity	Identifying correct operational measures for the concepts being studied	Use multiple sources of evidence, establish chain of evidence, have key informants review draft case study report
Internal validity	(for explanatory or causal studies only) seeking to establish a causal relationship, as distinguished from spurious relationships	Do pattern matching, do explanation building, address rival explanations, use logic models
External validity	Defining the domain to which a study's findings can be generalized	Use theory in single-case studies, use replication logic in multiple-case studies
Reliability	Demonstrating that the operations of a study – suchas the data collection procedures – can be repeated, with the same results	Use case study protocol, develop case study database

Table 8: Criteria for judging case study research designs (following (Yin, 2009))

Case study methods

Mixed-methods research

Mixed-methods research refers to the combined use of mutually exclusive research methods, e.g. quantitative together with qualitative data and analyses. We use a mixed-method research design in order to get a much more comprehensive view of our units of analysis, both in depth and width. Furthermore, an optimized research strategy with proper quantitative and qualitative elements can lead us to answers in a much more pragmatic way. Another valuable property of this type of research design is that we are able to quantify qualitative data and qualify quantitative data respectively (data integration and transformation) (Creswell, 2013; Creswell & Clark, 2007).

Supportive software

Mixed-methods research designs often go hand in hand with the use of supportive software applications that we use for our purposes, too. Usually, those purposes are data combination, integration or conversion either sequentially or concurrently. For this special-purpose Computer Assisted Qualitative Data AnalysiS (CAQDAS) software, spreadsheet software and search engines among others can be used (Bazeley, 2006).

We make use of a CAQDAS software named ATLAS.ti. (Friese, 2014), Microsoft Office Excel and Google's search engine. ATLAS.ti is best-fitted for qualitative research purposes and enhanced by valuable mixed-methods research functions. Furthermore, ATLAS.ti is widespread and very commonly used among re-

searchers (Fielding & Cisneros-Puebla, 2009). In comparison to the also very famous tool MAXQDA its trial version is not time-restricted what favors you as the reader (Kuckartz, 2014). In particular, we use ATLAS.ti in order to assign conceptual codes to raw case material and to analyze quantified associations out of qualitative data. Furthermore, it serves as a part of our case study database. Additionally, we make use of Microsoft Office Excel to statistically analyze quantified data that was qualitative data before. It also supports us in the creation of matrices and the storage of case material (Meyer & Avery, 2009). Google's search engine helps us to find valuable case material on web sites. Self-build web crawlers on the basis of Microsoft Office Excel VBA supports our web crawling processes (i.e. routines that download the data and transform the data format) (Brophy & Bawden, 2005; Smyth et al., 2009).

Case study data analysis

One of the most important stages in case study research is the data analysis. In an abstract way this includes ways of data reduction, data display and conclusion drawing/verification. With the help of coding processing (codebook needed) the data gets reduced. After this, data can be displayed in data matrices. Specific analytic techniques like pattern matching and time series analysis can help to draw the right conclusions (Miles et al., 2013; Bazeley, 2009). When dealing with qualitative and quantitative data, the right analytic technique needs to be assessed including process and event data (Langley, 1999).

4.2 Method overview

Link between research questions and research design

At this point we want to make sure that the reader understands the close link between the research questions (chapter 4.5) and the previously stated research design. As one can see in Figure 11, we start our investigation by analyzing AWS events (announcements) about strategic responses (Tsai, 2013) to environmental changes in order to gain a pragmatic overview about the DC outcomes. This part is closely related to AWS's change in time, its trend-enthusiasm, ecosystem actor reference and geographic span. The analytical method time-series analysis helps us to create a chronology of AWS's market dynamics and sense the focus of the study for the later explication.

Later, we investigate the explicit DCs (Teece, 2007; Venkatraman et al., 2014) in very detail led by the focus of AWS's market dynamics.

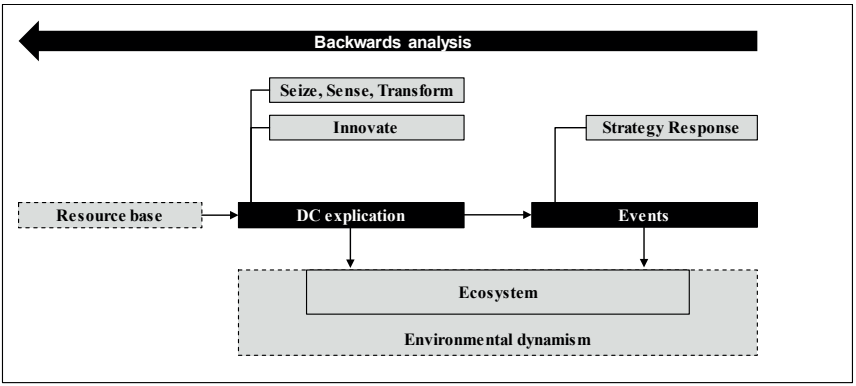

Figure 11: Link between DC-CPE-specific research questions and research agenda

Research design overview

Our research design (Figure 12) basically follows a concurrent transformative design. This means that for all types of data, either qualitative or quantitative, we concurrently process the data at each research stage. Furthermore, in between we have a transformation-stage ("Data conversion") that we use to translate data types. This process was chosen in favor of others, because it perfectly fits our exploratory but also explanatory research questions. Furthermore, it is optimized to originate from conceptual frameworks and offers highest flexibility in data analysis (Creswell, 2013).

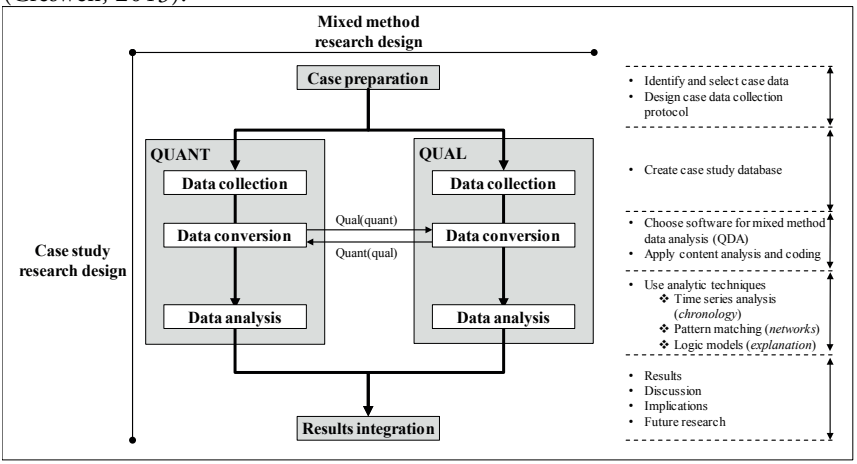

Figure 12: Research design overview

Additionally, we follow an embedded, single-case design. Different units of analysis are incorporated into a single case design. This facilitates an in-depth case study without much complexity (Yin, 2009).

5. Part III: Case Study - Dynamic capabilities within the Amazon Web Services ecosystem

In this chapter we apply our methodological approach to answer the research questions. First of all we give a short introduction to Amazon Web Services (AWS). Secondly, we prepare the case and select the case data. After the data collection we convert it through coding. Focus point of this section will be the case study analysis where we gather the insights that will finally end up in results.

5.1 Introduction

Company overview

Amazon Web Service (AWS) is a company that offers cloud computing services and is in ownership of the world's largest retaile
r Amazon.com. During its ten years of history it developed a vast set of services available on-demand for customers worldwide. A huge ecosystem has been built around AWS.

History

At the beginning of the 21th century Amazon.com began to realize that excess resources of its largescale IT infrastructure are probably interesting for use by other companies. Thus, they created a few basic services available via web-based frontend applications. The first time they offered a model for highly scalable, secure, virtual and low cost computing services that are easily accessible over the internet. It helps companies to turn fixed costs for infrastructure into much more operational costs. Thus companies are supported in saving money and enabling innovation. AWS can be seen as Infrastructure-as-a-Service (SaaS) with a lot of Platform-as-a-Service elements (Varia & Mathew, 2013). Its business value creation for customers increased more and more over time (Perry and Hendrick, 2012).

Services

AWS offers a variety of services that enable companies to store, process and share data. They began with their offering of Amazon Elastic Compute Cloud (EC2) and Amazon Simple Storage Service (S3). Today they offer more than 70 services in over 13 regions worldwide. Moreover, the service span has increased from basic services to specialized (industry-specific, task-specific, vendor-specific) services. For example, today AWS also offers services in the field of mobile computing, internet of things, analytics, corporate services, development, security and networking.

For a more comprehensive view on the various services provided by AWS see Appendix B2 (Qian et al., 2009).

Business Model

AWS's business model is strongly oriented towards very variable revenue streams besides having a generally fixed cost structure. The large spread of customer segments is leveraged by strong customer relationships and very technical channels. Its value proposition is focused on a "pay-as-you-go"-model. While having various technical activities and resources, AWS also holds strong relationships with technical partners. For a detailed view of AWS's business model see Appendix B3 (Peter van Eijk, 2014).

Ecosystem

AWS's success is truly based on its huge ecosystem that is managed profoundly. They manage a so called AWS Partner Network (APN) where consulting and technology partners are hold tight in order to deliver maximum value to its customers (Isckia & Lescop, 2009).

Rationale for AWS

We choose AWS for this case study because it represents the strongest indicators for possessing DCs. Competitive advantage, financial performance, growth are perfect indicators to spot strong capability to respond to dynamic changes of the environment. AWS shows partial superiority in comparison to other market participants in these three categories and clearly stands out as the market leader (Wang & Ahmed, 2007).

The market share provides information about the competitive advantage. AWS has by far the highest market share in the IaaS market segment (32% compared to the next follower Microsoft, with 12%) (see Appendix B4) (Synergy Research Group, 2016). This compares to AWS's cloud platform revenues of 6,000 million US$ in 2015 and Microsoft's revenues in this sector of 1,577 million US$ (see Appendix B5) (John R. Rymer, 2015).

For growth we set the revenue CAGR (continual annual growth rate). Despite AWS's large size they had a revenue CAGR of 53%, Microsoft 100%, respectively (see Appendix B4) (Synergy Research Group, 2016).

Financial performance can be measured based on its total profitability. AWS had a profitability of 24% (0,604 bn$ operating income / 2.57 bn$ revenue) in 2015 which is very high and serves as a good proxy for the execution of dynamic capabilities (Wingfield, 2016). For the competitors no data is available.

Furthermore, in pre-study tests we investigated that there is much more secondary data available for AWS-related content.

5.2 Case preparation

First, we prepare the case study by identifying and selecting the case data as well as by designing a case data collection protocol. Secondly, we collect all quantitative and qualitative data that was identified earlier and store it in a case study database.

In a next step we prepare our research setting in ATLAS.ti and Excel. We develop a code book and convey it into ATLAS.ti. If reasonable we convert data types for more meaningful insights. Last but one we analyze the data through time series analysis, pattern matching and logic models. We explain the reasoning for this later in this paragraph. In the final step we synthesize and discuss the findings a well as draw implications for theory, practice and future research.

Case data identification and selection

The case data for this study is well-considered and based on common standards in the research field. We prefer secondary over primary data as this allows a much better reproducibility and leads to much more explorative study (Hox & Boeije, 2005).

A vast amount of data about AWS is available online that requires thorough quality assessment. We are interested in high quality and completeness of the secondary external data for this study. A search of "Amazon Web Services" via Google's search engine delivers roughly 4 million results. We categorize the available data into the following: announcements (A), customer/partner case studies (B), news pages (C), whitepapers (D), investor information reports (E), articles (F), industry reports (G), interviews (H), books (I), job vacancies (J), social media posts (K), other website information (L) and forum posts (M).

In order to improve the quality we exclude the information of (K)-(M) and include only (A)-(J). While the data categories (A) till (I) are standard sources for providing evidence in case studies research (Yin, 2009). We make use of job vacancies (J), too. The incorporation of those into research has been weighed positively by (Kureková et al., 2013). We neglect the rest of the source categories (K-M) because of simplicity reasons.

This leads us to a coverage rate of 63%[1]. That means, we include 63% of the available external secondary information about AWS. We miss 22% of the information because of categorization flaws.

[1] The following query at Google's search engine delivers 4170K answers:
"amazon web services"
The following query at Google's search engine delivers 3410K answers:
"amazon web services" -"social media" -"website information" -forum
The following query at Google's search engine delivers 1550K answers:
"amazon web services" -announcements -"customer case study" -"partner case study -"news" -whitepaper -"investor" -article -reports -interviews -books -"job vacancy"
The following query at Google's search engine delivers 933K answers:
"amazon web services" -announcements -"customer case study" -"partner case study -"news" -whitepaper -"investor" -article -reports -interviews -books -"job vacancy" -"social media" -"website information" -forum

Coverage rate = (4170K-1550K)/4170K = 63%
Miss rate = 933K/4170K = 22%

5.3 Data collection

Data collection protocol

The design of a data collection protocol helps us to systematically gather the previously identified data. This forms the case study database with that the reader is able to reproduce the data setting. The data collection protocol holds the URL source address under which the source is available to the public, the retrieval date, a unique identification number and the file name (Brereton et al., 2008).

Case data collection

We describe the data collection plan. First, we take a category and search for information that preferably is provided by AWS, then by a third party. Then we store the data. If needed we build a web crawler on the basis of Excel VBA that automatically downloads sites into Excel format and transforms into a standardized format (e.g. for case studies, announcements, etc.). In later stages we add data if necessary based on more specific search terms (e.g. DC explications/micro-foundations or CPE actors). After the extraction all documents are saved as pdf formats to be executed further in CAQDAS software.

Case database generation

After some revisions the pdf-based case database is generated and is completed with the coded .hpr7 protocol files (ATLAS.ti) and Excel-based analyses. Additionally, an overview (see Appendix A1) summarizes all content of the case study database based on the following structure: source category, explanation, filename, URL(s) and retrieval date.

Case database

A table of all secondary data source types, the corresponding frequencies and the year span are displayed in Table 10. All in all we accumulate 16,675 data pages within this case study. By far job vacancies, blog pages and whitepapers make up most of the data (74%). This is because they have a huge volume and we want to incorporate a complete picture of the study. But we value the content from articles, news pages and interviews (3%) as important as the others if not even more important.

All documents get imported into ATLAS.ti in order to initialize the .hpr7 file. For simplicity we merged many categorically consistent pdf files to result into 90 primary documents.

Data sources	Pages	Year span
AWS job vacancies	5,728	2011 - 2016
AWS blog pages	3,872	2004 - 2016
AWS whitepapers	2,796	2008 - 2016
AWS investor information reports	1,459	2004 - 2016
AWS customer/partner case studies	1,427/4	? - 2016
AWS books	389	2013
AWS industry reports	369	2011 - 2016
AWS articles	244	2009 - 2016
AWS news pages	186	2006 - 2016
AWS interviews	100	2006 - 2016
AWS announcements	60	2005 - 2016
AWS research papers	47	2009 - 2016
Overall source pages	**16,681 (490 Mbyte)**	**2004 – 2016 (12 Years)**

Table 9: Data sources overview

5.4 Data conversion

The data conversion consists of a two-step approach that characterizes the link between the DC-CPE-specific research questions and the research agenda (Figure 11) as well as the multi-method approach we use and described in chapter 5.2. Figure 13 shows the general overview of the conversion in combination with the applied supportive software tools. For both conversion steps we apply qual-to-quan-to-qual conversions.

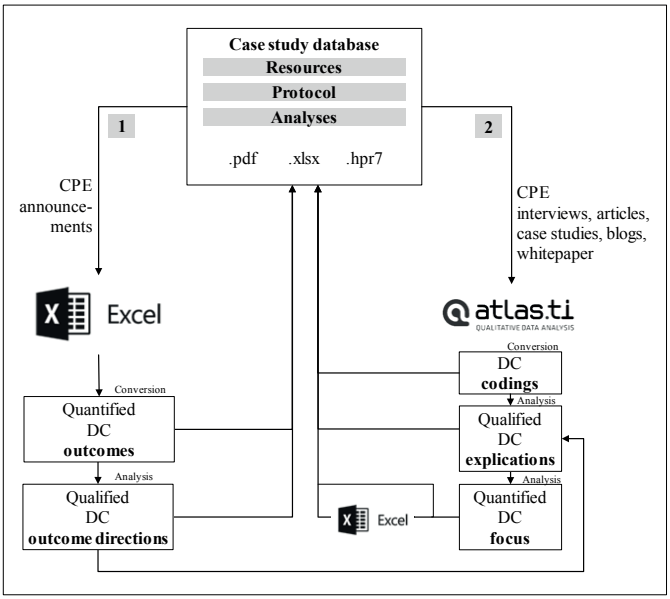

Figure 13: Research design overview - tool view

Conversion 1 for quantified DC outcomes

The first conversion batch aims to transform the announcement data into interpretable time series data. The announcement data is described as date data (quant) and text data (qual). For each of the 1,570 announcements AWS made in the last 11 years we assign binary codings (1=yes, 0=no) for a set of categories that are linked to its dynamic capability outcomes. We use four categories and overall 47 segments and sub-segments in order to set the connections. For a full view on all categories, segments and sub-segments see Table 9. The most important category of all is the strategy response (Tsai, 2013). After coding we count the corresponding codings in Excel pivot tables based on different time intervals and different segment levels (Castro et al., 2010).

Geographic segment	Strategy response	Trend topic	Ecosystem actors
Virginia	*Realignment*	IoT	customer
Govcloud	New company is acquired in a new market	Automation	partner
Oregon	New partner is acquired in a new market	Optimizing power/cost	auditor
California	New service is launched in a new market	Globalization	regulator
Paulo	New platform opening mechanisms are established	Compliance and security	investor
America etc.	New incentives are implemented to attract new complementors	Green data center	developer
Frankfurt	Upgrade	Community / Event / Marketing	software vendors
Ireland	Existing service is improved by a functionally for a existing market	New service announcement	entrepreneur
Europe etc.	Complementors are encouraged to innovate		
Beijing	Backward compatibility is maintained		
Seoul	Extension		
Tokyo	Existing service is launched in a new market		
Singapore	Existing service is adapted for a new market		
Sydney	Complementors are attracted to serve a new market		
Asia etc.	Exploitation		
	Existing service is improve in performance/cost ratio		

Table 10: Categories and segments for the coding of AWS announcements

Conversion 2 for DC codings

The conversion of all qualitative data is applied in ATLAS.ti to create codings, thus assignments of quotations to code phrases. The code phrases are based on the prior conceived frameworks and are stored in a codebook. The codes are extracted from the Tables 2, 3, 4 and 6 (conceptual frameworks).

We apply a standard 2-round coding for all documents in this study (see Figure 14). After the code book definition we search via ATLAS.ti's "Auto Coding"-function after each code. For the required search expressions we use a variety of synonyms that are stored in the codebook as well. Each promising coding is checked manually before coding (check "Confirm always"). After a refinement of the codebook (usually more expressive synonyms) we do a second round coding that delivers additional refinement. We search explicitly for co-occurring, refined and unique DC explications. The coding results in 615 quotations (Kohlbacher, 2006; Saldaña, 2015).

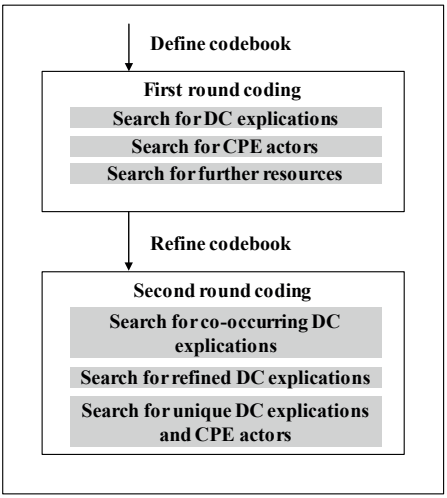

Figure 14: Coding methodology

5.5 Case study analysis and results

Analytics overview

The case study analysis is crucial for leading us from raw time series data and codings to valuable insights in order to answer the research questions. We decide to use a set of analytic techniques that are all very diverse leading us partly to very broad and very detailed results. Here, the in-depth character of the study is revealed.

The diverse set of analysis techniques and their corresponding assignment to the research questions is displayed in Figure 15 (Miles et al., 2013).

Analysis technique	DC construct	Outcome	Addressed research questions
Time series analysis (chronology)	DC chronology	Statistics	RQ5.1
	DC roadmapping	Trend roadmap	RQ3
Pattern matching (networks)	DC actor intensity	Heat map	RQ1.4 RQ4.2
	DC actor interrelations	Network	RQ4.1 RQ4.3
Logic models (explanation)	DC paths	Paths	RQ2
	DC explications	Explanations	RQ1.1 RQ1.2 RQ1.3 RQ1.5 RQ2.1 RQ2.2 RQ 3.2 RQ3.1

Table 11: Analytics methods overview

We first begin with the analysis of the time series data (Yin, 2009) and roadmapping (Groenveld, 2007). In order to gain first hints where to concentrate our study analysis on. Despite the fact that this helps us just to answer a few research questions, it supports us to analyze the explanation part (Logic models) in a much more pragmatic way. In a second step we analyze patterns of CPE actor intensities and interrelations. We build heatmaps and network views to answer the research

questions RQ1.4 and RQ4.1-RQ4.3 (Miles et al., 2013). In a final step, we analyze the explicit characterizations of AWS's dynamic capabilities. Logic models help us to gather paths and explications in order to answer most of the research questions (Yin, 2009; Miles et al., 2013).

Time series analysis (chronology)

We investigate the announcements of AWS in order to understand its dynamics in strategy responses, thus how it changes service exploitation, realignment, extension and upgrade. Time series analysis delivers the setting to add a dynamic component to thus time-static AWS announcements.

DC chronology

Graph 1 shows a plot of all 1,570 AWS announcements categorized into strategic responses (top-segment) in monthly intervals. It can be seen that the overall number of strategic responses follows approximately an exponential trend. Whereas we cannot see cyclical components (continuously strong dynamic capabilities) we see seasonal patterns that occur in little spikes roughly all three month and some irregularities (Hamilton, 1994). Nonetheless there is a continuous strong notion of strategic responses in general. All kinds of strategic responses are existent (Chart 1).

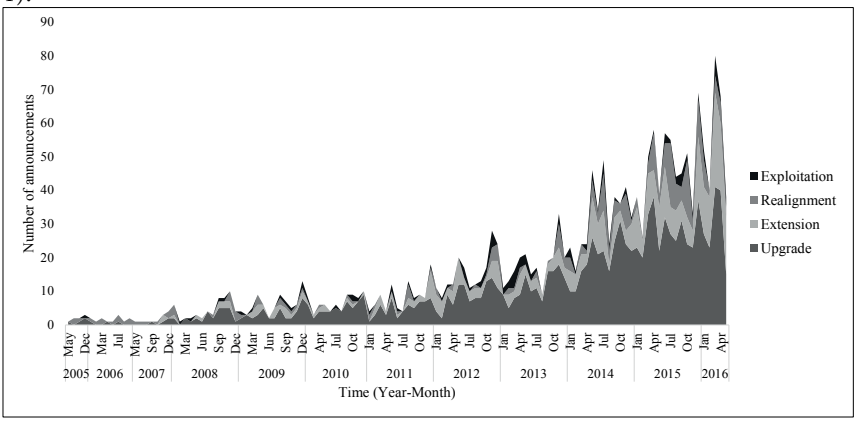

Chart 1: Absolute monthly level-1 strategy responses of AWS from 2005 to 2016 (# AWS announcements)

The Chart 2 (yearly intervals) illustrates that there is a continuous, nearly exponential growth for strategic responses, but interestingly within the years 2014-2015 service realignments have increased extraordinary.

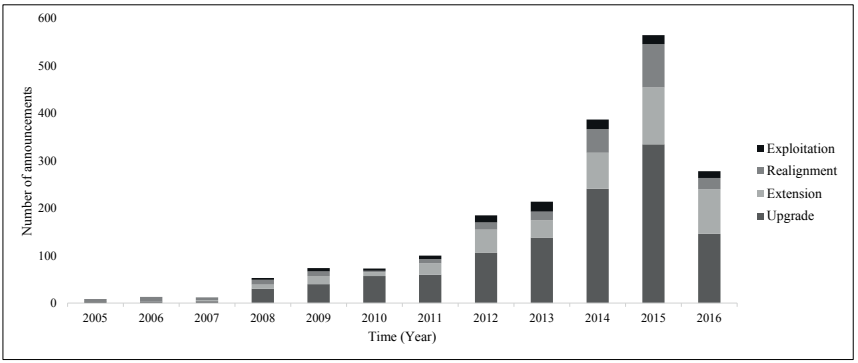

Chart 2: Absolute yearly level-1 strategy responses of AWS from 2005 to 2016 (# AWS announcements)

In order to explore the relative composition of strategic responses year-on-year a little bit more we create Chart 3. We see that AWS moved from a strong realignment phase in 2006 to a much more upgrade-oriented strategy for the following years. At this point we have to point out again that we have count metrics and a new service launch (realignment) is linked to much more effort than updates.

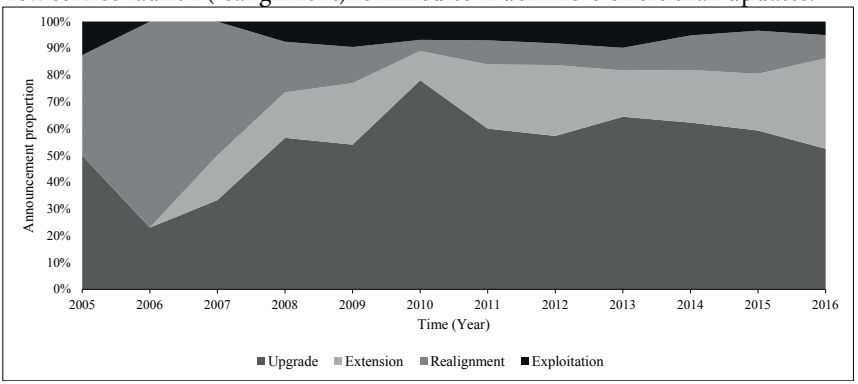

Chart 3: Relative yearly level-1 strategy responses of AWS from 2005 to 2016 (# AWS announcements)

Nonetheless, in Chart 4 we see that AWS predominantly focuses on functionality improvements when updating services.

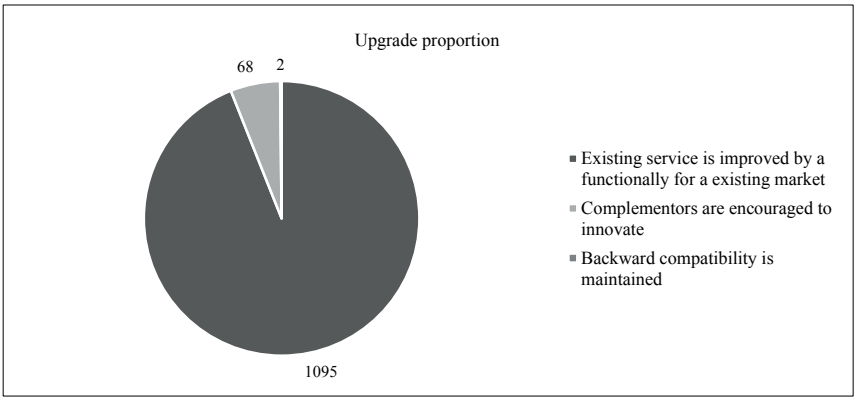

Chart 4: Relative composition of level-2 strategy responses of AWS in 'Upgrade'
(# AWS announcements; overall 2005-2016)

When extending services AWS very often introduces existing services into new markets and attracts new complementors with that (Chart 5).

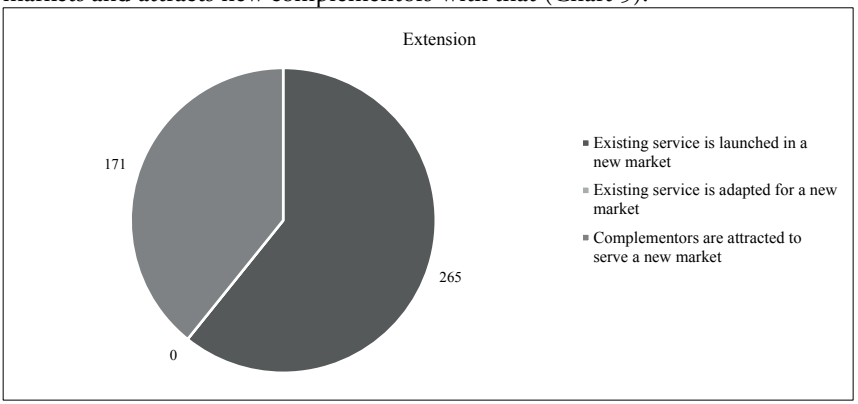

Chart 5: Relative composition of level-2 strategy responses of AWS in 'Extension'
(# AWS announcements; overall 2005-2016)

Realignments are nearly always guided by new service launches to address new markets in general (Chart 6).

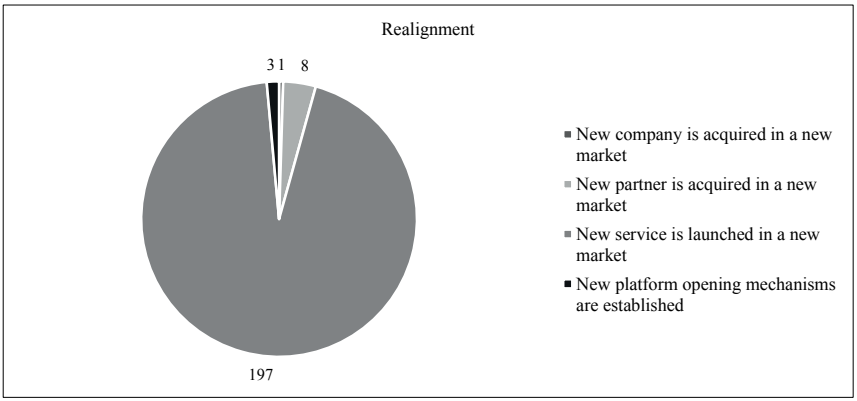

Chart 6: Relative composition of level-2 strategy responses of AWS in 'Realignment' (# AWS announcements; overall 2005-2016)

AWS addresses a variety of trends (Chart 7) that are also confirmed by Werner Vogels, AWS's CTO (Vogels, 2015).

A large proportion of trends AWS responded to are new service announcements, compliance and security and automation. These three trends account for over 3/4 of the trends incorporated in strategic responses. Interestingly, these are very different among themselves, but very characteristic for cloud computing. For example compliance and security is one of the big hurdles nearly every executive names that is associated with cloud computing. Another key characteristic in this industry and especially for AWS is the continuous optimization of power in regard to cost. AWS surely always seeks to diminish prices and to give more computing power to their customers.

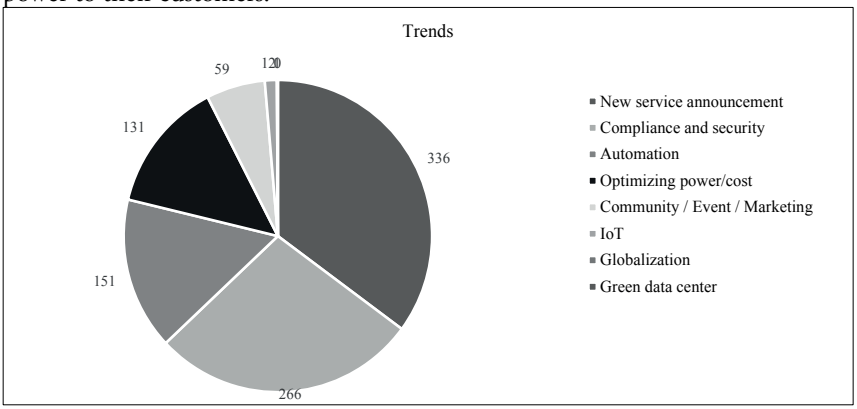

Chart 7: Relative composition of trend directions of AWS (# AWS announcements; overall 2005-2016)

When we look at the geographical span of AWS (Chart 8) - so how dynamicly it spread over the world so far - it is obvious that there was a constant spread to the world's largest continents, America, Asia and Europe. But interestingly there are two major spikes that come along in 2012 and in 2015.

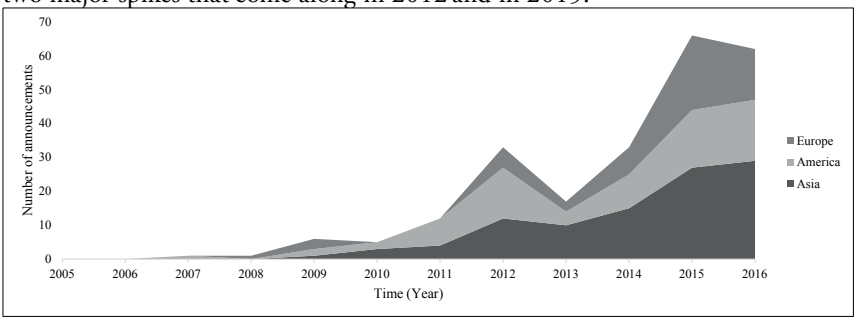

Chart 8: Absolute yearly geographical responses of AWS from 2005 to 2016 (# AWS announcements)

Considering the notion of CPE actors in regards to AWS announcements (Chart 9), we see that in more than every second case AWS addresses customers. Once again, here we can see that AWS focuses customers in a very strong notion. Approximately, one third of the announcements are devoted to developers. Thus, in general AWS speaks to its cloud recipients also via announcements.

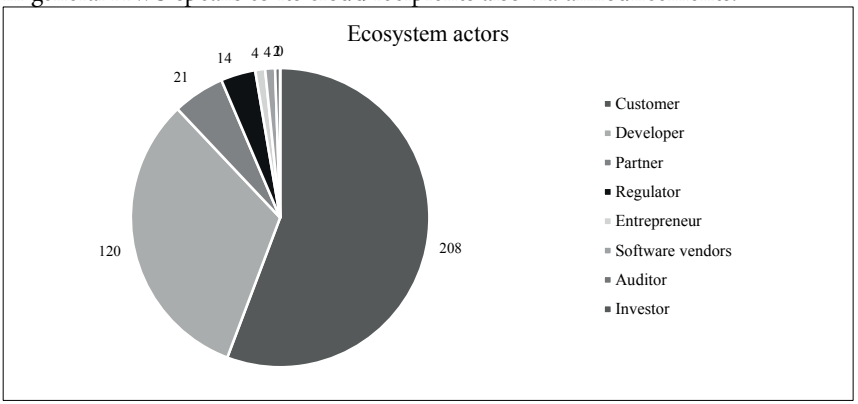

Chart 9: Relative composition of CPE actor directions of AWS (# AWS announcements; overall 2005-2016)

DC roadmapping

The generation of trend roadmaps in regard to dynamic capabilities helps us to understand the integration of DCs in the strategy planning process. We address the major trend segment (IoT = internet of things) out of Chart 7 to outline the

roadmaps (Groenveld, 2007). We test the application of roadmaps in the context of dynamic capabilities in cloud platform ecosystems. Therefore we only apply a single trend segment. The IoT trend segments seems to be very promising as it also includes the acquisition of external companies in order to gather knowledge. Furthermore, this trend topic is very up-to-date.

The roadmap (Figure 15), refers to the very current topic of IoT (internet of things). We see that the general emergence of the trend topic, in combination with customer needs and developments of outside researchers motivated AWS to build (dynamic) capabilities in this knowledge sector. First, they sensed the market changes and customer needs. Later, they developed an IoT business model and encouraged innovation in this field even further. Lastly, they acquired and integrated an IoT startup (2lemetry), as well as prior knowledge about communication and security. The roadmap results into three major realignment announcements. From this sound time analytical model we can infer that dynamic capabilities are necessarily set between CPE actor's dynamic inputs, e.g. movements, changes, needs, and on the other side DC-oriented strategy responses.

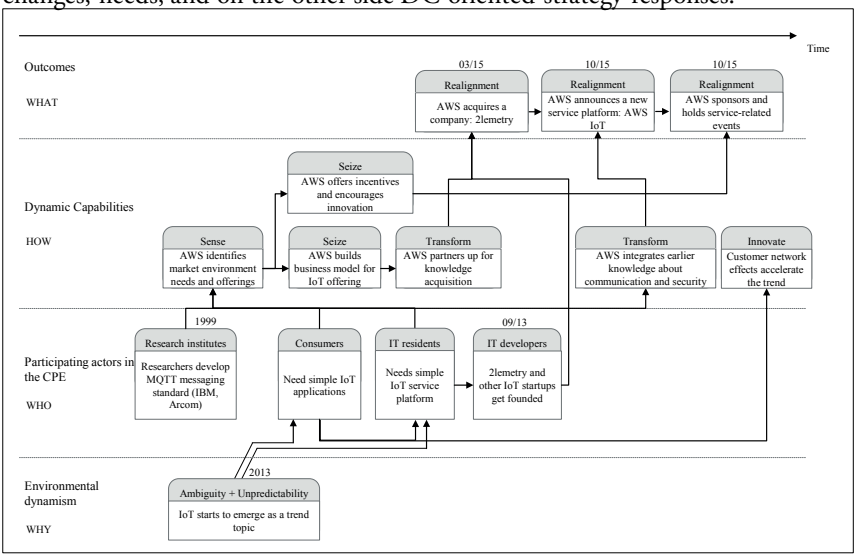

Figure 15: AWS-Roadmap for the internet-of-things trend

Pattern matching (networks)

Presumably, we investigate the DC-CPE intensities and networks. We thus go one level deeper into the topic before we start to show AWS's explicit DCs.

DC actor intensity

First, we build a matrix assigning each DC code (y-axis) to a CPE actor (x-axis) (Table 10). We code the magnitude of each co-relation by reading and analyzing the corresponding codings (quotations). We subjectively evaluate the intensity of each relation, meaning (3) strong, (2) medium, (1), low and (-) no intensity. The strength of intensity is based on the corresponding orientation of the qualitative statements. We look for frequency, sentence position and emphasis of keywords (Miles et al., 2013).

Dynamic Capability (Level III)	DC Code	Cloud platform provider AWS	Cloud recipients	Cloud partner ecosystem	Governmental Bureaucrats / Policy Makers/ Regulators	Outside innovators / Research institutes	Entrepreneurs / Investors	Competitors	SUM	AVERAGE
Sensing external innovation	Sense 1	3	3	3	-	3	2	-	14	2.8
Sensing internal innovation	Sense 2	2	2	-	-	-	-	4	4	2.0
Sensing external information focused on a broad external base	Sense 3	2	2	-	-	-	-	-	4	2.0
Sensing external R&D	Sense 4	2	2	-	-	2	-	-	6	2.0
Sensing internal R&D	Sense 5	2	2	-	-	2	-	-	6	2.0
Sensing market segments	Sense 6	3	3	3	-	-	-	-	9	3.0
Identifying changing customer needs	Sense 7	3	3	-	-	3	-	1	13	2.6
Identifying and evaluate ecosystem and industry trends	Sense 8	2	2	2	-	2	-	9	9	1.8
Scanning and shaping frameworks to sense opportunities and threats	Sense 9	2	2	-	-	-	-	-	4	2.0
Selecting technology/feature and product/service architecture	Size 1	2	2	-	-	-	-	-	-	-
Selecting target customer segments	Size 2	3	3	3	-	-	-	1	10	2.5
(Re-)Designing cost structures	Size 3	3	3	3	-	-	-	1	10	2.5
Selecting target customers	Size 4	2	2	2	-	-	-	-	6	2.0
Designing mechanisms to capture value	Size 5	2	2	2	-	-	2	1	9	1.8
Selecting revenue models	Size 6	3	3	3	-	-	-	-	9	3.0
Having deep market and customer understanding	Size 7	2	2	-	-	-	-	-	4	2.0
Recognizing inflection points	Size 8	1	1	-	-	-	-	-	2	1.0
Avoiding path dependency and inertia errors	Size 9	1	1	-	-	-	-	-	2	1.0
Avoiding anticannibalization tendencies	Size 10	1	1	-	-	-	-	-	2	1.0
Encouraging creative thinking and action	Size 11	2	2	2	-	2	2	-	10	2.0
Encouraging removal of no value-adding activities	Size 12	1	1	-	-	-	-	-	2	1.0
Learning from mistakes	Size 13	3	-	-	-	-	-	-	3	2.0
Demonstrating leadership	Size 14	3	-	-	-	-	-	1	4	2.0
Communicating effectively	Size 15	3	3	-	-	-	-	-	6	3.0
Recognizing non-economic factors, value and culture	Size 16	3	2	-	-	-	-	-	5	2.5
Calibrating assets/specificity	Size 17	1	-	-	-	-	-	-	1	1.0
Arranging alliances to learn and upgrade	Size 18	2	-	2	-	-	-	-	4	2.0
Balancing asset cospecialization, interfacing and insourcing	Size 19	3	3	3	-	-	-	-	9	3.0
Controlling bottleneck assets	Size 20	1	-	-	-	-	-	-	1	1.0
Assessing legal and natural protection	Size 21	2	2	2	-	-	-	-	6	2.0
Choosing a governance regime	Size 22	2	2	2	-	-	-	-	6	2.0
Recognizing and managing complementarities	Size 23	1	1	-	-	-	-	-	2	1.0
Learning	Transform 1	3	-	-	-	-	-	-	3	3.0
Transferring knowledge	Transform 2	2	2	2	-	2	2	-	10	2.0
Integrating know-how	Transform 3	2	2	2	-	2	2	-	10	2.0
Achieving know-how	Transform 4	2	2	2	-	2	2	-	10	2.0
Protecting intellectual property	Transform 5	2	-	-	-	-	-	-	2	2.0
Managing strategic fit so that asset combinations are value-enhancing	Transform 6	2	-	2	-	-	-	-	4	2.0
Managing coordination, coordination and reconfiguration skills	Transform 7	3	3	3	-	-	-	-	9	3.0
Adopting loosely coupled structures	Transform 8	3	3	3	-	-	-	-	9	3.0
Embracing open innovation	Transform 9	3	3	3	-	-	-	-	9	3.0
Achieving strategic alignment	Transform 10	2	-	-	-	-	-	-	2	1.0
Mitigating agency issues	Transform 11	1	-	-	-	-	-	-	1	1.0
Checking strategic malfeasance	Transform 12	1	-	-	-	-	-	-	1	1.0
Blocking rent dissipation	Transform 13	-	-	-	-	-	-	-	0	-
Leveraging network effects	InnoScale 1	3	3	-	-	-	-	-	6	3.0
Complementor network effects	InnoScale 2	3	3	3	-	-	-	-	6	3.0
Information-based decision making and applied analytics	InnoScale 3	3	3	-	-	-	-	-	6	3.0
Information and service architecture	InnoScale 4	3	3	3	-	-	-	-	9	3.0
Information and exchange functionality and exchange	InnoScale 5	2	2	2	-	2	2	-	10	2.0
Customer scope	InnoScope 1	2	2	-	-	1	1	-	6	1.5
Complementor scope	InnoScope 2	3	3	3	-	-	-	-	9	3.0
Exploitation of technology appliance to multi-industry ecosystems	InnoScope 3	1	1	-	-	-	-	-	2	1.0
Customer attraction rate	InnoSpeed 1	1	1	-	-	-	-	-	2	1.0
Complementor attraction rate	InnoSpeed 2	1	1	1	-	-	-	-	2	1.0
Complementor adoption speed	InnoSpeed 3	1	-	1	-	-	-	-	2	1.0
Complementor adoption speed	InnoSpeed 4	1	-	1	-	-	-	-	2	1.0
Platform adaption speed	InnoSpeed 5	1	-	-	-	-	-	-	1	1.0
Innovation and technology for open innovation and community	InnoSpeed 6	3	3	3	-	-	-	-	9	3.0
	SUM	124	98	70	0	23	15	6	336	48.0
	AVERAGE	2,1	2,2	2,4	-	2,1	1,9	1,0	5,7	

Table 12: Intensity of dynamic capabilities and cloud platform ecosystem actors

We infer that the top 5 DCs in number of intensity counts are (1) Sense 1 (sensing external innovation), (2) Sense 7 (identifying changing customer needs), (3) Seize 3 ((Re-)Designing cost structures), (4) Transform 2-4 (transferring knowledge; integrating know-how; achieving know-how), (5) InnoScale 5 (information and technology functionality and exchange). Nearly all have an average intensity of at

least 2.0. Likewise, we find out the top four CPE actors that are in descending order: the CPP, cloud recipients, cloud partner ecosystem and outside innovators/research institutes.

DC actor interrelations

As we just discovered the intensity of DCs and CPEs separately, we now focus on a combined view on the interrelationships. Thus, we create a network (Figure 17) that describes the focus DCs of CPPs and focus CPE actors accordingly (Miles et al., 2013).

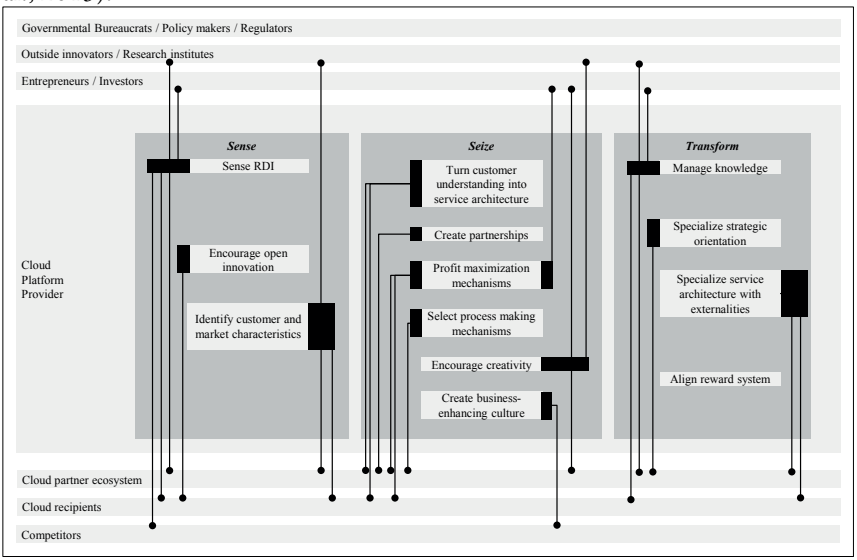

Figure 16: DC interrelations of CPPs towards CPE actors

As illustrated in Table 10 the distribution of CPP DCs to CPE actors is very heterogeneous and manifold. For simplicity reasons we cluster some DCs into groups. Some DC groups are much more intense connected and oriented to CPE actors. A general rule we infer is that in each DC stage (sense, seize, transform) AWS is oriented towards all CPE actors at least once, except for competitors. AWS only interferes with competitors within the seizing process. Furthermore, all clustered DCs have connections to CPE actors except the DC "Align reward system".

DCs with high connectivity towards CPE actors (at least 4 connections to CPE actors) are "Sense RDI", "Identify customer and market characteristics", "Profit maximization mechanisms" and "Manage knowledge".

DCs with low connectivity towards CPE actors (less than 4 but more than 0 connections to CPE actors) are "Encourage open innovation", "Turn customer understanding into service architecture", "Create partnerships", "Select process

making mechanisms", "Encourage creativity", "Create business-enhancing culture", "Specialize strategic orientation" and "Specialize service architecture with externalities".

Logic models (explanation)

A logical chain of evidence on DC explications is gathered through explanation building. This helps us to gather answers for the remaining research questions. First, we identify the overall connectivity of DCs. For each DC on level-III we calculate the number of co-occurrences with other DCs on the same level. Next, we gather logic DC paths, meaning proper sequences of DC explications beginning on level-I going down to level-III. We thus identify patterns in DC-to-DC interrelations. Last, we explicitly state what DCs on level-III AWS addresses, why and how (Miles et al., 2013).

DC paths

Graph 10 illustrates the connectivity of all level-III-DCs. Closely connected DCs are Sense 7, Seize 16, Sense 1, Seize 1, Seize 3 and Seize 5. Medium connected DCs are further Sense 3, Sense 8, Seize 11, Sense 2, InnoSpeed 5 and Seize 7. Low connected DCs comprise InnoScope 3, Seize 8, Seize 17, Seize 23, Transform 5 and Transform 6.

The connectivity could be again a proxy for the importance for the specific level-III-DC.

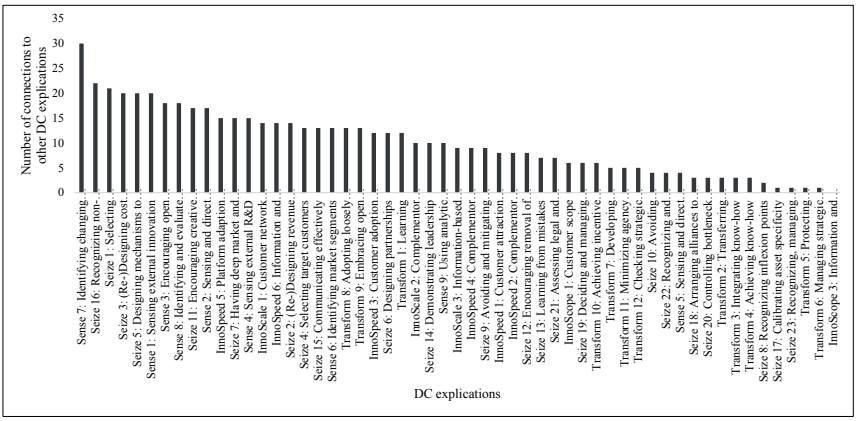

Chart 10: Connectivity of DCs (# Connections per DC explication towards other DC explications)

Figure 18 reveals the explicit DC paths. We analyze each DC-to-DC path separately.

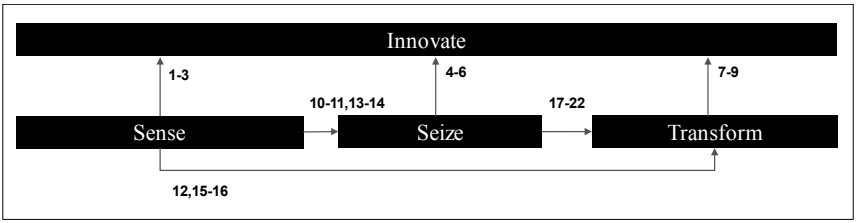

Figure 17: Dynamic capability level-I paths (with number declaration for explanation)

1) Externally identified innovations, customer needs and trends are intensified by customer and complementor network effects as well as specific customer focus. While more and more companies see benefits in moving their business to the cloud they build an innovation ecosystem with AWS. AWS directs its sensing, development and innovation capabilities towards these (potential) customers to deliver more value to them.

2) Once AWS has innovated solutions that could deliver more value to the customer, the business model gets redesigned, once again strengthening the network effects. Decisions at AWS have highly analytical foundations but are nonetheless concentrated on delivering the most value to the customer (e.g. AWS keeps low margins at all time by targeting on high volume sales).

3) Continuous learning in sensing and seizing capabilities is used to scope the customer needs. Analytics applied on operations and customer behavior help to identify root causes of problems and mistakes and support the learning process.

4) Innovative service models that benefit large customer markets are sensed and directed. The customer is the initiator and starting point.

5) AWS uses a thorough customer understanding to target its markets.

6) AWS adopts to the customer scope in order to gather experience and learn.

7) Sensing external innovation and directing internal innovation need to be done quickly. Customers and complementors need to adapt to the changing service platform. Open innovation is one driver to cope with this challenge.

8) Business model adaptions based on a changed service portfolio have to be executed in fast pace.

9) Improving the speed of the learning process is crucial.

10) External and internal innovations define the adoption of the business model (service portfolio, pricing, volume, cost structures, profitability, partnerships and target markets)

11) External, internal and open innovation are highly connected with soft factors of the platform firm, such as creative thinking, flourishing culture, leadership and value-drivenness. AWS's culture is extremely innovation-driven and open for experimentation.

12) Customer needs and technical feasibility lead to open innovation, and loosely coupled service structures (organizational and technical). The resulting innovation processes are open. Incentives are carefully considered through cultural composition.

13) Gathered understanding of changes in the market (customer needs, market trends and market segments) will be used to adapt the business model.

14) Market changes influence the decision making processes and cultural commitment of AWS. Development processes start at the customer without any fear of revenue cannibalization. Developers are free to choose what tools they need to satisfy the customers, but are forced to take care of the operations.

15) AWS makes tremendous use of analytics to check strategic and operational performance. Direct communication and conflict resolution is preferred over bureaucratic reporting.

16) AWS learns how to drive innovations faster that directly address the customer needs.

17) Changes in the business model directly influence the way the service portfolio is transformed. Essential for this transformation is the open innovation concept that includes the co-design (co-creation) of services by partners. Loosely coupled-structures help to steadily reconfigure and integrate services.

18) Profound knowledge about the market is crucial.

Loose service composition supports steady re-composition and re-offering leading to revenue cannibalization.

19) AWS learns about creativity mechanisms in order to innovate faster. Further learning supports the working culture at AWS.

20) Strong and thorough communication influences the incentive design. This leads to unbureaucratic processes to steadily realign operational and strategic decisions.

21) Enterprise boundary management and platform control leads to freedom in co-specialization, innovativeness and modularity. At AWS the strong partner management and legal protection enable its open innovation strategy.

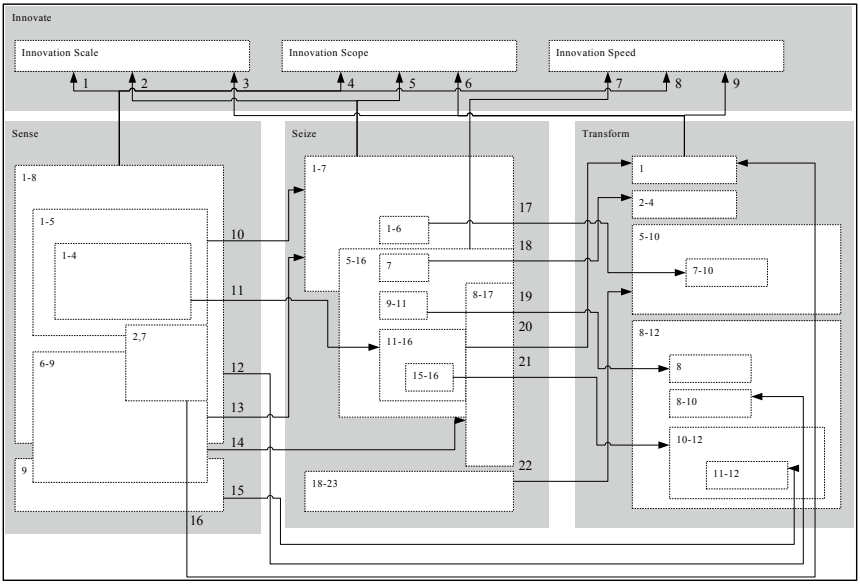

Figure 18: Dynamic capability level-III paths (number declaration inside white boxes as DC explications; number declaration on grey ground for explanation)

DC explications

In the following explications of dynamic capabilities in cloud platform ecosystems for each DC microfoundation we first outline the "What"-factor. After his we explain "Why" and "How" the DCs are developed and expressed. For each DC microfoundation (Level-III) we thoroughly exhibit the explicit explanation. Furthermore, according to the prior identified focus fields (directions from chronology) we align the explications and include meaningful quotes. At the end of an explication you find the case study database reference code (for the original quote see Appendix A2).

DC explications - Sense

Sense 1 - Sensing external innovation

> "In fact, our customers are telling us that new ideas are now coming from across the organization and that employees are excited to innovate on behalf of their customers." (Andy Jassy, 2013, allthingsdistributed) (46:1)

AWS senses client innovations (6:1)(23:4)(40:4)(40:5). Furthermore, it identifies the customers' ways of developing (agile, continuous delivery, continuous integration and deployment, devops) (6:2)(12:1). AWS promotes ideas of innovators in the marketplace to see whether their ideas are valid. This reduces the risk for potential investors (23:3). Additionally, AWS understands that speed is crucial in

external innovation (33:1). AWS recognizes change in innovation governance leading to innovations that come from employees across the firm (46:1). AWS senses deep needs of their customers regarding innovation and turn this into products (46:5). Moreover, it senses that customers want to become part of the larger ecosystem (55:3)(58:3). AWS recognizes when innovations are made around a specific technology (58:3). It senses that if all external innovation is connected through a platform a network effect is the consequence (66:1).

AWS senses external innovations in order to share common entrepreneurial spirits (6:9) and encourages customers' innovativeness and creativity (20:3). They do this because so they can offer the reliable and highly available cloud with that employees at firms can innovate (23:2).

AWS hosts a variety of community events like AWS Global Summit Series (6:5) or AWS City on a Cloud Innovation Challenge (6:6)(6:7). Furthermore, they manage the community like APN (Amazon Partner Network) (6:5) including partnerships with consulting and technology partners (6:2)(6:10) as well as cloud innovation center (6:8) and dialogues (46:1)(46:5).

Sense 2 – Sensing and directing internal innovation

> "If you want to block innovation and new ideas, you have to do the work. If you are the one that say 'this is not going to work' then you'll have to write a four or six page report [explaining] why absolutely you think the company should not be doing this. Believe me, this kills about 99 percent of all the objections to any innovation." (Werner Vogels, 2013, Thenextweb) (88:4)

AWS innovates in high speed, leading fastly to new features (23:5). Furthermore, AWS innovates and loves it; they don't innovate only through acquisition (23:6). The AWS culture is designed to strive after new capabilities that could lead to new services (23:27). AWS aims to increase its innovation speed all time (25:1) and claims innovativeness to be in line with customer focus (53:1). They even claim innovativeness to be more important than administration in the first development phase (55:2). AWS aligns internal innovation strongly to the customer (89:1). Additionally, it innovates on top of open technologies when it recognizes its meaning for customers (58:5).

AWS gets chosen by cloud recipients because of its innovativeness. As environments are very dynamic, cloud recipients need a highly dynamic cloud provider (9:24). Moreover, AWS wants to stop any criticism to any innovation (88:3)(88:4). AWS manages structures to be diverse and heterogenous (88:5).

Amazon diversifies into various different verticals and markets (88:2). It encourages innovation in such strong sense, that innovation critics and blockers have to write full reports to state why they think a specific idea is not worth it

(88:3)(88:4). AWS does not employ specific innovation or research staff/department, rather every team is told to innovate (88:1). It organizes teams that are in charge for the reliability and the innovativeness of a service at once (55:1).

Sense 3 - Encouraging open innovation focused on a broad external base

> "We chose Hadoop for several reasons. First, it is the only available framework that could scale to process 100s or even 1000s of terabytes of data and scale to installations of up to 4000 nodes. Second, Hadoop is open source and we can innovate on top of the framework and inside it to help our customers develop more preformat applications quicker. Third, we recognized that Hadoop was gaining substantial popularity in the industry with multiple customers using Hadoop and many vendors innovating on top of Hadoop." (Werner Vogels, 2011, odbms) (58:5)

AWS bets on rather open technology and service contracts rather than closed ones, like many other providers do (59:6). Customers innovate on top of AWS and offer the resulting tools to the community (68:12).

AWS for example does this through its AWS marketplace for a network of third-party software vendors (64:1).

Sense 4 - Sensing external R&D

> "Eli Lilly is doing collaborative drug research using external researchers who collaborate over AWS" (Werner Vogels, 2009, computerweekly) (57:2)

AWS senses academic and research groups worldwide in order to find out whether a service that is under development needs certain technology (53:27). Furthermore, AWS senses that academia cannot fulfill innovative tasks at the pace AWS requires it, so interactions are limited (53:28). AWS recognizes that researchers collaborate over AWS (57:2).

It does not need to build the helping technology from scratch (53:27).

Sense 5 - Sensing and directing internal R&D

> "At Amazon, we're quite different from other companies. We do not have an R&D department, we do not have an IT department, all our engineering and business are deeply intertwined with each other. There is no VP of Innovation. Every team is charged with innovating, and that's what the whole company drives on." (Werner Vogels, 2013, Thenextweb) (88:1)

AWS staff in development positions report boring tasks, but rewarding future job ops (17:2). At the beginning AWS was very bad at having a feeling for project durations (23:28). Developers working for AWS are free to use any development

tool (53:24). New ideas get in prototyping mode very fast (53:26). Internal R&D at AWS is very close to the external R&D (53:27)(53:28). The development at AWS is very customer-oriented (55:10). There is no R&D department (88:1)(88:2).

AWS recognizes and directs internal R&D in order to understand the business problem (53:26).

They continuously iterate further solutions after the first prototype (53:26). Everybody has to participate in innovating and developing (88:1)(88:2).

Sense 6 - Identifying market segments

> "Every imaginable business segment is using AWS in a meaningful way," (Andy Jassy, 2014, Seattletimes) (25:2)

AWS targets market segments (2:8). AWS identifies and understands market segments, customer bases and verticals in its industry (53:1). It selects products and services based on these market segments (2:11). Furthermore, it defines product requirements based on confidential knowledge about specific market groups (2:12). Also within the services AWS identified there are specific customer segments based on their service user behavior, e.g. S3 (7:10). AWS is aware that new market segments where they have no experience yet could be troublesome (13:2). AWS knows that it may not benefit from first-mover advantages in some markets because of their lack in operations in those regions (13:3). AWS senses that the cloud market is growing because more and more customer segments come to the cloud (23:7). Today every business segment uses AWS in some sense (25:2). Tackling midsize and enterprise markets is important for AWS (42:1). AWS's services are focused towards a huge variety of market segments (46:3).

This creates awareness and increases the service adoption (2:10) in order to specifically target these markets (2:12). AWS aims for growing market segment shares (2:15).

Campaigns are created to target markets (2:10). AWS hires "Global Segment Leaders" for specific market segments, e.g. DevOps (2:14). It hires "Enterprise Field Marketing Managers" that are oriented towards specific market programs (2:20). AWS identifies ISVs that are leaders in their specific market segments in order to integrate them as partners (6:12). APN competencies are managed to identify market groups (7:4)(7:5).

Sense 7 - Identifying changing customer needs

> "Our customers set the roadmap." (Werner Vogels, 2014, recode)
>
> "If we don't offer all the functionality that they want now, we're able to listen and quickly add what they want." (Andy Jassy, 2013, allthingsdistributed)

AWS gathers customer requirements (2:100). It develops customer relationship abilities (2:99). AWS "works backwards" from customer needs to products (13:43). AWS is aware that they may not be quick enough to adapt to the quickly changing customer needs (13:44). Already at the beginning AWS thought about the decomposed initial service offering consisting out of three separate service solutions (a computing service, a storage service and a database solution) (23:15). AWS compares its capabilities for changing customer needs to those of competitors (existing solutions) (23:29). AWS senses that smaller companies/projects and startups empowers them to grow and change their needs (30:4). AWS has a very positive attitude about ideas that address changing customer needs, they always try to say "yes" (46:6). AWS uses a direct customer feedback loop to the developer that develops and operates the service (52:2). AWS measures and analyzes customer behavior (also from a human perspective) before and after a new feature is introduced (53:6). AWS's roadmap is set by customers (61:1). Bringing together a set of changing customer needs again and again helps AWS to leverage huge network effects (66:1).

AWS wants to develop dynamic capabilities, because existing skills can become outdated, although the new steps might be tough (14:43).

AWS encourages partners to be agile about changing customer requirements; customer feedback is essential when markets change quickly (6:41). It identifies changing customer needs by analyzing customer feedback and usage patterns (8:6).

Sense 8 - Identifying and evaluating ecosystem and industry trends

> "...understand [...] trends in the IT industry (e.g., CI/CD, IoT, Predictive Analytics)..." (job responsibilities of an IT Transformation Consultant at AWS) (2:30)

AWS's service offer is a combination of various service offers for multiple industries (1:1). Trends for the cloud partner ecosystem identified by AWS are: 1. Cloud Migrations 2. Cloud Managed Services 3. DevOps 4. Big Data 5. Internet of Things (IoT) 6. AWS for Windows 7. Embrace New Software Delivery Models. AWS senses how competitors respond to the trends (esp. cloud computing) (23:8). AWS senses industry-specific trends, e.g. automotive (37:1). AWS senses trends out of customer focus (58:2). AWS senses that network effects build up trends (66:1). It senses customer business behaviors, e.g. SaaS offerings on top of AWS from ISPs (68:8).

Industry trends get identified and evaluated in order to reduce costs, guarantee continuous delivery, exploit opportunities and reduce risks (2:25).

AWS forecasts industry trends (2:21). AWS needs to be aware of current and future industry trends (2:22). At AWS industry trends get communicated directly

to the leadership (2:28). AWS discusses and evaluates trends with partners to leverage their success (6:13)(6:14).

Sense 9 - Using analytic frameworks to sense opportunities and threats

> "Using our business intelligence platform, we also drive complex data analysis to understand customer behavior, and to find hidden patterns in data that will help us design future products that customers will love." (job description of a Java/C++ Software Engineer at AWS) (2:97)

AWS has its own data analytics team and data analytics platform. They monitor and analyze data to improve customer experience. Data scientists and engineers help with their expertise (2:110). AWS uses business intelligence, big data, machine learning, statistical analysis, data mining and forecasting excessively (2:110). AWS analyzes its risks (13:5). Their meetings about operational performance are very data-driven. A lot of business metrics are analyzed and the business is reviewed. This directly leads into decisions. These meetings can be tough for the presenters (34:4). AWS makes economic analyses, strongly focused on free cash flow (48:1). AWS strongly analyzes customer human behavior (53:6).

AWS wants to understand customer behavior, find hidden patterns and ultimately shape future services based on this (2:97).

DC explications - Seize

Seize 1 - Selecting technology/feature and product/service architecture

> "Customers are telling us what they want, and that drives a lot of what we put on the roadmap. And I think you'll see us adding capabilities for companies with large data sets that want to do computing and processing, and then make that data useful." (Andy Jassy, 2013, Allthingsdistributed) (46:5)

AWS selects the technology, features and the service architecture based on customer data (2:97). AWS wants services that are loved by the customers (2:97). AWS is aware that its service portfolio is crucial for its success (20:2). AWS build its innovations based on customer needs (46:5), even if it lowers prices or cannibalizes other services, e.g. Glacier that is a far cheaper storage than S3 but with higher latency (23:13). When building a service structure, AWS decides what is best for the customer (23:15). It selects its service architecture by its value for the community (58:5).

New features are offered based on customer needs (12:19).

Seize 2 - (Re-)Designing revenue structures

> "We've lowered our prices 12 times in the past
>
> 5 years with no competitive pressure to do so." (Werner Vogels, 2011, odbms) (58:6)
>
> "...sometimes we've done a price elasticity studies, and the answer is always we should raise prices. And we don't do that because we believe– and again, we have to take this as an article of faith– we believe by keeping our prices very, very low, we earn trust with customers over time, and that that actually does maximize free cash flow over the long term." (Jeff Bezos, 2013, hbr) (69:7)

AWS encourages partners to increase their revenue especially with cloud services (6:15). 3rd party sellers can offer and monitor their sales on AWS Marketplace with AWS Marketplace Metering Service for 3rd party sellers (6:16). It charges its computing/storage and networking services as well as certifications/trainings/boot camps (6:17). AWS offers a pay-as-you-go model (12:4). AWS offers tools for customers to calculate/anticipate their expected monthly costs (AWS Simple Monthly Calculator) (12:5). AWS offers a variety of pricing components for services, so not only one dimension (e.g. Amazon S3 has three pricing components: storage (per GB per month), data transfer in or out (per GByte per month), and requests (per thousand requests per month) (12:6)(12:7). It reduces prices regularly, often without competitor pressure (13:6)(44:7). AWS's customers highly value the often unannounced price cuts (44:8). AWS offers new services that offer different (for different purposes better) cost-effectiveness (13:7). AWS consults customers how to safe money using other AWS services, resulting in less revenue for AWS (Trusted Advisor) (13:8). AWS has always excess capacity (due to the nature of cloud computing), but sometimes even if they have too low utilization, they offer their services for special prices to maximize revenue (21:2). AWS builds its service infrastructure for maximum utilization, but is only able to charge the average; because of average customer workloads (85:4). AWS is confronted with price pressure from Google and Microsoft (22:1). AWS and the other big players often reduce prices in close sequence in regard to each other (23:10). AWS does not care solely on revenue e.g. with focusing their services to large enterprises; they also care about small and private customers (23:12). AWS is a business with high volume and based on its low prices also low margins (29:1)(43:4). Prices and costs are closely connected at AWS. Lower prices can be conveyed to the cloud recipient, because of lower costs (43:2). AWS sees their high-volume, low-margin business model as their strategic advantage (44:3). AWS recognizes its advantage in being good at managing operations for a high-volume, low-margin business, when competitors have to adapt and change (44:5). AWS develops the partner revenue streams (50:1). AWS tends to improve its free cash flow per share, not the margins primarily (69:2).

AWS sees its business as a high-volume, low-margin business because of its long-term perspective (44:4). Although price elasticity studies advise AWS to increase prices, they lower them (69:7). AWS keeps prices low and lowers them regularly to build a trust relationship with its customers, which in the end should optimize their free cash flow (69:7).

Seize 3 - (Re-)Designing cost structures

> "We have so much scale that we're able to buy all the infrastructure at much lower prices and then pass those on at prices that are lower than what they do on their own." (Andy Jassy, 2013, wsj) (47:1)

AWS thinks in processes when cutting costs, e.g. reducing the end-to-end cost to send data packets (2:87). AWS thinks in infrastructure savings when cuttings costs, e.g. dedicated engineers to optimize cost-effectiveness of server infrastructure parts (85:2). AWS seeks both cost reductions and reliable services, e.g. with prioritizing projects (2:88), trend analysis and technology evolution (2:89). AWS uses industry cost models to assess supplier competencies and competition (2:90). AWS invests in partners and prioritize those investments (2:92). AWS board members do not receive much cash compensation (13:37). AWS invests with long term leadership orientation, rather short term profitability alignment (13:38). AWS realigns investments to favorable projects, after investment analysis (13:39). AWS makes rather big and worthwhile investments than small and futile ones (13:40). AWS informs the public ecosystem about major investments (13:41). AWS plans investments to increase in order to broaden the customer base (13:42). AWS even takes out loans to invest (22:5). AWS expects to have at least one data center in each major country around the world, with different investment and cost structures (25:4). AWS data center costs highly depend on data center use (25:5). AWS explains its sustained long-term investments by the aim to reshape the entire industry (25:7). AWS's high investments can be seen as competition and market entry barriers (25:8). AWS's depreciation cost is lower than its capital expenditure, but this only holds true for limited time: sooner or later growth is expected to decrease which will force the depreciation to come up to the capex level (28:6). Capital is spent in advance, because data centers have to be build up and equipped (35:1). In the early beginning of AWS, the investment into the data center led Amazon to build up AWS anyway, so it can be seen as very low risk investment (36:2). Low procurement prices, low investment and cost advantages due to economies of scale (for infrastructure) are forwarded to the customer (43:1)(47:1). Although AWS is very cost-effective (43:6), their costs are this high leading to low margin business (44:1). With the resources AWS invested in they are able to create the thriving learning curve, thus to create dynamic capabilities (78:11). AWS heavily invests in its cloud platform ecosystem, e.g. with conferences and co-marketing activities (79:6). AWS has high development and server infrastructure costs

(79:7)(79:8). AWS allows to have low transaction costs for all ecosystem participants (79:9).

Seize 4 - Selecting target customers

> "Define and size target market segments, customer base, and key partners including ISVs and system integrators." (job responsibilities of a Business Development Manager at AWS) (2:96)

AWS's business is always driven towards target customer markets and realigned if the strategy changes (2:93). AWS's partners are supported to target market segments (2:95). AWS shapes and evaluates target customer segments (2:96). AWS's BI platform helps to select target customers (2:97). AWS offers the AWS Test Drive Program to partners so that they can target their customers (6:40). AWS's target customers e.g. developers and system architects, enterprise architects, auditors or risk and compliance professionals (12:16)(12:17)(12:18). AWS targets customer segments that can be innovate and flexible in business models with the help of AWS (40:2)(40:4). Most of AWS customers (number and computing usage) are large companies that try AWS and keep it (67:6). This creates awareness and increases the service adoption (2:10). Campaigns are created to target markets (2:10).

Seize 5 - Designing mechanisms to capture value

> "The bottom line for pure cloud computing, which features scale, elastic pricing and agility, really comes down to server utilization and economies of scale" (Werner Vogels, 2010, zdnet) (21:1)

As AWS builds a leadership position it creates means capturing value in terms of profit (13:9). AWS's low margins speak against high value capture (18:2). AWS's defends its strategy of low value capture against investors by arguing to look for free cash flow rather than for profit (22:3). It has to put into question whether AWS will ever start capturing value (22:6). It can be followed that most of the value created is directly given to the customer, because AWS creates a lot of value but does not capture it (23:25). Another value created for customers is simplicity and agility besides low cost (23:26), data security and governance (39:8). But in comparison to the retail branch AWS is able to capture much more value besides being even smaller in revenue (28:7). AWS needs to capture some value, which directly diminished the openness of the ecosystem (78:13). Optimizing the data center usage could help AWS to capture even more value (85:4).

Seize 6 - Designing partnerships

> "Develop long-term strategic partnerships in support of our key markets." (Responsibilities of an Acquisitions Manager at AWS) (2:105)

AWS works highly close with partners to reach and promote services (2:103). AWS seeks for long term partnerships (2:105). Inside AWS there are leadership partners (2:107). Comparably to customers, partners also deliver feedback to AWS, which directly leads to technology roadmaps (2:108). AWS also sees its customers as partners (13:46)(26:2). AWS's partners and customers teach a large amount of AWS related courses (46:9). AWS has technology partnerships with ISVs (49:2). AWS has partnerships with sellers that may add additional value to the services (59:2). AWS has partnerships with integrators and consultancies (59:3). AWS opens up its innovation mechanisms through partnerships (78:14).

A large and valuable partner ecosystem is needed for quick growth (34:5). Partners are valuable to reach business and enterprise customers (59:8).

Seize 7 - Having deep market and customer understanding

> "Our pace of innovation has been rapid because of our relentless customer focus." (Werner Vogels, 2011, odbms) (58:2)

AWS highly understands customers (2:66). AWS wants to understand all customers, even private ones with small service use (23:12). Speed is essential for customers using AWS (33:1).

AWS communicates with customers via blogs, forums and meet-ups as well as engages in open source communities to set the strategic product roadmap as well as to develop additional service libraries, applications and tools (2:66). AWS makes use of business intelligence methods to understand the customer behavior and needs (2:97).

Seize 8 - Recognizing inflexion points

> "A large part of Amazon.com's technology evolution has been driven to enable this continuing growth, to be ultrascalable while maintaining availability and performance." (Werner Vogels, 2006, acm) (53:4)

AWS recognizes that customer behavior and needs are going to change: from putting too much time into problem shouting into making great products (7:15). Amazon has gone through a huge inflexion point where it has built a very scalable, performing and always available infrastructure for its retail business. Offering this as a separate service to customers was a massive turnaround (53:4).

Seize 9 - Avoiding and mitigating decision errors

> "At Amazon – and especially in AWS – the leadership team is always trying to say yes. … That has a big impact on the team. It encourages people to come up with new ideas that can help customers." (Andy Jassy, 2013, allthingsdistributed) (46:6)

AWS carefully resolves all possible issues before launching a service (7:16). AWS differentiates between two types of decisions and manages them differently to guarantee low decision error rates: Type 1 (irreversible decision with no way backwards) and Type 2 (reversible decision). Type 1 decisions are made very carefully with high degree of methods, consultation and data-insight. Type 2 decisions are made very fast by expert managers or smaller groups. (13:19). If something of great possible value does not exist, AWS makes a quick decisions and develops it (23:14). If in doubt AWS decides from a customer perspective (23:15). AWS holds a culture where team members challenge each other intellectually in case of disagreement in order to come up with the right decisions (28:1). AWS carefully analyses its operational performance that help to make tough decisions (34:4). A further error could be to reject ideas to early, that is why AWS always tries to try out new ideas (46:6). AWS introduces prototypes and beta versions to the customer and quantifies its success (53:5) based also on human behavior statistics (53:6). AWS identifies what wrong decisions can result in (64:2).

Seize 10 - Avoiding anticannibalization tendencies

> "When things get complicated, we simplify by saying what's best for the customer? […] In fact, sometimes we've done a price elasticity studies, and the answer is always we should raise prices. And we don't do that because we believe– and again, we have to take this as an article of faith - we believe by keeping our prices very, very low, we earn trust with customers over time, and that that actually does maximize free cash flow over the long term." (Jeff Bezos, 2013, hbr) (69:1)

AWS intentionally launches services that cost less than others of their own (13:7). AWS's culture of trying even endangers its retail business, as competitors can build up online retail stores on top of AWS that would compete with Amazon.com (13:10).

AWS has constantly cannibalized its business in order to satisfy the customer to the most possible extent (70:1).

Seize 11 - Encouraging creative thinking and action

> "Businesses often compromise on hiring characteristics in the name of rapid growth, but we're vigilant about hiring builders – inventive, entrepreneurial, creative types that want to operate what they build. We want missionaries, not mercenaries – people focused on building businesses that last beyond their tenure at the company." (Andy Jassy, 2015, medium) (23:17)

Creativity is a strong requirement for people working at AWS (2:33). AWS enables investors and innovators to test new ideas in the marketplace (23:3). AWS staff knows that its ideas are valued and offered to the customer (23:16). AWS strongly hires "builders" that not only invent but also operate their services (ideas) with long term perspective (23:17). AWS aims to innovate faster and faster (25:1). AWS could force the creativity so much that this leads to strong disagreement and unsatisfied workforce (28:2). "Yes"-Sayers in management encourage creative work behavior (46:6). "You build it, you run it" could also hinder creative working (52:2). The whole AWS community is encouraged to think creatively (53:7).

The staff's creativity is used to solve problems (2.37) in order to develop unique joint value propositions as well as product strategies within an entire partner ecosystem (2:38).

The "exciting, dynamic and challenging environment" at AWS encourages staff to be, think and work creatively (2:34). The work environment at AWS is creative and excited to develop and create new services (2:35). Stock-based compensation helps to improve creativity (13:12). The development environment encourages the developers to think independently and creatively (53:8). But team creativity is also important (55:1).

Seize 12 - Encouraging removal of no value-adding assets and activities

> "Our team finds ways to move faster by cross training, process automation, removing non-value add activities, and improving quality." (Responsibilities of a Software Development Engineer at AWS) (2:45)

AWS removes non-value adding activities (2:45). AWS maximizes the value for the customer (34:7). AWS developers are responsible for the operation of a newly developed service, which directly maximizes value (52:2) and enables the company "to move faster" (2:45).

Seize 13 - Learning from mistakes

> "They don't make the same mistakes over and over. There is an implicit understanding that Amazon's leaders will be right far more often than they are wrong. If they do fail at anything, they are expected to learn from their mistakes, develop insights from those mistakes and share them with the rest of the company so the same mistake doesn't get recycled over and over." (John Rossmann, 2015, businessnews) (71:1)

AWS expects its developers to make mistakes and learn from them (8:1). AWS is not afraid of sometimes running into dead-end businesses (also because of mistakes), as long as some decisions turn out to be huge successes (13:11). AWS in general learns from its mistakes and success stories (13:20). AWS sees mistakes as investments into learning (13:40). Getting faster at innovation is another learning process for AWS (25:1). AWS leaders are expected to not make the same mistakes again and to be more right than wrong (71:1).

Seize 14 - Demonstrating leadership

> "To further clarify an idea, Amazon leaders also develop and articulate project vision statements in the form of "future press releases." A future press release is a short, simple and clear statement of how the project will be viewed if it achieves its aims and objectives. It is imagined this is what will be written once the project has come to fruition and as such will describe what was developed, why this is important to customers and what goals were achieved. (John Rossmann, 2015, businessnews) (71:3)

AWS leads the entire cloud computing industry (2:41)(80:1). AWS staff members need to have leadership traits (2:42). AWS changed enterprises attitudes about the cloud (6:22). When thinking about investments, AWS considers its resulting long-term leadership role (13:38). Competitors do follow AWS (18:3). AWS is leading the IaaS market and offers also PaaS services (19:2). AWS's leadership role could be positively affected as they don't separate development from operations (52:2). Based on its creativity AWS does build services that have never existed before and lead the cloud definition (53:10). AWS's innovativeness supports its leadership role (55:1)(55:2). Customers and customer network effects support AWS'S leadership role (61:1)(68:9).

Leadership over specific markets results in higher revenues, higher profits and ROIs (13:9).

AWS leads also by trying new things that were done completely different in the past, like low margin pricing as an IT vendor (18:2). To defend its leadership role AWS build natural barriers for new entrants, like massive datacenter investments and huge service portfolios (25:8). AWS's "future press releases" show how it is planning to maintain its leadership role (71:3).

Seize 15 - Communicating effectively

> "PowerPoints are not allowed at Amazon management meetings. Instead, leaders are required to write out their ideas in a two-page narrative. Then, at the beginning of the meeting, that two-page document is handed out and everyone sits quietly reading it before discussing the idea." (John Rossmann, 2015, businessnews) (71:2)

Talking with customers at self-hosted events (6:23). Showing transparency about compensation (13:12). Presenting strategic decisions about services as soon as possible to the public (13:41). Encouraging discussions in case of disagreements (28:1). Top management also is involved into smaller decision making processes to bring the service to perfection (34:8). When designing services AWS is very goal-oriented and applies "working backwards", thus creating an imaginary press release and FAQ document prior to writing application code. This helps to communicate clearly what to develop and what to expect (34:9). Effective communication also means to talk about inconvenient topics (34:10). Customer communication to AWS and among themselves is critical to understanding and service adjustments (34:11). Unlike most companies AWS management discussions are not based on slide show presentation programs like Microsoft PowerPoint, rather the presenter has to write down his idea and overall message into complete text form. The audience reads the narrative quietly before discussion starts. (71:2).

Seize 16 - Recognizing non-economic factors, value and culture

> "Amazon is a place that really functions like a large startup. It is not slow and stodgy and bureaucratic, we move way more fast. It is a pioneering culture." (Andy Jassy, 2015, financialtimes) (28:3)

AWS is very culture-driven and -defined (2:44): stock-based compensation (13:12), motivation (13:12), customer-orientation (13:12), e.g. customer value (13:15), service-ownership (13:12), cost-consciousness (13:14), excitement about fast adoption of new capabilities (23:19)(23:20), questioning disagreeing opinions (28:1), demanding culture (28:2), pioneering creativity (28:3) and innovation (46:2), performance evaluation based on hard metrics (34:4), no rest on success (34:12), combined responsibility for development and operations (52:2) and independence and small teams (53:10), first apps were focused on innovation side, not operation (55:2), ABKEHR from a strong orientation on financial results (like P/E ratios and value/EBITDA metrics) (64:4), anti-competition focused culture (71:2) and freedom to operate (53:14).

AWS cares about quality, lean processes and automated services (2:45), customer value generation (9:20), enabling customer innovation (9:22), strong partner network, fast growth (34:5), customer satisfaction (34:11), data protection, ownership and control (39:7).

Seize 17 - Calibrating asset specificity

Some AWS employees have highly specialized knowledge (2:46) and have highly generalized personality traits (2:47). The entire infrastructure that AWS invested

in is highly specialized equipment, that can't be used for anything else but computing (21:3) and can be sold. A huge investment goes into the AWS as software parts that can be sold very difficultly (hyperspecialization) (85:3).

Seize 18 - Arranging alliances to learn and upgrade

> "Besides the big consulting partners and integration partners, we have established new partnerships with resellers that bet on our cloud offerings from the beginning on. (translated from German) (Werner Vogels, 2013, channelpartner) (59:3)

AWS hires dedicated "Alliance Managers" to manage their alliances (1:4). Alliances can be seen as partnerships, too.

Those alliances are in line with business development and entrepreneurial skills (2:48). Strategic alliances also can cause problematic business situations, like business distraction, relationship disturbance, integration issues (13:16).

Seize 19 - Deciding and managing integration, outsourcing and insourcing

> AWS recognizes "the difficulty of integrating a new company's accounting, financial reporting, management, information and information security, human resource, and other administrative systems to permit effective management, and the lack of control if such integration is delayed or not implemented (investor information reports, 2015) (13:18)

AWS hires dedicated managers for integration purposes (1:5). Emergent technologies get quickly integrated (2:49). Several applications from ISV can be integrated into AWS (6:26). The integration of acquired technology or a company is difficult and can be costly (13:17)(13:18). System integrators are of high importance for AWS's strategy (49:3). The integration between AWS and other cloud services is very important and will become even more important (55:4). Challenges arise with integration, where an active community can support (56:2).

Seize 20 - Controlling bottleneck assets

Performance bottlenecks are addressed by technical and management staff (2:51). AWS actively addresses to get an understanding of performance bottlenecks (6:31). Although technical bottlenecks can be manifold, AWS has never experienced any outage of its entire infrastructure (11:4), e.g. one 5-hour outage in Virginia data center (28:4). AWS has optimized its connections between data centers (12:11). In many cases processes for data load and transformation tend to be the bottleneck (67:5).

AWS focuses on cross-functional work (2:52).

Seize 21 - Assessing legal and natural protection through an appropriability regime

> "During and after the Term, you will not assert, nor will you authorize, assist, or encourage any third party to assert, against us or any of our affiliates, customers, vendors, business partners, or licensors, any patent infringement or other intellectual property infringement claim regarding any Service Offerings you have used." (Darrow, 2015, gigaom) (83:2)

AWS highly makes use of open-source technologies (use and contribution), that are legally open and not protected through paid licensing (2:50)(2:65). IP (intellectual property) is reserved through patenting (2:68). AWS is aware about the critical role of IP for its success (international domain names, trademarks, service marks, copyrights, U.S. and international patents, trade dress, trade secrets (13:21). Value of proprietary technology is captures through licensing. Mechanisms of legal protection may not exist in Non-US markets (30:3). AWS's service offerings are often combined with open-source products (55:5). AWS rejects any forms of vendor lock-ins for customers by providing very simple APIs, so there is no market protection at this side (56:4). AWS cooperates with other ISVs for licensing purposes (57:1). AWS's terms of business prohibit a customer directly to sue AWS or any of its affiliates (82:1). AWS's terms of business also prohibit any reverse-engineering, manipulation and modification of its services (83:1). Any assist, authorization or encouragement to assert legal infringement against AWS or one of its business partners are prohibited forever (83:3). With its legal terms in its terms of business AWS is highly defensive, and defends itself against customers that use their IP, without any resistance (83:5).

Seize 22 - Recognizing and managing complementarities

> "Amazon needs to build trust among such complementors, as they may fear that it would incorporate their products into the platform. To do this the company announces new features before they are released and discusses the roadmap with complementing firms. As the Amazon CTO, Werner Vogels, said: “We wanted to make sure people had a look at our roadmap, our goal is to be very respectful and recognize the value of the ecosystem”. (Kolakowski, 2009) (79:3)

The large AWS ecosystem largely favors the customer to develop new applications, manage their cloud usage and get informed about new services (42:6). Complementarities: cloud enablers (auditors, brokers, additional-value service providers) (77:1). There is low platform lock-in for AWS complementors (79:1). Complementors offer higher level services (e.g. infrastructure management, monitoring and configuration management) to customers (79:2). AWS creates a trustful relationship with complementors and discusses the service roadmap in advance, be-

cause there is the risk that complementing services get directly integrated and replaced into AWS (79:3). AWS strongly differentiates itself from other platforms, making it costly for complementors to own more than one platform (79:4).

Seize 23 - Recognizing, managing and capturing co-specialization

AWS partners bring a set of capabilities into the cloud offering (8:4) that leads in its combination to hyperspecialization (85:3). Offerings of the AWS ecosystem seem to be highly co-specialized (e.g. integrated SaaS-solutions, AWS courses, consulting and integration services).

DC explications - Transform

Transform 1 - Learning

> "There's really no substitute for the accelerated learning we've had from working with hundreds of thousands of customers with every imaginable use case." (Werner Vogels, 2011, odbms) (58:8)

AWS employees need to be quick learners and to be able to adapt to emerging technologies (13:1). AWS employees need to have interest in "playing" with new technology (2:55). AWS learns from successful business outcomes as well as from their mistakes (13:39). AWS considers failures as "valuable lessons" originating from investments (13:40). All ecosystem actors get informed about strategic choices, so they can learn about the outcome of this decision too, whether or not it gets continued (13:41). One learning was e.g. how to adapt to changing customer bond (first just service + APIs, later more coupling and transformation management (19:3). AWS continuously learns how to innovate faster and faster (25:1). AWS learns to understand customers and what they value (53:15)(53:16). Customer use cases are important for "accelerated learning" (58:8). AWS's investments in its learning processes and results characterize their dynamic capabilities. It learns about the markets, its resources, and organization to innovate upcoming services (78:11).

Transform 2 - Transferring knowledge

> "We found, though, that there had been some struggles with applying the concepts so we published the paper as feedback to the academic community about what one needed to do to build realistic production systems. (Werner Vogels, 2011, odbms) (58:9)

AWS hires "Knowledge Management Librarians" for knowledge transfer and reuse (1:6). Engineers and developers at AWS are told to write and check knowledge transfer material (2:56). Knowledge is acquired at customer's side and directly leveraged for support engineering and support service teams (2:57). Knowledge is

proactively shared within AWS (2:58)(2:59)(2:60) which directly evolves into a new asset (2:62). Knowledge is also transferred to external parties, e.g. through blogs, forums and meetups (2:66). A knowledge management system (KMS) provides the abilities to reuse, discover and enable knowledge. “Content Librarians” are responsible for the administration of the system (5:1). They plan, create, maintain and integrate the valuable content (5:2). Outside communities (like research institutes) are asked for feedback to specific technological challenges (58:9).

Transform 3 - Integrating know-how

> "Leverage knowledge of internal and industry prior art in design decisions." (job responsibilities of a Software Development Engineer at AWS)

Knowledge from external media sites (e.g. forums, blogs) and external research outcomes get integrated (58:9). Knowledge is integrated from internal staff to internal staff and from outside actors to internal staff (2:60). A lot of knowledge was originally integrated from Amazon.com (78:5).

Transform 4 - Achieving know-how

Know-how is achieved through hiring experienced staff (2:64). Know-how is achieved through working with customers closely together (2:66).

Transform 5 - Protecting intellectual property

AWS supports customers in legal challenges (12:13). Major competitors have more technology patents (81:2).

Transform 6 - Managing strategic fit so that asset combinations are value-enhancing

Partner offerings are combined with AWS services to increase customer value (8:4). AWS combines its role in cloud computing with chances in the IoT market (42:7). Hyperspecialization is one of the major reasons for AWS's increased success (85:3).

Transform 7 - Developing integration, coordination and reconfiguration skills

> "You will integrate a wide range of existing AWS infrastructure to deliver large-scale, high-throughput distributed services consumed by mobile developers." (job description of a Software Development Engineer at AWS) (2:70)

AWS requires its developers to have experience in continuous integration topics (2:69). AWS requires its developers to integrate ISV's systems into AWS (2:72). AWS is aware that the integration, coordination and reconfiguration of projects, systems and acquisitions is important for their success and could be difficult

(2:80)(13:27)(55:4). AWS requires its staff to be able to reconfigure (2:76) and manage projects (2:80). Integration partners help AWS and its customers with the integration (59:3).

Transform 8 - Adopting loosely coupled structures

> "I think there are a number of standard principles that we can apply in terms of hierarchies, of loose coupling, of probabilistic techniques that I'm confident will serve us for quite a bit of time. When we developed these services, we were looking ahead in terms of what kind of scale we could achieve, and we're not there yet. Even then, I'm confident that the choices we've made were the right ones." (Werner Vogels, 2008, informationweek) (55:9)

Loosely coupled structures are an essential part for AWS, from a technical and an organizational perspective (34:13)(53:22)(55:6)(55:8). Openness is congruent to the loosely coupled architecture (55:3).

Originally, the decoupling of communication APIs was needed to expose the communication interfaces to external Amazon.com retail partners (23:21)(55:6). SOAs helped AWS to develop more rapidly and independently (53:20). AWS is very organic from a development and operation perspective because of the SOA. SOAs help AWS to be rigidly innovative. Less vendor lock-in for customers (56:4) and portability for customers; but this is not always simple as SaaS operations are not standardized (yet) (79:11). AWS encourages business partner collaboration (78:2).

AWS hires developers with experience in specific architectural patterns for loosely coupled structures (service oriented architectures) (28:1) SOAs were groundbreaking for AWS's business model (53:19).

Transform 9 - Embracing open innovation

> "[…] Amazon opened up its platform and ICT infrastructure through Web services. Secondly, it acts as an incubator for e-business. Thirdly, the company expands the use and finally the reputation of its platform thanks to Amazon certified integrators." (Isckia & Lescop, 2009) (78:4)

AWS developers are directed to learn and apply open source technologies (2:50). Open source code improvements are transferred back to the community (2:65). AWS collaborates with the open source community (2:67). AWS is open for everybody, even for competitors of AWS's affiliates (e.g. Netflix). AWS's open innovation model consists also of supporting any AWS user to increase connectivity in (ICT) business ecosystems (78:1)(78:2). AWS's open innovation strategy is based on the offered web services, its incubator role and the platform actor architecture (certified integrators, partners, etc.)(78:4). Amazon's reputation helped to be rated as trustworthy among the ICT industry (78:5). AWS open innovation strategy

can be described as a duality, where some actors exploit the knowledge and capabilities of the system and some other actors innovate with existing and new services (78:7).

Open technologies could help to resolve and move performance bottlenecks (2:50). AWS encourages to use open source software to reduce lock-ins at customer side and to give customers the freedom of deployment choice (14:2).

In its core AWS is based on open source technology (e.g. Xen Hypervisor) (56:3). AWS supports the open source community also with steadily low cost computing services (58:11). Cloud recipients develop on top of AWS and offer those tools to the open source community too (e.g. Netflix) (68:12).

Transform 10 - Achieving incentive alignment

> "When they wake up and are thinking in the shower in the morning, they're thinking about customers, and thinking about how to invent on behalf of customers, and they find that fun. And if you get here, and you find that you get your motivation from having a more competitive-focused culture, you might find our culture dull. We don't." (Jeff Bezos, 2013, hbr) (69:5)

Generally, incentives are designed to encourage long-term decision-making rather than short-term (13:35) - it is again customer-driven, not competitor-driven (69:4).

Incentives for developers for working at AWS are mostly based on cultural characteristics: demanding and exciting work experience (2:85) focused on customer experience (69:5), working with world-class computer scientists (2:85), working on interesting problems (2:85), certifications (12:14), some say it is boring but rewarding work (17:1)(17:2), although developers have low development restrictions, incentives are given to integrate their services with others (53:23)

Incentives for managers and the board: Leadership Development and Compensation Committee (13:33), no cash bonuses are provided (13:34), stock-based compensation for long-term performance alignment (shareholder value) (13:36), yearly election of the board, prevention of inside relationships, no anti-takeover mechanisms (64:5)

Incentives are also given to the platform ecosystem actors: start-up bonuses for new service launches (6:39), lower IT operational costs (6:37), certifications (12:14).

Transform 11 - Minimizing agency issues and Transform 12 – Checking strategic malfeasance

Strategic and operational issues are directly and openly discussed in an unbureaucratic way (34:4).

Transform 13 - Blocking rent dissipation

AWS does not need to block rent dissipation, as they don't manage depleting resources.

DC explications - Innovate

InnoScale 1 - Customer network effects

> "From an innovation point of view, quite a number of enterprises are considering moving some of their services into the cloud and then opening them up such that they can become part of the cloud ecosystem, making it easy for Company X to access their services in the cloud and third parties to extend the platform they're building." (Werner Vogels, 2008, informationweek) (55:3)

AWS holds strong customer network effects and aims to intensify those (7:1). Cloud recipients move to other clouds if it makes economic sense; one economic reason can be when another company consumes or produces a lot of data from or for that company (67:4)(68:9). AWS's customer network increases with time, as more and more customers open themselves up into AWS to become part of the larger AWS ecosystem (55:3). The fact that it is efficient when code (algorithms) is near the data it is working on supports the network effect (67:1). Working on data creates more data that needs to be stored and maybe is consumed again (67:1). There do not exist any network effects between complementors and users (79:13).

For AWS it is important to gain competitive advantage and market share (64:8). With increasing network effects, ISVs probably support competing platforms less (65:1).

More and more customers get attracted because their business partners already have their data and services on AWS and they want to be close to these (67:2).

InnoScale 2 - Complementor network effects

No network effects between complementors and users (79:13). There are probably network effects between complementors, as they complete the service portfolio.

InnoScale 3 - Information-based decision making and applied analytics

AWS uses information-based decision making and applied analytics for pricing, customer targeting, investment decisions (2:91) and in order to understand customer behavior for the development of future products (2:97). Generally, AWS uses applied analytics in order to learn (13:39), forecast projects (23:38) and benchmark industry cost models (2:90). A business intelligence platform supports the analysis and decision processes (2:97).

InnoScale 4 - Modular product and service architecture

AWS's modular structure is rather technical and can be identified in the service offering (34:13)(53:22). As already mentioned information technology has enabled and leveraged this service architecture (53:20)(23:21).

InnoScale 5 - Information and technology functionality and exchange

At a large scale information and technical knowledge is achieved, applied and distributed by technical experts (2:64). Non-technical staff reorganizes information for later reuse (1:6).

InnoScope 1 - Customer scope

AWS has a large and heterogeneous customer scope. It sets customer scopes for different industries (like healthcare, IoT, etc.) (40:4)(42:7), company sizes (like startups, large enterprises, etc.) (67:6)(23:12) and company departments (like HR, IT development, etc.) (13:18)(55:11). Since AWS's innovations are oriented towards customers the innovation abilities are manifold too.

InnoScope 2 - Complementor scope

AWS's partner network is large and heterogeneous too. The network members serve as an additional mean to serve and reach customers and to implement the customer feedback loop (2:79).

InnoScope 3 - Information and technology appliance to multi-industry ecosystems

AWS targets customers of different sizes in various different industries and branches (2:109). AWS continuously expands into a variety of industries and countries (4:1).

InnoSpeed 1 - Customer attraction rate

AWS has a high innovation speed that accompanies the customer attraction speed (rate) (20:2)(23:1). Already in 2008 AWS served 60.000 different customers (67:6). Since its launch in 2006 they attracted 2.500 customers per month for two years on average. 7 Years later in 2015 they already attracted over one million active users, resulting in an attraction rate for this time span of 11.200 customers per month. Thus, the customer attraction rate has been increasing tremendously and shows the strong notion of customer network effects. Also from this we can see that growth is essential for AWS (53:9).

InnoSpeed 2 - Complementor attraction rate

Innovation speed accompanies complementor attraction speed (rate) (20:2)(23:1). (We could not find any numbers that show the growth of the complementor network.)

InnoSpeed 3 - Customer adoption speed, InnoSpeed 4 - Complementor adoption speed and InnoSpeed 5 - Platform adaption speed

AWS applies quick innovation to transfer customer needs to services (23:1)(23:5). Quick adoption takes place through standardized APIs (34:2). (We could not find any information about the adoption time and speed.)

InnoSpeed 6 - Information and technology for open innovation and community

Information and technology gets distributed among the community that is oriented towards open innovation. Collaboration, exchange and transfer are executed with open source mechanisms and technologies (2:50).

6. Part IV: Discussion

In this chapter we discuss the previously obtained results in more detail. We describe the derived implications on research theory and management practice. Furthermore, we evaluate the quality of our study in respect of former research. We also express the limitations of this study that could be a motivation for further research endeavors.

6.1 Theoretical implications

RQ1: What specific dynamic capabilities do CPPs use within their ecosystem?
RQ1.1: What specific DC explications do CPPs use within their ecosystem?

AWS, as a flagship CPP, develops and uses all of the various microfoundations of dynamic capabilities (sense, seize, transform, innovate) in the ecosystem, except the blocking of rent dissipation (no management of natural resources). We conclude that AWS identifies, targets, selects and exploits research, development and innovation. It actively analyzes and selects the cloud platform ecosystem. Adjusting the business model frequently, gaining decision excellence, rewarding the work and customer culture as well as controlling and leading technology integration and progress help to seize former identified environmental changes. Finally, the management of CPE-wide knowledge, the setup of loosely coupled structures and the alignment of business ecosystems help to transform the seized changes into business-changing outcomes.

We could find some conceptual overlaps between "innovate"- and "sense, seize, transform"-capabilities, especially in InnoScale 3-Sense 9, InnoScale 4-Transform 8, InnoScale 5-Transform 1-4 and InnoSpeed 6-Transform 9. The dataset depth could not deliver a proper differentiation in these explications.

RQ1.2: What paths of DC explications do CPPs use within their ecosystem?

AWS uses the level-I-DC paths that are outlined by (Teece, 2007). They sense, seize and transform, in this order whereas there are also pure sense-transform paths. Additionally, we conclude paths that go from each of the three traditional dynamic capabilities stated by (Teece, 2007) - "sense", "seize", "transform" to the innovation capability ("innovate"). All in all the highly connective level-III-DCs build up 22 mutually exclusive and reoccurring paths. The general connectivity of level-III-DCs is evenly distributed - we see highly connective and sparsely connective DCs. Based on AWS's business model there are very common and presumably highly special paths like sensing RDI, building a culture around this for integration purposes and learn continuously from this.

RQ1.3: What trends are followed? Can we deduce and reconstruct roadmaps?

The chronology time series analysis and roadmapping showed there are truly trends highly connected with DCs. In this we have seen that popular trends like new service announcements, compliance and security, automation, and power/cost optimization are picked up. With the help of CPE actors DCs are developed and used in order to respond strategically to environmental changes.

RQ1.4: What intensity distribution among different DCs can we detect?

The DC intensity analysis implied that DCs are developed and used in different degrees. This holds true for separate assessments of DCs as well as connections with CPE actors. Highly intense DCs such as Sense 1 (Sensing external innovation) and Sense 7 (Identifying changing customer needs) verify prior DC outcome directions where we figured out that AWS is kindly obsessed with customer thinking and orientation. We could identify less intense DCs like Seize 17 (Calibrating asset specificity) and Transform 12 (Checking strategic malfeasance) too.

RQ1.5: To what extent can we verify former research? What can we add to the literature?

We can verify former research done by (Teece, 2007), so that microfoundations of dynamic capabilities are existent, developed and used. Furthermore, we could verify innovation platform properties (Venkatraman et al., 2014) and found some overlaps with Teece's DC microfoundations. We added a large set of CPP-specific DC explications. Furthermore, we applied an intensity dimension to further mark out the focus DCs. We did not find any evidence for blocking rent dissipation, as this is maybe only suitable for companies that make use of depleting, nonrenewable resources.

We can verify the level-1-DC paths presented by Teece, but add a CPP-specific level-III-DC paths view. Furthermore, we identified highly connective DCs on level-III, such as "Sensing external innovation" and "Selecting technology/feature and product/service architecture". The identified paths clusters show that level-III-DCs are very connective within their level-I-DC group too.

RQ2: Why do CPPs use dynamic capabilities?

RQ2.1: Why do CPPs use specific DC explications?

From our findings we interpret that AWS applies DCs in its CPE generally with the goal of gaining further market share in all its segments. For this it needs competitive advantages. These are built upon a thorough understanding of customers. AWS learns from its customers, exposes to them, connects with them, builds trust and always refines its capabilities.

More specifically, AWS senses in order to understand customer behavior and encourage innovation as well as creativity at CPE actor site. Seizing happens because AWS wants to benefit from long-term free cash flows, joint value propositions and accelerated innovation. The followed transformation helps AWS to benefit from network effects, gained customer trust and encouraged collaboration in the CPE.

RQ2.2: To what extent can we verify former research? What can we add to the literature?

We can confirm all of the former research that has been addressed to investigate the reasons for developing dynamic capabilities (Wang and Ahmed, 2007). Long term market-based and financial performance are the main reasons for the development of dynamic capabilities, whereby we add the strong customer satisfaction and orientation component with this research.

RQ3: How do CPPs use dynamic capabilities?

RQ3.1: How do CPPs use specific DC explications?

Specifically, AWS uses a variety of processes, tools and mechanisms in order to develop dynamic capabilities. They master the management of entrepreneurial activities to drive an innovation culture that is clearly obsessed with satisfying customer relationships. Listening to trends, insights and metrics realigns the marketing efforts. This not only helps to drive reshaping decisions about the business model. Furthermore, it facilitates future-oriented and long-term contribution in the own cloud platform ecosystem. Knowledge management that is strictly directed towards the CPE, embraced network effects and reduced customer lock-ins help to succeed in the transformation phase.

RQ3.2: To what extent can we verify former research?

Former research about the specific DC-generating activities and processes for CPPs has not existed specifically. We can only verify former research from Isckia and Lescop (Isckia & Lescop, 2009) that specified the open-innovation-related DC building activities like strong support, collaboration and partnership-building within the CPE.

RQ4: With whom do CPPs use dynamic capabilities?

RQ4.1: What interrelations occur between CPPs and other actors within its ecosystem?

Along DC paths AWS interrelates to a variety of other ecosystem actors. Those are predominantly cloud recipients, partners and outside innovators (researchers). To some extent AWS also interferes with entrepreneurs and competitors.

RQ4.2: What intensity distributions among different ecosystem actors can we detect?

AWS uses dynamic capabilities with differing levels of intensity among the CPE actors. By far the strongest connection they build with cloud recipients and partners. Less intense links are built with investors and research institutes. DC-related orientations towards competitors hardly take place as AWS does not get its innovation drive from competitive pressure, but from customer insights.

RQ4.3: To what extent can we verify former research?

We can generally confirm the work of Mayevski (Mayevski, 2014) and Tsujimoto et al. (Tsujimoto at al., 2015). The prior cloud platform ecosystem synthesis occurs to be confirmed, because strong links to all the participants in AWS's ecosystem could be identified except for regulators. We investigated predominantly DC-related interactions. We can assume that AWS interferes with regulators and policy makers in more compliance-related activities.

RQ5: What outcomes caused by strategic responses of CPPs that are based on dynamic capabilities can be identified?

AWS has been using all strategic responses like exploitations, upgrades, realignments and extensions. AWS's announcements reflect a very strong notion of upgrade events. This means they very often upgrade their already existing services

to make them even more suitable for specific purposes, presumably always adapting their services to fully meet the customer requirements. Also, AWS extends their services very often, thus bringing services to new markets.

RQ5.1: To what extent can we verify former research?

From this point of view we can confirm Tsai's research about platform strategy responses. The various means of strategic responses to environmental changes in platform ecosystems have been identified, categorized and analyzed. More importantly we first apply this scheme to an actual real life case in the cloud platform domain and see the dynamics in this process through chronologies.

6.2 Managerial implications

The implications of the integrated framework and its successful application and analysis in the research setting of AWS should be of great interest for both practitioners in (cloud) platform companies and platform actors. The main contribution of this thesis to management practice lies in the identification of a cohesive set of drivers to stimulate the development of dynamic capabilities in CPEs – and thus long-lasting competitive advantage and financial performance. To facilitate lasting platform success, growth and leadership, this thesis postulates that it is central for managers of technology platforms to understand the control levers for the development of abilities for dynamic environmental change in a comprehensive manner.

6.3 An integrated framework of DCs within CPEs

Finally, we get to an integrated view about the explications of dynamic capabilities in cloud platform ecosystems (Figure 20). The symbiosis consists of all major theoretical and managerial implications.

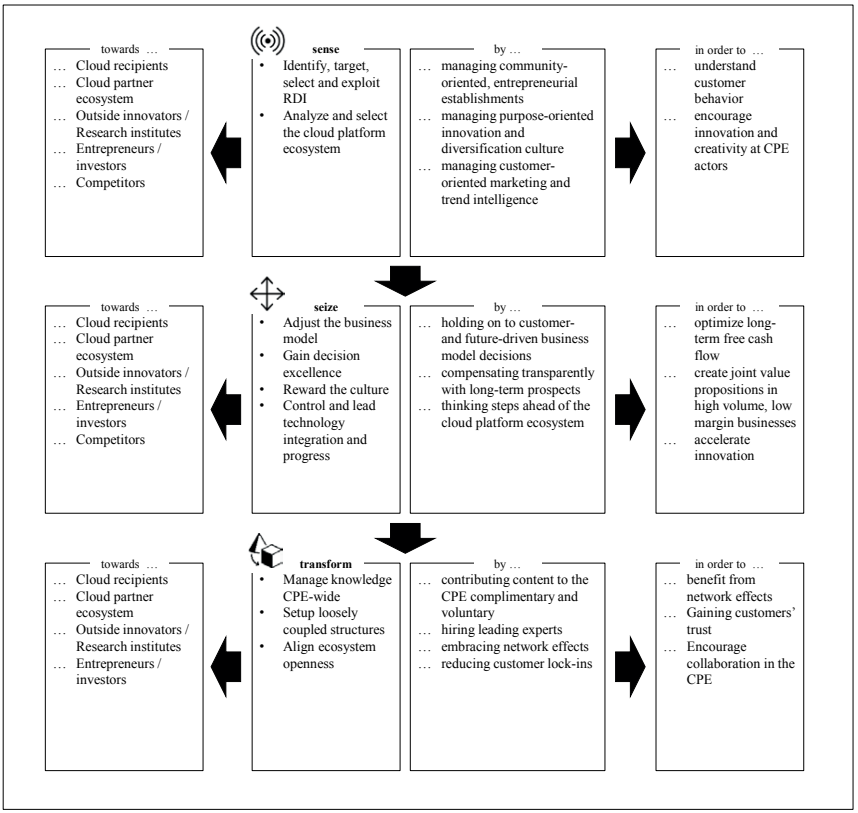

Figure 19: Theoretical and managerial implications for DCs in CPEs

6.4 Quality of the study

Quality in the domain of case studies

The quality of this study can rated as very high based on Yin's criteria for judging the quality of case study research designs. As we mentioned in chapter 5.1, good case study quality is based on the validity and reliability of the study. As shown in Figure 11, we fulfill all four categories to good extent. Thus, we can conclude that our results are valid because of a high research validity (Yin, 2009). We use data triangulation through a lot of archival data for construct validity (Gibbert et al., 2008).

Test category	Case study tactic (based on Yin, 1998, 2009, Gibbert, Ruigrok and Wicki 2008)	Research section	Activity in this research
Construct validity	use multiple data sources	Case collection	Yes, fulfilled
	build sequences of evidence	Case collection	Yes, fulfilled
	adopt questions from former research in the same field	Case design	Yes, fulfilled
External validity	describe case firms' situation and context	Case selection	Yes, fulfilled
	apply cross-case analysis	Case analysis	No, further research should cover this
	Use replication logic in multiple-case studies	Case analysis	No, further research should cover this
	Use rival theories within single cases	Case analysis	No, further research should cover this
Internal validity	base research focus on conceptual frameworks gathered from literature review	Case design	Yes, fulfilled
	do pattern matching	Case analysis	Yes, fulfilled
	do explanation building	Case analysis	Yes, fulfilled
	do time series analysis	Case analysis	Yes, fulfilled
	do logic models	Case analysis	Yes, fulfilled
	use multiple information	Case collection	Yes, fulfilled
Reliability	Utilize a case study protocol	Case collection; Case analysis	Yes, fulfilled
	build a case study database	Case collection	Yes, fulfilled

Table 13: Means used in order to optimize the quality of this study

Quality in the domain of dynamic capabilities

In order to enhance the quality of this thesis we successfully diminish methodological quality issues some other work created in the past. The research field of dynamic capabilities generated a lot of attention and a few authors also have researched about the methodological quality issues some work holds (Hurmerinta-Peltomäki & Nummela, 2006; Wang & Ahmed, 2007; Barreto, 2009; Eriksson, 2013).

Unlike DC research of inferior quality, we guarantee that the applied methodology is suitable for the certain field of DC research because we described the DC's microfoundations applied to cloud platform ecosystems in detail. Moreover, the transferability and reproducibility of our research is assured, because we justify all research design decisions. We include the whole life span of AWS. Thus we do not only use cross-sectional data. We only incorporate trustworthy resources into our case study database, e.g. we excluded forum entries. Our research is based on widely accepted DC measures. In this case the microfoundations of Teece are widely accepted. We include a lot of secondary data. This leads to a much more comprehensive view than primary data would deliver that only comes from managers. Moreover, using a mixed-method research approach leads to higher quality too (Hurmerinta-Peltomäki & Nummela, 2006).

We successfully incorporate quantitative data and create a multi-dimensional view on the DCs (e.g. actor-wise and time-wise) (Wang & Ahmed, 2007). We use a large variety of different analytic techniques. Our research is rather concentrated on an in-depth analysis than on cross-cases (Eriksson, 2013).

Quality in the domain of mixed-methods research

In the research field of mixed-methods research we increase the quality by having a clear and concise focus for the research purpose that could be gathered out of the conceptual frameworks. The research has always logic and sound explanations justifying the design and interpretation decisions. A suitable code book and detailed formulas for the quantification of qualitative data leads to higher grade of the study, too. Last but not least a proper generalization is successful (Bazeley, 2004).

6.5 Main findings

The present study was designed to analyze what, how and why cloud platform providers develop and apply dynamic capabilities in cloud platform ecosystems. The results confirmed the expected manifoldness of DCs developed by CPPs, while including many different CPE actors in order to gain competitive advantages, growth and financial profitability. The direction of analysis was led by strategic responses emitted by AWS in order to deal with dynamic environmental change.

All in all some of the obtained results were astonishing and unexpected. We did not expect that AWS announcements would fit so well into our chronology model that is based on strategy responses. All in all, AWS responded with all possible strategic actions: exploitations, realignments, extensions and upgrades. The announcement rate reflects the exponential financial growth of AWS (see Appendix B6). Although we thought to see much more realignment-focused strategy response mechanisms, the update-heavy responses reflect the tactical maneuvers of AWS better. This is because AWS continuously listens to customer feedback and immediately adapts the service configuration. That also could be an indicator for potential operational dynamic capabilities. Although the evidence showed that AWS is using a huge set of dynamic capabilities, we could not imagine that AWS is that much focused towards customers and partners. The roadmapping technique we applied on the IoT trend topic is suitable for the visualization of the interrelations of the dynamic capabilities with participating actors in the CPE, environmental dynamism and finally strategic outcomes.

The ecosystem is one of the crucial elements of their success. We could detect this in the network analysis consisting of actor intensity analysis and actor network interrelations. We expected AWS to have much more interrelations to e.g. competitors. In terms of dynamic capabilities AWS seems to have no connections to regulators. Interestingly, almost all dynamic capability groups in the network view are oriented towards external actors, except "aligning reward systems".

We could confirm the dynamic capability paths proposed by Teece (Teece, 2007), also we could figure them out in a much more fine-grained fashion. The dynamic capability explications helped to argue a variety of DC actions and reasons. Also, a few unexpected insights have been uncovered about AWS's explicit

dynamic capabilities. The unconventional leadership and decision culture with its pragmatic, detail-oriented and optimistic culture surprised us further. All in all we did not expect these detailed results at the beginning.

6.6 Limitations and future research

Although, our research design led us to plenty of insights about the dynamic capabilities in cloud platform ecosystems, there are a few limitations that possibly restricted our insights. We find limitations in the literature review, in the methodology and in the case study. Removing the limitations leads to open questions that should be discovered in further research.

The literature review could have revealed a limited scope of research because of our deductive generation of research generation. Here we focused on an inductive approach. In some means we neglected to experiment, and rather concentrated on confirming known things in other research areas and allow the knowledge transfer. This is further acknowledged because we strongly focused on Teece's (Teece, 2007) and Venkatraman et al.'s (Venkatraman et al., 2014) dynamic capabilities. One could argue that the dynamic capability levels are too generic and thus offer a limited level of investigation. The finalized research questions could not allow a very detailed investigation on operations level.

Our case study design is rather biased from the data available as secondary data. We do not make use of primary data that could have been collected through conducting interviews. From this could follow that journalists/marketing departments/HR departments of secondary data may have corrupted (false) or exaggerated the data. To some point we neglected the data because of quality suspiciousness (e.g. social media, forums, etc.). Frequent data conversion could have led to blurred data that could have been misinterpreted. Furthermore, we conducted a single case and have chosen the market leader AWS. A cross-case design with the incorporation of competitors that recently entered the market would be interesting. Furthermore, the generalizability of interpretation is limited. Our coding methodology was rather deductive than inductive. A more exploratory coding method from that new codes emerge could have led to insights outside of our conceptual frameworks.

While conducting our case study analysis the intensity of CPE actor relations as well as DCs was determined subjectively. It barely relied on the researcher's opinion based on objective characteristics. Thus, classifications, e.g. in the field of AWS announcements to strategy response mapping or DC actor intensity could be biased. Furthermore, we neglected to interpret statistical relationships between AWS strategy responses and dynamic capability explications. With our investigation on dynamic capabilities we did not include an operationalized process level, e.g. measuring dynamic capabilities. For simplicity reasons we analyzed the DCs on regard to a high level structure of CPE actors, e.g. cloud recipients instead of a

differentiation of private, business and governmental consumers. Thus we neglected the fourth level (level IV Actors) for simplicity reasons.

Further research needs to address the questions of to what extent dynamic capabilities of a competitor that recently entered the market would differ. The same questions could be answered for market followers like Google Cloud or Microsoft Azure. Would interviews with lower level executives like managers and engineers confirm our results? Would an exploratory coding methodology reveal new dynamic capabilities, beyond the conceptual frame of the synthesized frameworks?

How would that look like in the case of AWS? Can we gather more insights when we investigate DCs of CPEs in more fine-grained actor distinctions? How can we measure and operationalize dynamic capabilities in an applicable research context (Macher & Mowery, 2009; Barreto, 2009)? More internal study about various internal operational and strategic measurements that scope the platform ecosystem evolution could be of high interest as well. Tiwana introduces short, medium and long term proxy measures for platform success (Tiwana, 2013). An econometric analysis of the deep relationships between environmental change, dynamic capability explication and strategic response could be helpful to deduce managerial decision paths for successful platform management. For this also the modelling of capabilities could be helpful (Zdravkovic, 2013).

7. Conclusion

This in-depth case study analysis revealed what explicit dynamic capabilities (DCs) Amazon Web Services (AWS) developed as well as their intentions and activities of execution.

We concluded that AWS uses a vast set of dynamic capabilities while sensing business opportunities, seizing their business model and transform this to long-term strategy. In order to gain competitive advantages and financial performance they predominantly manage their entire ecosystem in excessive customer-oriented and innovative ways. Enhancing the customer value by business model readjustments with the help of partner groups leads to long-term, high free cash flows. Openness, modularity and ecosystem-wide knowledge management helps further to gain customer and partner network effects and ultimately leads to exponential growth.

While developing and using dynamic capabilities AWS interacts with a variety of actors, whereas we see the most intense interrelations with customers and partners. Environmental changes in conjunction with a strong sense of dynamic capabilities lead to strategic responses that are mostly of upgrading and realignment nature.

We contributed to the existing literature in that we first synthesized the understanding of dynamic capabilities in cloud platform ecosystems into conceptual frameworks. Secondly, we collected a vast, publicly available case study database and applied DC- and CPE-oriented analysis methods. The interpretation results in a compact conceptual framework with that we contribute to management practice and theoretical research. With these contribution steps we could answer the questions of what, how, why and with whom AWS uses DCs.

Although, we contribute to the literature with our findings, even more insights probably could be gathered by conducting cross-case analyses, applying an inductive coding methodology and using primary interview data.

Moreover, future research needs to address the operationalization of dynamic capabilities, econometric relationships as well as cloud platform providers that recently entered the market.

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9. Appendix

9.1 Appendix A: Case study database

Appendix A1: Data sources

Source category / explanation	Filename	URL(s) / Retrieval date
AWS job vacancies *Job opportunities and descriptions from Amazon job portal selected for AWS jobs*	Amazon_jobvas_1_4211.pdf	*https://www.amazon.jobs/en/search?base_query=&job_count=4221&result_limit=4221&sort=relevant&business_category%5B%5D=amazon-web-services&cache* downloaded at 19.06.2016
	AWS_job-vacancies_1-1000.pdf	crawled and processed at 19.06.2016
	AWS_job-vacancies_1001-2000.pdf	crawled and processed at 19.06.2016
	AWS_job-vacancies_2001-3000.pdf	crawled and processed at 19.06.2016
	AWS_job-vacancies_3001-4210.pdf	crawled and processed at 19.06.2016
AWS blog pages *Blog entries from AWS and its partners about technical and managerial issues, solutions, concepts and best practices*	AWS_Blogs_255pages.pdf	*https://aws.amazon.com/de/blogs/aws/* *https://aws.amazon.com/de/blogs/aws/page/2/* … *https://aws.amazon.com/de/blogs/aws/page/255/* crawled and processed at 18.06.2016
	AWS_APN_Blogs_21pages.pdf	*https://aws.amazon.com/de/blogs/apn/* *https://aws.amazon.com/de/blogs/apn/page/2/* … *https://aws.amazon.com/de/blogs/apn/page/21/* crawled and processed at 18.06.2016
AWS whitepapers *Report from AWS and its ecosystem actors about AWS economy, architecture and security*	AWS_Whitepapers.pdf	*https://aws.amazon.com/de/whitepapers/* crawled and processed at 18.06.2016
AWS investor information *Annually published information about AWS internal revision and external accounting: annual reports, stakeholder letters and proxy statemens*	AWS_investor_information.pdf	*http://phx.corporate-ir.net/phoenix.zhtml?c=97664&p=irol-reportsannual* crawled and processed at 19.06.2016
AWS customer/partner case studies *Customer and partner success stories about the practical implementation, use, administration and managerial implications of AWS products*	AWS_Customer_Case_Studies_701.pdf	*https://aws.amazon.com/solutions/case-studies/all/* crawled and processed at 18.06.2016
	AWS_Partner_Case_Studies_16.pdf	*https://aws.amazon.com/partners/success/* crawled and processed at 18.06.2016
AWS books *Managerial books about AWS introduction, use and optimization*	Rossmann_2015.pdf	*https://books.google.de/books?id=9txICgAAQBAJ&pg=PT10&lpg=PT10&dq=%22amazon+web+services%22+learning+from+mistakes&source=bl&ots=b9Nnj_-WDr&sig=ox6hUvLmLj8VJP07GmVvobxyUrE&hl=de&sa=X&ved=0ahUKEwjUrJ2l08rNAhWIRhQKHb70DLIQ6AEIazAQ#v=onepage&q=%22amazon%20web%20services%22%20learning%20from%20mistakes&f=false* downloaded at 28.06.2016
	Golden_2013.pdf	*http://fit.mta.edu.vn/files/DanhSach/Book_Amazon%20webservices%20for%20dummies.pdf* downloaded at 20.06.2016
AWS industry reports *Analyst reports about AWS's market development and services, as well as general AWS-oriented cloud trends*	AWS_Analyst_reports.pdf	*https://aws.amazon.com/de/resources/analyst-reports/* crawled and processed at 18.06.2016

Source category / explanation	Filename	URL(s) / Retrieval date
AWS articles *Newspaper and internet articles written by well-known press that present news about cloud computing business*	Lindner_2013_11_19_faz.pdf	*http://www.faz.net/aktuell/wirtschaft/unternehmen/amazon-web-services-jeff-bezos-sind-gewinne-nicht-egal-12671600.html* downloaded at 10.06.2016
	Voss_2013_09_21_wiwo.pdf	*http://www.wiwo.de/technologie/digitale-welt/nsa-skandal-es-gibt-keine-hintertueren-bei-amazon/8822464.html* downloaded at 10.06.2016
	Hohensee_2015_11_30_wiwo.pdf	*http://www.wiwo.de/unternehmen/it/amazons-goldesel-heisst-werner-vogels-dieser-mann-bringt-jeff-bezos-die-milliarden/12640866-all.html* downloaded at 10.06.2016
	Matzer_2015_07_24_cloudcomputinginsider.pdf	*http://www.cloudcomputing-insider.de/index.cfm?pid=11036&pk=898872&type=article&fk=498564* downloaded at 10.06.2016
	Vogels_2014_05_15_theguardian.pdf	*http://www.theguardian.com/media-network/media-network-blog/2014/may/15/amazon-werner-vogels-cloud-computing* downloaded at 10.06.2016
	Asay_2014_07_25_readwrite.pdf	*http://readwrite.com/2014/07/25/amazon-web-services-enterprise-domination-werner-vogels/* downloaded at 10.06.2016
	Martin_Geier_2015_07_02_itbusiness.pdf	*http://www.it-business.de/unternehmen-draengen-in-frankfurter-amazon-cloud-a-496429/* downloaded at 10.06.2016
	Malik_2013_12_30_gigaom.pdf	*https://gigaom.com/2013/12/30/amazon-cto-werner-vogels-cloud-and-saas-are-going-global-fast/* downloaded at 10.06.2016
	Dignan_2010_06_24_zdnet.pdf	*http://www.zdnet.com/article/amazon-cto-vogels-counters-private-cloud-pitch/* downloaded at 10.06.2016
	Malik_2010_02_01_gigaom.pdf	*https://gigaom.com/2010/02/01/amazon-cto-werner-vogels-on-amazon%E2%80%99s-web-services-startups-and-innovation/* downloaded at 10.06.2016
	Butler_2015_07_16_networkworld.pdf	*http://www.networkworld.com/article/2948983/cloud-computing/three-things-i-learned-from-chatting-with-amazon-s-cto.html* downloaded at 10.06.2016
	Vogels_2015_02_04_computerwoche.pdf	*http://www.computerwoche.de/a/werner-vogels-verraet-die-cloud-trends-2015,3093297* downloaded at 10.06.2016
	Benz_2015_06_30_heise.pdf	*http://www.heise.de/newsticker/meldung/Amazon-Web-Services-Cloud-Dateisystem-zum-Ausprobieren-2732003.html* downloaded at 10.06.2016
	Price_2016_03_12_businessinsider.pdf	*http://www.businessinsider.de/werner-vogels-amazon-builds-it-own-tech-2016-3?r=US&IR=T* downloaded at 10.06.2016
	Ruggiero_2015_10_08_siliconangle.pdf	*http://siliconangle.com/blog/2015/10/08/amazon-ecosystem-expands-with-aws-iot-reinvent/* downloaded at 10.06.2016
	Bort_2013_05_19_businessinsider.pdf	*http://www.businessinsider.com/former-amazon-employee-working-on-amazons-cloud-can-be-a-dull-job-2013-5?IR=T* downloaded at 10.06.2016
	Bensinger_2014_01_07_wsj.pdf	*http://www.wsj.com/articles/SB10001424052702304753504579285133045398344* downloaded at 10.06.2016
	Büst_2015_06_03_crisp.pdf	*https://www.crisp-research.com/aws-summit-berlin-2015-deutschland-ist-auf-public-cloud-kurs/* downloaded at 10.06.2016
	Harris_2009_03_26_theguardian.pdf	*https://www.theguardian.com/technology/2009/mar/26/amazon-adam-selipsky* downloaded at 10.06.2016
	Furrier_2015_01_29_medium.pdf	*https://medium.com/@furrier/original-content-the-story-of-aws-and-andy-jassys-trillion-dollar-baby-4e8a35fd7ed#.uikzb4vj6* downloaded at 17.06.2016
	Hook_2015_11_04_financialtimes.pdf	*http://www.ft.com/cms/s/0/f19dbe5e-7d7b-11e5-a1fe-567b37f80b64.html#axzz4BrtOBlb5* downloaded at 17.06.2016
	Rao_2015_06_28_fortune.pdf	*http://fortune.com/2015/06/28/andy-jassy-amazon-web-services/* downloaded at 17.06.2016
	McLaughlin_2015_08_04_crn.pdf	*http://www.crn.com/print/news/cloud/300077657/andy-jassy-amazons-6-billion-man.htm* downloaded at 17.06.2016
	Taylor_2015_10_07_cnbc.pdf	*http://www.cnbc.com/2015/10/07/this-is-why-amazon-wont-spin-off-amazon-web-services.html* downloaded at 17.06.2016
	Fritzgerald_2015_03_04_businessinsider.pdf	*http://www.businessinsider.com.au/it-is-time-for-amazon-web-services-to-get-out-of-amazon-2015-3* downloaded at 17.06.2016
	Brandon_2013_09_17_bcn.pdf	*http://www.businesscloudnews.com/2013/09/17/awss-andy-jassy-attacks-archaic-private-cloud-vendors/* downloaded at 17.06.2016
	Greene_2014_11_12_seattletimes.pdf	*http://www.seattletimes.com/business/amazon-web-services-growing-fast-more-datacenters-in-works/* downloaded at 17.06.2016
	Gallagher_2016_04_08_retailgazette.pdf	*http://www.retailgazette.co.uk/blog/2016/04/amazon-promotes-vps-as-recognition-of-their-services* downloaded at 17.06.2016
	Lopez_2012_04_22_gigaom.pdf	*https://gigaom.com/2012/04/22/why-we-chose-the-aws-marketplace-no-one-else-is-close/* downloaded at 20.06.2016

Source category / explanation	Filename	URL(s) / Retrieval date
	Morgan_2015_04_09_nextplatform.pdf	*http://www.nextplatform.com/2015/04/09/how-in-hell-will-any-cloud-ever-catch-aws/* downloaded at 20.06.2016
	Hottovy_2015_10_23_analysisreport.pdf	*http://analysisreport.morningstar.com/stock/research/c-report?&t=XNAS:AMZN&region=usa&culture=zh-TW&productcode=QS&cur=&urlCookie=8997523520&e=eyJhbGciOiJSU0EtT0FFUCIsImVuYyI6IkExMjhHQ00ifQ.eYs57E4rNn2aO0mdtQy4usd4MgSf5udSvrSfPlx1CR8UvQL-J2fAl-VM8li_sYc2QXO6QycfEv8yVzZ2N7bvNHC1yYrw-7azD4-Pf7enaNTK3hrGGLRpuQvnb2f6YaVrl-rfNY9qF3MT8zv4yY_C5NnYALL7i3LU5WCtOqboUw.iwvYb9QzHz9tiTU6.b1EtzaNCVJLTwN7nrWWU9ZQn7_OGtfjlvpEdxG7NfHa1yz5DACf2DqQpY81QZyqOxd0tKNnorEdis7OdtDYjf3cciQOYIv1UMV7KsW15niMGxHHw1nh4ozFv3nYdqLDS71TH6mxu-rpQGcH18aD8HBBdTvFussfYiSI7U88YebdZhlGyZVxBAiYvgZteGXZN1xQKJTWc1Z2pQPdzn9-KaIDqVz2XsG87r6LOGk.SkvwYrJFtA4f2pft6D_Jxg* downloaded at 20.06.2016
	Schonfeld_2008_04_21_anand.pdf	*http://anand.typepad.com/datawocky/2008/04/a-herald-of-rev.html* downloaded at 20.06.2016
	Subramanian_2011_02_23_cloudave.pdf	*https://www.cloudave.com/10151/will-amazons-video-streaming-service-hurt-netflix/* downloaded at 26.06.2016
	Duryee_2015_05_19_geekwire.pdf	*http://www.geekwire.com/2015/cloud-wars-amazon-is-the-clear-leader-with-microsoft-a-distant-second/* downloaded at 28.06.2016
	Brachmann_2015_05_01_ipwatchdogs.pdf	*http://www.ipwatchdog.com/2015/05/01/modest-patent-portfolio-amazon-web-services/id=57252/* downloaded at 01.07.2016
	Delaney_2012_08_06_morrisonfoerster.pdf	*http://www.sociallyawareblog.com/2012/08/06/look-before-you-leap-amazon-web-services-customers-may-be-subject-to-an-ip-covenant-not-to-sue/* downloaded at 01.07.2016
	Darrow_2015_01_22_gigaom.pdf	*https://gigaom.com/2015/01/22/in-aws-cloud-contracts-as-in-life-read-before-signing/* downloaded at 01.07.2016
	Trappler_2012_01_17_computerworld.pdf	*http://www.computerworld.com/article/2501452/data-center/when-your-data-s-in-the-cloud--is-it-still-your-data-.html* downloaded at 01.07.2016
	Mininman_2013_12_16_wikibon.pdf	*http://wikibon.org/wiki/v/Hyper-specialization_is_the_secret_sauce_to_Amazon_Web_Services* downloaded at 01.07.2016
	Woods_2013_11_06_thenextweb.pdf	*http://thenextweb.com/insider/2013/11/06/amazon-open-source-software-drives-innovation-startups/#gref* downloaded at 09.07.2016
	Writer_2015_03_10_itnews.pdf	*http://www.itnews.com.au/feature/the-rise-of-innovation-platforms-401043/page0* downloaded at 09.07.2016
	Trondsen_2015_04_06_siliconvikings.pdf	*http://siliconvikings.com/blog/2015/4/6/innovation-outposts-a-growing-element-in-silicon-valleys-dynamic-innovation-ecosystem* downloaded at 09.07.2016
	Schrage_2014_04_30_hbr.pdf	*https://hbr.org/2014/04/how-innovation-ecosystems-turn-outsiders-into-collaborators/* downloaded at 09.07.2016
	Lunden_2015_10_07_techcrunch.pdf	https://techcrunch.com/2015/10/07/amazons-aws-is-now-a-7-3b-business-as-it-passes-1m-active-enterprise-customers/ downloaded at 30.08.2016
AWS news pages *News about AWS published by press.*	AWS_News_186pages.pdf	*https://aws.amazon.com/de/about-aws/in-the-news/* crawled and processed at 08.05.2016
AWS interviews *Interviews done with top executives of AWS about platform's management*	Werner_Vogels_2006_05_16_infoq.pdf	*https://www.infoq.com/news/Amazon-CTO-Werner-Vogels-on-SOA* downloaded at 10.06.2016
	Werner_Vogels_2008_07_31_virtualization.pdf	*http://virtualization.com/2008/07/31/werner-vogels-cto-amazon-video-intervie/* downloaded at 10.06.2016
	Werner_Vogels_2015_04_29_cnbc.pdf	*http://www.cnbc.com/2015/04/24/cloud-set-to-take-over-retail-in-10-years-amazon-cto.html* downloaded at 10.06.2016
	Werner_Vogels_2008-12-19_informationweek.pdf	*http://www.informationweek.com/it-leadership/qanda-amazon-cto-werner-vogels/d/d-id/1075053?page_number=1* downloaded at 10.06.2016
	Werner_Vogels_2015_02_15_zeit.pdf	*http://www.zeit.de/2015/05/amazon-speicherplatz-technik-vorstand-werner-vorgels* downloaded at 09.06.2016
	Werner_Vogels_2013_09_20_channelpartner.pdf	*http://www.channelpartner.de/a/amazon-will-ueber-partner-die-unternehmens-it-erobern,2614958* downloaded at 09.06.2016
	Werner_Vogels_2014_06_24_mit.pdf	*https://www.technologyreview.com/s/528471/three-questions-with-amazons-technology-chief-werner-vogels/* downloaded at 09.06.2016
	Werner_Vogels_2009_11_27_computerweekly.pdf	*http://www.computerweekly.com/news/1280097046/Interview-Amazon-CTO-Werner-Vogels-on-why-CIOs-love-clouds* downloaded at 09.06.2016
	Werner_Vogels_2014_07_19_recode.pdf	*http://www.recode.net/2014/7/19/11628994/talking-the-cloud-business-with-amazon-cto-werner-vogels* downloaded at 09.06.2016

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	Werner_Vogels_2006_05_22_acm.pdf	*http://queue.acm.org/detail.cfm?id=1142065* downloaded at 11.05.2016
	Werner_Vogels_2011_11_02_odbms.pdf	*http://www.odbms.org/blog/2011/11/on-big-data-interview-with-dr-werner-vogels-cto-and-vp-of-amazon-com/* downloaded at 10.06.2016
	Geier_Rede_2015_04_13_computerwoche.pdf	*http://www.computerwoche.de/a/rz-in-frankfurt-kein-marketing-instrument,3096997* downloaded at 10.06.2016
	Andy_Jassy_2013_11_08_allthingsd.pdf	*http://allthingsd.com/20131108/nine-questions-for-andy-jassy-head-of-amazon-web-services/* downloaded at 10.06.2016
	Andy_Jassy_2012_11_28_techcrunch.pdf	*http://techcrunch.com/2012/11/28/an-interview-with-amazon-web-services-senior-vice-president-andy-jassy/* downloaded at 10.06.2016
	Andy_Jassy_2010_04_29_itnews.pdf	*http://www.itnews.com.au/tools/print.aspx?ciid=173364* downloaded at 10.06.2016
	Steffen_Krause_2013_08_26_t3n.pdf	*http://t3n.de/news/cloud-dienste-startups-amazon-web-services-486480/* downloaded at 10.06.2016
	Andy_Jassy_2014_10_23_managermagazin.pdf	*http://www.manager-magazin.de/unternehmen/it/jassy-hohe-volumina-und-niedrige-margen-das-moegen-wir-a-998947.html* downloaded at 17.06.2016
	Andy_Jassy_2013_11_12_wsj.pdf	*http://www.wsj.com/articles/SB10001424052702304868404579194353031011652* downloaded at 17.06.2016
	Andy_Jassy_2012_11_28_geekwire.pdf	*http://www.geekwire.com/2012/amazon-web-services-andy-jassy-build-paternal-service/* downloaded at 10.06.2016
	Jeff_Bezos_2013_01_hbr.pdf	*https://hbr.org/2013/01/jeff-bezos-on-leading-for-the/* downloaded at 26.06.2016
AWS announcements *Announcements about AWS's strategic and tactical movements in time*	AWS_Announcements_1570.pdf	*https://aws.amazon.com/de/about-aws/whats-new/2016/* … *https://aws.amazon.com/de/about-aws/whats-new/2004/* crawled and processed at 08.05.2016
AWS research papers *Research papers about AWS's strategic and tactical management decisions, processes and structure*	Isckia and Lescop_2009.pdf	*https://core.ac.uk/download/files/153/6332974.pdf* downloaded at 01.07.2016
	Haug, Kretschmer and Strobel_2016.pdf	*http://www.sciencedirect.com/science/article/pii/S0308596115001238* downloaded at 01.07.2016
	Kolakowski_2009.pdf	*http://www.ic2.utexas.edu/ictpi/mirror/porto2009/papers/43_Platform%20Leadership%20in%20Software%20as%20a%20Service_Bartlomiej%20K.pdf* downloaded at 01.07.2016

Appendix A2: Quotations

P 1: Amazon_jobvas_1_4211.pdf - 1:1 [We are taking all the industry..] (7:1082-7:1201) (Super)
We are taking all the
industry trends and blending them into the critical foundation of utility computing: the network.
P 1: Amazon_jobvas_1_4211.pdf - 1:2 [Want to design and build the n..] (12:495-12:671) (Super)
Want to design and build the next generation Customer Information Platform and Tools ground up
using cloud technologies to power a flexible, scalable customer analytics engine?
P 1: Amazon_jobvas_1_4211.pdf - 1:3 [Job Description Are you comfor..] (20:1498-20:1681) (Super)
Job Description Are you comfortable making decisions that analyze market data, product features and
business terms to develop recommendations that represent a winwin for all parties?
P 1: Amazon_jobvas_1_4211.pdf - 1:4 [Global Alliance Manager - Stra..] (3:1517-3:1615) (Super)
Global Alliance Manager - Strategic Technology Partnerships
US, CA, San Francisco | Job ID: 418646
P 1: Amazon_jobvas_1_4211.pdf - 1:5 [Manager Network Scaling and In..] (10:723-10:804) (Super)
Manager Network Scaling and Integration, Singapore
SG, Singapore | Job ID: 418038
P 1: Amazon_jobvas_1_4211.pdf - 1:6 [Knowledge Management Librarian..] (269:1410-269:1439) (Super)
Knowledge Management Librarian
P 2: AWS_job-vacancies_1-1000.pdf - 2:1 [kills. - Extensive customer ne..] (1245:2900-1245:2965) (Super)
kills.
- Extensive customer network.
- Strong leadership skills.
P 2: AWS_job-vacancies_1-1000.pdf - 2:2 [lls. Â· Extensive customer net..] (1383:1867-1383:1902) (Super)
lls.
Â· Extensive customer network.
P 2: AWS_job-vacancies_1-1000.pdf - 2:3 [kills. - Extensive customer ne..] (1384:2468-1384:2533) (Super)
kills.
- Extensive customer network.
- Strong leadership skills.

P 2: AWS_job-vacancies_1-1000.pdf - 2:4 [Â· Strong verbal and written c..] (1544:1-1544:110) (Super)
Â· Strong verbal and written communications skills
Â· Extensive customer network Â· Strong leadership skills
P 2: AWS_job-vacancies_1-1000.pdf - 2:5 [y. Â· Understand the infrastru..] (82:214-82:302) (Super)
y.
Â· Understand the infrastructure market segments, customer base, and industryvertica
P 2: AWS_job-vacancies_1-1000.pdf - 2:6 [We have an exciting opportunit..] (115:850-115:971) (Super)
We have an exciting opportunityfora Strategic Transformation Managerforour Enterprise segmenttojoin ourfast
growing
P 2: AWS_job-vacancies_1-1000.pdf - 2:7 [ct community. Â· Understand th..] (144:2119-144:2196) (Super)
ct community.
Â· Understand the AWS market segments, customer base, and indus
P 2: AWS_job-vacancies_1-1000.pdf - 2:8 [ies. Your responsibilities wil..] (147:1370-147:1727) (Super)
ies. Your responsibilities
will include helping to define key public sector market segments to target, driving the necessary business and technical relationships
with customers and partners to establish new business in those markets, and enabling the sales team drive the day-to-day
interactions with prospects in orderto build long-term business opportu
P 2: AWS_job-vacancies_1-1000.pdf - 2:9 [egy. Â· Help define the AWS pu..] (147:2829-147:2931) (Super)
egy.
Â· Help define the AWS public sector market segments, customer base, and industryverticals we ta
P 2: AWS_job-vacancies_1-1000.pdf - 2:10 [Â· Develop campaigns to create..] (196:3268-196:3368)
(Super)
Â· Develop campaigns to create awareness and increase service adoption forthe target market segments
P 2: AWS_job-vacancies_1-1000.pdf - 2:11 [Specific responsibilities incl..] (198:910-198:1175) (Super)
Specific responsibilities include the following:
Â· Creating the Product Strategyfor Developer Support and Business Support product offerings

Â· Create and define specific product and service offerings that align with the needs ofthe corresponding market segment
P 2: AWS_job-vacancies_1-1000.pdf - 2:12 [Â· Defining product requiremen..] (198:1478-198:1612)
(Super)
Â· Defining product requirement documents based on an intimate knowledge ofthe specific market segments, target
customers, and produc
P 2: AWS_job-vacancies_1-1000.pdf - 2:13 [Global Segment Leader, Devops] (261:1168-261:1196) (Super)
No codes No memos
Global Segment Leader, Devops
P 2: AWS_job-vacancies_1-1000.pdf - 2:14 [Amazon Web Services (AWS) is l..] (261:1796-261:1986)
(Super)
Amazon Web Services (AWS) is looking foran experienced candidate to build, own and manage the strategic plan and
competency
program forourtop partners focused on the DevOps market segment
P 2: AWS_job-vacancies_1-1000.pdf - 2:15 [You: We are seeking web devel..] (359:1572-359:1748)
(Super)
You: We are seeking web developers with industryexperience who are passionate about enhancing
customersatisfaction,
operational performance, and growing market segment share

P 2: AWS_job-vacancies_1-1000.pdf - 2:16 [oals. Byestablishing and growi..] (386:1492-386:1746) (Super)
oals. Byestablishing and growing business and technical relationships, and managing the day-to-day interactions with
these
partners, you will be responsible fordriving top line revenue growth and overall end customeradoption across all owned segments.
P 2: AWS_job-vacancies_1-1000.pdf - 2:17 [· Intermediate/advanced knowle..] (473:3544-473:3651)
(Super)
· Intermediate/advanced knowledge ofthe AWS services, market segments, customer base and industryverticals
P 2: AWS_job-vacancies_1-1000.pdf - 2:18 [Â· Defining product requiremen..] (599:1198-599:1334)
(Super)

Â· Defining product requirements documents based on an intimate knowledge ofthe specific market segments, target
customers, and product
P 2: AWS_job-vacancies_1-1000.pdf - 2:19 [Â· Defining product requiremen..] (628:1933-628:2069)
(Super)
Â· Defining product requirements documents based on an intimate knowledge ofthe specific market segments, target
customers, and product
P 2: AWS_job-vacancies_1-1000.pdf - 2:20 [ica. Â· The Field Marketing Ma..] (765:294-765:514) (Super)
ica.
Â· The Field Marketing Manager is an integral part ofthe outbound marketing team who is responsible fordelivering programs aimed
at Enterprise sales audiences and will be the face ofmarketing forthe segment sal
P 2: AWS_job-vacancies_1-1000.pdf - 2:21 [- Use ofstatistical functions ..] (44:1882-44:1981) (Super)
- Use ofstatistical functions to correlate various data elements to establish trends and forecasts.
P 2: AWS_job-vacancies_1-1000.pdf - 2:22 [· Awareness ofcurrent and futu..] (199:2304-199:2379) (Super)
· Awareness ofcurrent and future trends in the relational database industry
P 2: AWS_job-vacancies_1-1000.pdf - 2:23 [oting skills. Â· Track record ..] (291:2858-291:3041) (Super)
oting skills.
Â· Track record in investing time in the development ofothers byactively mentoring and educating the larger SDE
communityon
trends, technologies, and best practices.
P 2: AWS_job-vacancies_1-1000.pdf - 2:24 [Drive trend and systemic issue..] (338:2360-338:2421) (Super)
Drive trend and systemic issues identification across the team
P 2: AWS_job-vacancies_1-1000.pdf - 2:25 [You will analyze trends involv..] (382:2538-383:41) (Super)
You will analyze trends involving the industry players, vendors, customers, and technologyto develop strategies to reduce cost, minimize risk, protect continuity of supply, and exploit emerging opportunities allowing AWS to meet and exceed its goals
P 2: AWS_job-vacancies_1-1000.pdf - 2:26 [Reviewand approve a comprehens..] (383:1111-383:1325)
(Super)

Reviewand approve a comprehensive list of suppliers for bid processes developed by analyzing the industry to
understand trends
and competitive positioning ensuring system activation of the best possible supply bas
P 2: AWS_job-vacancies_1-1000.pdf - 2:27 [Cloud und Web-Services sind Tr..] (644:1341-644:1486)
(Super)
Cloud und
Web-Services sind Trends die sich in den vergangenen Jahren in der IT etabliert haben und für die Zukunft nicht mehrwegzudenken
sind
P 2: AWS_job-vacancies_1-1000.pdf - 2:28 [Activelyseeking solutions to c..] (740:1296-740:1451) (Super)
Activelyseeking solutions to customer needs, communicating trends to leadership, and suggesting innovative
solutions on behalf of the customerexperience.
P 2: AWS_job-vacancies_1-1000.pdf - 2:29 [By undertaking programs that d..] (802:641-802:760) (Super)
By undertaking programs that define orchange industry
trends we are continuously raising the baron customerexperienc
P 2: AWS_job-vacancies_1-1000.pdf - 2:30 [Strategy& Innovation: articula..] (842:2025-842:2354) (Super)
Strategy& Innovation: articulate business/industryfundamentals (e.g., ROI, CBA, TCO); understand regulations and
operational
excellence (e.g., SOX, Lean, SixSigma); familiaritywith business strategy frameworks (e.g., Norton/Kaplan, Blue/Red Ocean, NABC) and trends in the IT industry(e.g., CI/CD, IoT, Predictive Analytics)
P 2: AWS_job-vacancies_1-1000.pdf - 2:31 [By undertaking programs that d..] (866:1428-866:1547)
(Super)
By undertaking programs that define orchange industry
trends we are continuously raising the baron customerexperienc
P 2: AWS_job-vacancies_1-1000.pdf - 2:32 [Have a strong understanding of..] (1447:2648-1447:2704)
(Super)
Have a strong understanding of game technology and trends
P 2: AWS_job-vacancies_1-1000.pdf - 2:33 [ts. You must be creative in so..] (34:883-34:998) (Super)
ts. You must be creative in

solving hard problems in the Infrastructure space and unafraid to think out-of-the-box.

P 2: AWS_job-vacancies_1-1000.pdf - 2:34 [Amazon offers an exciting, dyn..] (38:1686-38:1891) (Super)

Amazon offers an exciting, dynamic and challenging environment encouraging creativity and personal
developmentwhile maintaining
Our computing environments in a secure, scalable, and cost-effective manner.

P 2: AWS_job-vacancies_1-1000.pdf - 2:35 [Injoining ourteam, you'll enjo..] (70:1841-70:2045) (Super)

Injoining ourteam, you'll enjoya competitive salary, great benefits, a creative and comfortable work environment, and
the exciting
Opportunity to be part ofa fast-paced and growing technologycompany.

P 2: AWS_job-vacancies_1-1000.pdf - 2:36 [Delivering a reliable, scalabl..] (88:1903-88:2045) (Super)

Delivering a reliable, scalable, and high-performance service requires engineers with exceptional technical expertise
and fearless creativity.

P 2: AWS_job-vacancies_1-1000.pdf - 2:37 [Strong and creative problem so..] (93:2891-93:2935) (Super)

Strong and creative problem solving abilities

P 2: AWS_job-vacancies_1-1000.pdf - 2:38 [Abilityto think and work creat..] (262:3410-262:3536) (Super)

Ability to think and work creatively to develop unique joint value propositions and product strategy within a
Partner ecosystem

P 2: AWS_job-vacancies_1-1000.pdf - 2:40 [You learn from your mistakes, ..] (1239:1381-1239:1456)
(Super)

You learn from your mistakes, and you love working with really smart people.

P 2: AWS_job-vacancies_1-1000.pdf - 2:41 [. Ifthis is you, AWS is a uniq..] (2:2009-2:2204) (Super)

. Ifthis is you, AWS is a unique place where you can design and build innovative technologies in a very large
distributed computing environment and help lead fundamental changes in the industry.

P 2: AWS_job-vacancies_1-1000.pdf - 2:42 [You need to not only be a top ..] (5:2367-5:2519) (Super)

You need to not only be a top software developer with a good track
record of delivering, but also excel in communication, leadership and customer focus.

P 2: AWS_job-vacancies_1-1000.pdf - 2:43 [Excellent leadership, verbal a..] (6:1463-6:1523) (Super)
Excellent leadership, verbal and written communication skills
P 2: AWS_job-vacancies_1-1000.pdf - 2:44 [Mentorotherengineers, define t..] (3:170-3:245) (Super)
Mentor other engineers, define the technical culture, and help grow the team
P 2: AWS_job-vacancies_1-1000.pdf - 2:45 [Ourteam finds ways to move fas..] (9:1793-9:1924) (Super)
non-economic factors, value and culture - Family: What] [SeizeB: Select decision-making protocols - Family: What] [SeizeC: Build loyalty and commitment - Family: What]
Ourteam finds ways to move faster bycross training, process automation, removing non-value add activities, and
improving quality.
P 2: AWS_job-vacancies_1-1000.pdf - 2:46 [Ourteam is looking for individ..] (8:1276-8:1377) (Super)
Ourteam is looking for individuals with specific qualities in addition to the technical requirements.
P 2: AWS_job-vacancies_1-1000.pdf - 2:47 [You've succeeded at so manydif..] (8:2380-8:2489) (Super)
You've succeeded at so manydifferentthings thatyou don't like being labeled as one specific type ofperson.
P 2: AWS_job-vacancies_1-1000.pdf - 2:48 [The ideal candidate will posse..] (262:785-262:973) (Super)
The ideal candidate will possess a strong background in technology partnerships and cloud solutions along with
strong business
development, strategic alliances, and entrepreneurial skills.
P 2: AWS_job-vacancies_1-1000.pdf - 2:49 [Oursuccess depends on ourworld..] (34:271-34:410) (Super)
Oursuccess depends on ourworld-class network infrastructure; we're handling massive scale and rapid integration of
emergenttechnologies.
P 2: AWS_job-vacancies_1-1000.pdf - 2:50 [Diving deep into open source t..] (49:251-49:398) (Super)
Diving deep into open source technologies like Hadoop, Hive, Pig, Hbase, and Spark to build features, fixbugs, and
improve
performance bottlenecks
P 2: AWS_job-vacancies_1-1000.pdf - 2:51 [Address bottlenecks, provide e..] (136:1577-136:1779) (Super)

Address bottlenecks, provide escalation management, anticipate and make tradeoffs, balance the business needs
versus
technical constraints, and encourage risk-taking behavior to maximize business benefi
P 2: AWS_job-vacancies_1-1000.pdf - 2:52 [Work cross-functionallyto mana..] (162:1927-162:2113)
(Super)
Work cross-functionally to manage bottlenecks, provide escalation management, anticipate issues, balance business
needs
versus team constraints, and champion a great customer experience.
P 2: AWS_job-vacancies_1-1000.pdf - 2:53 [Demonstrated abilityto adaptto..] (99:335-99:401) (Super)
Demonstrated abilityto adapt to newtechnologies and learn quickly
P 2: AWS_job-vacancies_1-1000.pdf - 2:54 [We need someone who is willing..] (103:747-103:875) (Super)
We need someone who is willing to learn fast and raise the quality bar by both testing and influencing the
development processes.
P 2: AWS_job-vacancies_1-1000.pdf - 2:55 [Should be genuinelyexcited abo..] (104:3269-104:3396)
(Super)
Should be genuinelyexcited abouttechnology, have a strong interest in learning about and playing with the
latesttechnologies.
P 2: AWS_job-vacancies_1-1000.pdf - 2:56 [Create and reviewdocumentation..] (12:1139-12:1279) (Super)
Create and review documentation and process regarding recurring issues, newstandard operating procedures,
knowledge transfer material, etc.
P 2: AWS_job-vacancies_1-1000.pdf - 2:57 [Leverage knowledge ofyourcusto..] (98:2858-98:2989) (Super)
Leverage knowledge of your customers' environments to assist support engineers and service teams in
betterserving your customers
P 2: AWS_job-vacancies_1-1000.pdf - 2:58 [You are the type ofperson that..] (180:1201-180:1336) (Super)
You are the type of person that codes for fun, quicklywins the respect of peers, and jumps at the chance to share
knowledge and mentor

P 2: AWS_job-vacancies_1-1000.pdf - 2:59 [Leverage knowledge ofinternal ..] (201:1536-201:1608)
(Super)
Leverage knowledge of internal and industry priorart in design decisions
P 2: AWS_job-vacancies_1-1000.pdf - 2:60 [Proactivelysupport knowledge s..] (368:1145-368:1220)
(Super)
Proactively support knowledge sharing within the team and across the company
P 2: AWS_job-vacancies_1-1000.pdf - 2:61 [Share knowledge and help educa..] (546:679-546:779) (Super)
Share knowledge and help educate your peers on the best practices related to all service owner issues
P 2: AWS_job-vacancies_1-1000.pdf - 2:62 [A Security Engineer IIwill pro..] (629:2599-629:2765) (Super)
A Security Engineer II will proactively share knowledge across the Amazon Community and will be a key company resource in one or more of the core areas of security. T
P 2: AWS_job-vacancies_1-1000.pdf - 2:63 [Mentoring: Share knowledge and..] (927:824-927:945) (Super)
Mentoring: Share knowledge and help educate less technical staffon the best practices related to all service owner
issues
P 2: AWS_job-vacancies_1-1000.pdf - 2:64 [knowledge acquired from releva..] (19:3143-19:3189) (Super)
knowledge acquired from relevant job experience
P 2: AWS_job-vacancies_1-1000.pdf - 2:65 [Contributing patches and impro..] (49:404-49:460) (Super)
Contributing patches and improvements back to open source
P 2: AWS_job-vacancies_1-1000.pdf - 2:66 [do everything to delight ourcu..] (71:1248-71:1577) (Super)
do everything to delight ourcustomers directly- build libraries, tools and applications to improve day-1 customer
experience, connect directly with customeron forums, blog posts and meet-ups to increase awareness, and contribute
to open source
community. You will shape the product roadmap, strategy and evangelize technology
P 2: AWS_job-vacancies_1-1000.pdf - 2:67 [Throughoutyourjob you will be ..] (102:654-102:820) (Super)
Throughoutyourjob you will be guiding yourteam of 5+ developers to collaborate with internal teams and the Open
Source

Community to improve the LinuxOS components
P 2: AWS_job-vacancies_1-1000.pdf - 2:68 [Contribute intellectual proper..] (201:1719-201:1767) (Super)
- Family: What] [TransformA: Manage knowledge - Family: What]
Contribute intellectual property through patents.
P 2: AWS_job-vacancies_1-1000.pdf - 2:69 [Experience in TDD techniques &..] (28:2318-28:2370) (Super)
Experience in TDD techniques & Continuous Integration
P 2: AWS_job-vacancies_1-1000.pdf - 2:70 [You will integrate a wide rang..] (31:892-31:1046) (Super)
You will integrate a wide range ofexisting AWS
infrastructure to deliver large-scale, high-throughput distributed services consumed by mobile developers.
P 2: AWS_job-vacancies_1-1000.pdf - 2:71 [Successful candidates will be ..] (62:1352-62:1626) (Super)
Successful candidates will be responsible fordesigning innovative solutions using AWS
services, integrating with existing systems and implementing newsystems to drive the building and operation of an effective, data
driven, automated security control monitoring solution.
P 2: AWS_job-vacancies_1-1000.pdf - 2:72 [Integration ofAWS cloud servic..] (64:3181-64:3283) (Super)
- Family: What] [TransformC: Support open innovation and modularity - Family: What]
Integration of AWS cloud services with on-premise technologies from Microsoft, IBM, Oracle, HP, SAP etc
P 2: AWS_job-vacancies_1-1000.pdf - 2:73 [integrating ourcustomerâ€™s IT..] (75:127-75:191) (Super)
integrating ourcustomerâ€™s IT infrastructure with Cloud storage
P 2: AWS_job-vacancies_1-1000.pdf - 2:74 [AWS Storage Gateway is a servi..] (75:3223-75:3459) (Super)
- Family: What] [TransformC: Support open innovation and modularity - Family: What]
AWS Storage Gateway is a service connecting an on-premises software appliance with cloud-based storage to provide
seamless
and secure integration between an organizationâ€™s on-premises IT environment and AWS's storage infrastructure.
P 2: AWS_job-vacancies_1-1000.pdf - 2:75 [The successful candidate will ..] (78:1642-78:1856) (Super)
The successful candidate will have a proven track record of success in delivering complex projects, including

coordinating and driving
issues to resolution autonomously utilizing excellent project management skills
P 2: AWS_job-vacancies_1-1000.pdf - 2:76 [AWS is seeking talented engine..] (86:1117-86:1342) (Super)
- Family: What] [TransformC: Support open innovation and modularity - Family: What]
AWS is seeking talented engineers, well versed in DevOps technologies, automation, infrastructure
orchestration, configuration management and continuous integration, who are not constrained by howâ€œthings are usuallydoneâ€
P 2: AWS_job-vacancies_1-1000.pdf - 2:77 [One or more DevOps, Orchestrat..] (87:727-87:874) (Super)
One or more DevOps, Orchestration/Configuration Management and Continuous Integration technology(e.g. Chef,
Puppet,
Docker, Jenkins, Ansible etc.)
P 2: AWS_job-vacancies_1-1000.pdf - 2:78 [This includes project manageme..] (107:2816-107:3005)
(Super)
This includes project management, quality audits and coordination of training sessions with senior-level engineers as well as day-to-dayoversight of the team including scheduling of shifts
P 2: AWS_job-vacancies_1-1000.pdf - 2:79 [Cross-Site, Cross-Team Coordin..] (107:3009-107:3576)
(Super)
Cross-Site, Cross-Team Coordination
You will be responsible for coordinating with yourcounterparts to ensure that a clear communication channel exists between AWS and
Retail teams. You will also work closely with other Operations, Systems and Network teams to create and maintain a proper process
For transitioning operational responsibilities to the Infrastructure and Platform Automation team. A portion of this process will include
establishing both solid operational acceptance criteria and a concrete feedback loop for resolving deviations from that process.
P 2: AWS_job-vacancies_1-1000.pdf - 2:80 [The successful candidate will ..] (108:1356-108:1570) (Super)
The successful candidate will have a proven track record ofsuccess in delivering complex
projects, including coordinating and driving issues to resolution autonomously utilizing excellent project management skills
P 2: AWS_job-vacancies_1-1000.pdf - 2:81 [Experience with service-orient..] (40:1785-40:1846) (Super)

Experience with service-oriented architecture and web services
P 2: AWS_job-vacancies_1-1000.pdf - 2:82 [You will have a chance to work..] (127:1986-127:2162) (Super)
You will have a chance to workwith the open source communityand
contribute significant portions its software to open source projects possibly including Hadoop, Pig and Hbase.
P 2: AWS_job-vacancies_1-1000.pdf - 2:83 [Developers in this position wi..] (184:2002-184:2181) (Super)
innovation and modularity - Family: What]
Developers in this position will use a variety of mainstream and open source technologies like Java, C++, Linux, Perl,
Javascript,
Oracle, as well as in-house Amazon technologies.
P 2: AWS_job-vacancies_1-1000.pdf - 2:84 [Self-driven & motivated, with ..] (49:1510-49:1592) (Super)
Self-driven & motivated, with a strong work ethic and a passion for problem solving
P 2: AWS_job-vacancies_1-1000.pdf - 2:85 [Amazon.com offers a demanding,..] (67:1544-67:1721)
(Super)
Amazon.com offers a demanding, exciting and rewarding experience, with opportunities to workwith the world's
best computer
scientists on some of the most interesting problems
P 2: AWS_job-vacancies_1-1000.pdf - 2:86 [You can motivate high skilled ..] (102:1379-102:1445) (Super)
You can motivate high skilled individuals to perform at their best.
P 2: AWS_job-vacancies_1-1000.pdf - 2:87 [Reduce the end-to-end cost ofd..] (12:454-12:502) (Super)
Reduce the end-to-end cost of delivering packets.
P 2: AWS_job-vacancies_1-1000.pdf - 2:88 [Prioritize projects and activi..] (157:1937-157:2025) (Super)
Prioritize projects and activities to deliver maximum cost reductions and reliable supply
P 2: AWS_job-vacancies_1-1000.pdf - 2:89 [Analyze industrytrends and evo..] (157:2161-157:2373)
(Super)
Analyze industry trends and evolving technology to proactively identify supply base opportunities to reduce cost,
minimize risk,
protect continuity of supply, and exploit industry developments that benefit Amazon

P 2: AWS_job-vacancies_1-1000.pdf - 2:90 [Evaluate suppliercore competen..] (157:2777-157:2866)
(Super)
Evaluate supplier core competencies and competitive positioning using industry cost models
P 2: AWS_job-vacancies_1-1000.pdf - 2:91 [Make the business decisions th..] (166:1633-166:1788) (Super)
Make the business decisions that grow adoption and usage of Amazon S3. Set prices, target the right customers, and
focus our
investments in the right areas
P 2: AWS_job-vacancies_1-1000.pdf - 2:92 [Help prioritize AWS investment..] (262:1911-262:2056)
(Super)
Help prioritize AWS investment in partners who focus on the Devops market segmentto drive incremental results for
both AWS
and selected partners
P 2: AWS_job-vacancies_1-1000.pdf - 2:93 [Set a strategic business devel..] (147:2942-147:3059) (Super)
Set a strategic business development plan fortarget markets and ensure it's in line with the AWS strategic direction.
P 2: AWS_job-vacancies_1-1000.pdf - 2:94 [Defining product requirement d..] (196:2998-196:3130)
(Super)
Defining product requirement documents based on an
intimate knowledge ofthe specific market segments, target customers, and product
P 2: AWS_job-vacancies_1-1000.pdf - 2:95 [Build and strengthen the partn..] (303:1881-303:1966) (Super)
Build and strengthen the partnercommunityto generate businesses in the target market
P 2: AWS_job-vacancies_1-1000.pdf - 2:96 [Define and size target market ..] (691:2364-691:2472) (Super)
Define and size target market segments, customer base, and key partners including ISVs and system integrators
P 2: AWS_job-vacancies_1-1000.pdf - 2:97 [Using our business intelligenc..] (272:2310-272:2524) (Super)
Using our
business intelligence platform, we also drive complexdata analysis to understand customer behavior, and to find hidden patterns in
data thatwill help us design future products that customers will love.

P 2: AWS_job-vacancies_1-1000.pdf - 2:98 [Experience driving a technical..] (60:1359-60:1474) (Super)
Experience driving a technical global product and team with end to end inbound and outbound product
responsibilities
P 2: AWS_job-vacancies_1-1000.pdf - 2:99 [Exceptional customer relations..] (52:2229-52:2268) (Super)
Exceptional customer relationship skills
P 2: AWS_job-vacancies_1-1000.pdf - 2:100 [understanding customer require..] (64:1578-64:1612) (Super)
understanding customer requirements
P 2: AWS_job-vacancies_1-1000.pdf - 2:101 [Abilityto gathercustomer requi..] (77:1216-77:1254) (Super)
Ability to gather customer requirements
P 2: AWS_job-vacancies_1-1000.pdf - 2:102 [understand current and future ..] (246:4640-246:4720)
(Super)
understand current and
future customer needs and present AWS technical benefits.
P 2: AWS_job-vacancies_1-1000.pdf - 2:103 [Workwith partners to extend re..] (32:2022-32:2075) (Super)
Workwith partners to extend reach & promote adoption.
P 2: AWS_job-vacancies_1-1000.pdf - 2:104 [help partners and customers le..] (64:1211-64:1265) (Super)
help partners and customers learn and use
AWS services
P 2: AWS_job-vacancies_1-1000.pdf - 2:105 [Develop long-term strategic pa..] (82:1220-82:1290) (Super)
Develop long-term strategic partnerships in support ofour key markets.
P 2: AWS_job-vacancies_1-1000.pdf - 2:106 [Handle ad-hoc incoming inquiri..] (82:1296-82:1377) (Super)
Handle ad-hoc incoming inquiries and qualify them as potential vendors or partners
P 2: AWS_job-vacancies_1-1000.pdf - 2:107 [Afterjoining, you have quickly..] (102:414-102:555) (Super)
Afterjoining, you have quickly become a key partner to the leadership team, where you will understand its core
business goals and priorities
P 2: AWS_job-vacancies_1-1000.pdf - 2:108 [Workwith AWS engineering teams..] (112:2013-112:2131)
(Super)

Workwith AWS engineering teams to convey partnerand enterprise customer feedback as input to
AWS technology roadmaps
P 2: AWS_job-vacancies_1-1000.pdf - 2:109 [Applyadvanced troubleshooting ..] (238:1671-238:2014)
(Super)
Apply advanced troubleshooting techniques to provide unique solutions to ourcustomers' individual needs. These
May vary from
customers attempting to use oursystems forthe firsttime, all the way up to large scale enterprise customers processing and
transforming billions ofdata records perdaywith use cases spanning multiple industries.
P 2: AWS_job-vacancies_1-1000.pdf - 2:110 [The Data Analytics team within..] (272:1660-272:2308)
(Super)
The Data Analytics team within EBS is looking for innovative engineers to design, build, and growthe next generation
ofourdata
analytics platform. We own data analytics and reporting on both operational and business data, and strive to become the trusted
source ofactionable insights to the EBS business. We are the monitors of EBS service health and EBS business growth, continuously
looking to drive bettercustomerexperiences. Ourengineers work closelywith data scientists on interesting problems involving big
data, machine learning, data mining, statistical analysis, and forecasting on massive structured and unstructured data sets.
P 4: AWS_job-vacancies_2001-3000.pdf - 4:1 [AmazonWebServices(AWS)israpidl..] (346:447-346:625)
(Super)
Amazon WebServices(AWS)israpidlyexpanding itspresence inmultiple industriesand countries,offeringa publiccloud
meetinga
wide rangeofsecuritycompliance requirements
P 5: AWS_job-vacancies_3001-4210.pdf - 5:1 [TheAWS SolutionsArchitecture P..] (17:1942-17:2363)
(Super)
TheAWS SolutionsArchitecture Program ManagementOffice (PMO)is
lookingforanexperienced contentlibrarianand curatorwho is passionateaboutreuse, discoverability, and enabling othersto

succeed. Inthis roleyouwillworkwithSAs, keystakeholders, and program managersto manageand evolveourknowledge managementsystem (KMS)whileenhancing the leveragabilityand discoverabilityofthe contentwe produce.

P 5: AWS_job-vacancies_3001-4210.pdf - 5:2 [planning, creating, maintainin..] (17:2388-17:2517) (Super)

planning, creating, maintaining and integrating shared typologiesthatenhancetheabilitytodiscoverand reuse
relevantcontent.

P 5: AWS_job-vacancies_3001-4210.pdf - 5:3 [AmazonWeb Services (AWS)is rap..] (997:2309-997:2569)
(Super)

AmazonWeb Services (AWS)is rapidlyexpanding itsglobal presence.AWS adheresto multiple industryframeworks
bystrategically
implementing newIT processesand productsecurityfeaturestoaccommodatethe requirementsand toexpand ourglobalcustomer
base

P 6: AWS_APN_Blogs_21pages.pdf - 6:1 [A need to differentiate and in..] (4:866-4:933) (Super)

A need to differentiate and innovate while growing business revenue.

P 6: AWS_APN_Blogs_21pages.pdf - 6:2 ["Working with AWS has transfor..] (11:1108-11:1716) (Super)

"Working with AWS has transformed what we provide to our customers," says Pietrasanta. "We've always thrived in
the digitalservices and
application development space, but our ability to leverage AWS in order to provide customers with a full end-to-end solution has transformed the
type ofwork we do for customers and has transformed Aquilent as a company, allowing us to specialize and help our customers evolve into Agile,
Continuous Integration, Continuous Delivery and Deployment, and DevOps."
Aquilent has seen significant business growth on AWS, experiencing
cloud growth of 566% over the last year.

P 6: AWS_APN_Blogs_21pages.pdf - 6:3 ["Our acceptance into the progr..] (11:1903-11:2194) (Super)

"Our acceptance into the program highlights our advanced offerings in the cloud managed services space,
which includes the tools necessary to deliver continuous innovation around security, DevOps, proactive monitoring,
and streamlined management of
customer environments," says Pietrasanta.

P 6: AWS_APN_Blogs_21pages.pdf - 6:4 [AWS Innovation Partner – Fusio..] (30:50-30:82) (Super)

- Family: To whom] [Innovate - Family: What]
AWS Innovation Partner – Fusionex
P 6: AWS_APN_Blogs_21pages.pdf - 6:5 [Let's Innovate Together on Beh..] (37:2563-37:2776) (Super)
Let's Innovate Together on Behalf of Customers – Join the APN
by Dorothy Copeland | on 20 APR 2016 | in APN Channel Reseller Program, APN Consulting Partners, APN Technology Partners, AWS Competency, MSPs On AWS |
P 6: AWS_APN_Blogs_21pages.pdf - 6:6 [Partners in Innovation: Announ..] (64:1783-64:1867) (Super)
Partners in Innovation: Announcing the AWS 2016 City on a Cloud
Innovation Challenge
P 6: AWS_APN_Blogs_21pages.pdf - 6:7 [AWS and a panel ofworldwide ex..] (64:2348-64:2663) (Super)
AWS and a panel ofworldwide experts will award a total of $250,000 in AWS promotionalcredits to eight grand prize
winners from three award
categories: Best Practices, Partners in Innovation, and Dream Big, a category that recognizes the best ideas for a cloud innovation, and award credits
for its implementation.
P 6: AWS_APN_Blogs_21pages.pdf - 6:8 [Ericsson is creating a global ..] (81:1261-81:1396) (Super)
Ericsson is creating a global team ofexperts focused on AWS, and is opening cloud innovation centers
with customers, with AWS support.
P 6: AWS_APN_Blogs_21pages.pdf - 6:9 [Infor and AWS share a common e..] (63:1409-63:1561) (Super)
Infor and AWS share a common entrepreneurialspirit, driven by a strong desire to continuously disrupt the market
and innovate on behalfofour customers
P 6: AWS_APN_Blogs_21pages.pdf - 6:10 [One ofthe leaders and most inn..] (96:4680-96:4818) (Super)
One ofthe leaders and most innovative companies unlocking the potential ofcloud-stored imaging data is AWS
Partner Network (APN) Advanced
P 6: AWS_APN_Blogs_21pages.pdf - 6:11 [Increasingly, customers are as..] (173:1789-173:1943) (Super)
Increasingly, customers are asking for AWS MSPs across various industries, serving different customer segments, and
across different regions ofthe world.
P 6: AWS_APN_Blogs_21pages.pdf - 6:12 [We willcontinue to identify IS..] (224:1223-224:1372) (Super)

We willcontinue to identify ISVs who are leaders in their respective market segments and work hard to earn their
commitment to AWS and our customers.
P 6: AWS_APN_Blogs_21pages.pdf - 6:13 [Terry also discussed key trend..] (29:2369-29:2602) (Super)
Terry also discussed key trends representing a large opportunity for Partners on AWS, and Premier Consulting Partner
BlazeClan took the stage to
discuss a successfulcloud migration the company completed for a large company in region.
P 6: AWS_APN_Blogs_21pages.pdf - 6:14 [then discussed what we find to..] (33:945-33:1103) (Super)
then discussed what we find to be some ofthe keys to partner success, along with seven key trends that represent an
enormous opportunity for partners on AWS:
P 6: AWS_APN_Blogs_21pages.pdf - 6:15 [Learn how to increase revenue ..] (1:1309-1:1549) (Super)
Learn how to increase revenue with cloud-based products and services, gain a greater competitive advantage, and
expand your business
Attend sessions that willcover a wide range oftopics relevant to business leaders at Partner organizations
P 6: AWS_APN_Blogs_21pages.pdf - 6:16 [AWS Marketplace Announces New ..] (61:630-61:714) (Super)
AWS Marketplace Announces New AWS Marketplace Metering Service For
3rd Party Sellers
P 6: AWS_APN_Blogs_21pages.pdf - 6:17 [There are five full-day traini..] (62:3366-63:37) (Super)
There are five full-day training bootcamps happening, and the bootcamps have the following pricing structure:AWS
Certified Professionals – $400AUD
P 6: AWS_APN_Blogs_21pages.pdf - 6:18 ["Prior to the cloud, researche..] (172:1829-172:2200) (Super)
"Prior to the cloud, researchers sent hard drives around
in an attempt to collaborate. We now have a different paradigm where we put data in the cloud and bring the scientists to the data, side-by-side with
the EC2 compute resources they need to perform their analysis. AWS is enabling new science, and reducing the turnaround time on many different
types ofanalysis."
P 6: AWS_APN_Blogs_21pages.pdf - 6:19 [Barracuda SignNow: Barracuda S..] (257:1048-257:1134)
(Super)

Barracuda SignNow: Barracuda SignNow cuts document turnaround time by as much as 90%. G

P 6: AWS_APN_Blogs_21pages.pdf - 6:20 [Cloud Choice with AWS is inten..] (46:4382-46:4539) (Super)

Cloud Choice with AWS is intended to help enterprise customers make the right business decisions as they optimize workload migrations and deployments on AWS.

P 6: AWS_APN_Blogs_21pages.pdf - 6:21 [SampleApp_Linux_Consul/key1 va..] (44:2390-44:2423) (Super)

No codes

SampleApp_Linux_Consul/key1 value1

P 6: AWS_APN_Blogs_21pages.pdf - 6:22 [We've clearly shifted away fro..] (3:4368-3:4717) (Super)

We've clearly shifted away from a "should-I-move-tocloud" mentality to "how-do-I-move-to-cloud" and

"what-is-the-right-path-for-me." Enterprises large and small are looking to navigate thejourney

smoothly, plan and architect a strategy, execute a migration at scale, and develop new cloud applications cost-effectively, using leading-edge IT tools.

P 6: AWS_APN_Blogs_21pages.pdf - 6:23 [Editor'snote–ourteam hadgreatc..] (37:2803-37:3007) (Super)

Editor'snote–ourteam

hadgreatconversationswithanumberofcompaniesyester-

dayattheAWSChicagoSummitwhowereinterestedin learningmoreaboutbecomingamemberoftheAWSpartnerecosystem, a

P 6: AWS_APN_Blogs_21pages.pdf - 6:24 [We continuously enhance our te..] (46:1725-46:1856) (Super)

We continuously enhance our technicalcourses to stay current with the pace ofAWS platform updates and incorporate

student feedback.

P 6: AWS_APN_Blogs_21pages.pdf - 6:25 [It involves rapid, continuous ..] (4:1844-4:1983) (Super)

It involves rapid, continuous development and integration to deliver enhanced and new business capabilities through

the use ofAWS services.

P 6: AWS_APN_Blogs_21pages.pdf - 6:26 [There are several ways to inte..] (5:270-5:356) (Super)

There are several ways to

integrate Windows applications in AWS with Active Directory.

P 6: AWS_APN_Blogs_21pages.pdf - 6:27 [These custom processing featur..] (10:974-10:1187) (Super)

These custom processing features may be of particular interest to SaaS providers who may have integrations or
provisioning activities that would
need to be triggered at different steps in the registration process.
P 6: AWS_APN_Blogs_21pages.pdf - 6:28 [You might, for example, have t..] (10:1189-10:1334) (Super)
You might, for example, have third-party integration with a billing system that must
be called each time a new user is being added to the system.
P 6: AWS_APN_Blogs_21pages.pdf - 6:29 [Amazon Cognito has a well-defi..] (10:2586-10:2684) (Super)
Amazon Cognito has a well-defined model for how it integrates with other public identity providers.
P 6: AWS_APN_Blogs_21pages.pdf - 6:30 [It already supports integratio..] (10:2686-10:2729) (Super)
It already supports integration with Google,
P 6: AWS_APN_Blogs_21pages.pdf - 6:31 [But ifyour database is perform..] (20:1425-20:1642) (Super)
But ifyour database is performing poorly while metrics for IOPS and network are in normal ranges,
and while the instance appears to have sufficient memory, the CPUs ofyour chosen instance type may be the bottleneck.
P 6: AWS_APN_Blogs_21pages.pdf - 6:32 [This allows you to forward tra..] (35:5377-35:5483) (Super)
This allows you to forward traffic within a private
VPC without any bandwidth or availability bottlenecks.
P 6: AWS_APN_Blogs_21pages.pdf - 6:33 [Pouring all your customers int..] (54:4323-54:4512) (Super)
Pouring all your customers into a shared, multi-tenant environment places an even higher premium on identifying
opportunities to remove
bottlenecks and improve each customer's experience. T
P 6: AWS_APN_Blogs_21pages.pdf - 6:34 [Another bottleneck in the migr..] (124:4740-124:4812) (Super)
Another bottleneck in the migration process is moving database workloads.
P 6: AWS_APN_Blogs_21pages.pdf - 6:35 [Our modular, flexible approach..] (4:3010-4:3193) (Super)
Our modular, flexible approach to large scale application migrations to AWS comprises five key components with the
various factory production lanes available for application migration
P 6: AWS_APN_Blogs_21pages.pdf - 6:36 [You can use AWS Database Migra..] (150:329-150:669) (Super)

You can use AWS Database Migration Service to migrate your data to and from most widely used commercial and
open-source databases. The
service supports homogenous migrations such as Oracle to Oracle, as well as heterogeneous migrations between different database platforms, such as
Oracle to Amazon Aurora or Microsoft SQL Server to MySQL.

P 6: AWS_APN_Blogs_21pages.pdf - 6:37 [Purpose-driven incentives, suc..] (4:939-4:1001) (Super)

Purpose-driven incentives, such as lowering IT operationalcosts

P 6: AWS_APN_Blogs_21pages.pdf - 6:38 [Timeline-driven incentives, fr..] (4:1008-4:1093) (Super)

Timeline-driven incentives, from the need to shed a legacy data center to M&A activity

P 6: AWS_APN_Blogs_21pages.pdf - 6:39 [For a limited time, we've incr..] (165:759-165:859) (Super)

For a limited time, we've increased the AWS Test Drive start-up bonus to $3,000 in AWS usage credits.

P 6: AWS_APN_Blogs_21pages.pdf - 6:40 [There's never been a better ti..] (164:4043-164:4169) (Super)

There's never been a better time to explore how the AWS Test Drive Program can help you reach your target
customer base on AWS.

P 6: AWS_APN_Blogs_21pages.pdf - 6:41 [As a SaaS solution provider, y..] (71:5363-71:5562) (Super)

As a SaaS solution provider, you should always consider agility and how your personas may or may not be influencing
your ability to respond rapidly
to customer feedback and changes in market dynamics

P 7: AWS_Blogs_255pages.pdf - 7:1 [Driving viralspread globally t..] (52:2013-52:2135) (Super)

Driving viralspread globally to increase network effects, we are signing up new Webshops and Brands at a
tremendous pace. W

P 7: AWS_Blogs_255pages.pdf - 7:2 [. Because Amazon S3 is already..] (3318:3349-3318:3461) (Super)

.
Because Amazon S3 is already supporting BitTorrent OOTB, they can still benefit from the network effect of P2P

P 7: AWS_Blogs_255pages.pdf - 7:3 [After talking to many customer..] (408:2451-408:2803) (Super)

After talking to many customers about their Business Intelligence (BI) needs, we believe that QuickSight will be able to

handle many types ofdataintensive workloads including ad targeting, customer segmentation, forecasting & planning, marketing & sales analytics, inventory & shipment
tracking, IoT device stream management, and clickstream analysis.

P 7: AWS_Blogs_255pages.pdf - 7:4 [As part ofour continued effort..] (618:103-618:303) (Super)

As part ofour continued effort to allow our partners to share their expertise in particular market segments and topical areas, I'm happy to be able to tell you about our new APN Security Competency.

P 7: AWS_Blogs_255pages.pdf - 7:5 [The AWS Partner Network (APN) ..] (641:331-641:529) (Super)

- Family: To whom] [Sense 6: Identifying market segments - Family: What] [SenseB: Analyze and select the environment - Family: What]
The AWS Partner Network (APN) allows partners to differentiate themselves and to share their expertise in particular
market segments and topical
areas by qualifying for one or more APN Competencies.

P 7: AWS_Blogs_255pages.pdf - 7:6 [We are continuing to add value..] (766:577-766:767) (Super)

We are continuing to add value to the AWS Partner Network (APN) by allowing partners to share their expertise in
particular market segments and
topical areas in the form ofAPN Competencies.

P 7: AWS_Blogs_255pages.pdf - 7:7 [For the best availability, we ..] (774:2114-774:2310) (Super)

For the best availability, we recommend that customers
segment their on-premises instances to talk to the closest available region, in much the same way they would segment EC2 instances by region.

P 7: AWS_Blogs_255pages.pdf - 7:8 [In order to address this custo..] (1882:1207-1882:1311) (Super)

In order to address this customer segment, we are launching our new Punched Card Cloud, or PC2 for short.

P 7: AWS_Blogs_255pages.pdf - 7:9 [Heroku, Engine Yard, Twilio, C..] (2978:301-2978:551) (Super)

Heroku, Engine Yard, Twilio, CodeRun are all different in nature and behavior. All ofthem are built using different
technologies and methodologies. All
are targeting different market segments. Allshare one thing in common. They are all built on AWS.

P 7: AWS_Blogs_255pages.pdf - 7:10 [The majority ofour customers r..] (3189:1594-3189:1790) (Super)

The majority ofour customers represent three segments: people looking to use

Amazon S3 as an online collaboration tool, as a reliable store for off-site backups, or as a content delivery network.

P 7: AWS_Blogs_255pages.pdf - 7:11 [And our EU customers from all ..] (3189:1792-3189:1915) (Super)

segments - Family: What] [SenseB: Analyze and select the environment - Family: What]

And our EU customers from all

three segments expressed the need for an EU node of S3 to keep their data confined to the EU.

P 7: AWS_Blogs_255pages.pdf - 7:12 [Understand the AWS market segm..] (3274:697-3274:780) (Super)

Understand the AWS market segments, customer base, and industry verticals we target.

P 7: AWS_Blogs_255pages.pdf - 7:14 [These services, like many othe..] (179:4489-179:4779) (Super)

These services, like many other parts ofAWS, are designed to allow you to focus on the unique and creative aspects

ofyour game, with an emphasis

on rapid turnaround and easy iteration so that you can continue to hone your gameplay until it reaches the desired level ofengagement and fun.

P 7: AWS_Blogs_255pages.pdf - 7:15 [Another question was about the..] (3540:3589-3540:4135) (Super)

Another question was about the turnaround time for vulnerabilities. Chris mentioned that their track record is 24

hours, based on recent history. A

vulnerability was found at 10:00 PM. They had a patch in an hour, but the remaining time was spent testing and creating the final package build.

Jeff Bezos mentioned in Wired magazine (January 13) that, "Iftoday the successful recipe is to put 70 percent ofyour energy into shouting about

your service and 30 percent into making it great, over the next 20 years, I think that's going to invert.

P 7: AWS_Blogs_255pages.pdf - 7:16 [Invent and Simplify – True inn..] (1450:1983-1450:2342) (Super)

Invent and Simplify – True innovation calls for a lot ofdifficult decisions. The innovator must decide what the product

is, and what it is not. We were

breaking new ground when we were designing and building S3, and had to figure out how to handle identity, authentication, billing, security, and

hundreds ofother issues before we could launch the product.

P 7: AWS_Blogs_255pages.pdf - 7:17 [We've also seen a 50 percent r..] (46:1679-46:1864) (Super)

We've also seen a 50 percent reduction in "tickets" and a

98 percent reduction in impactful business outages and incidents—an unexpected benefit that is as valuable as the
cost savings.
P 7: AWS_Blogs_255pages.pdf - 7:18 [With DNS Failover, Route 53 ca..] (1822:1357-1822:1500) (Super)
With DNS Failover, Route 53 can detect an outage ofyour website and redirect your end
users to alternate or backup locations that you specify.
P 7: AWS_Blogs_255pages.pdf - 7:19 [All requests coming in to Modu..] (1912:2199-1912:2382) (Super)
All requests coming in to Modulus are tracked, stored, and made available for analysis
so that you can locate bottlenecks and boost the efficiency and perfomance ofyour application.
P 7: AWS_Blogs_255pages.pdf - 7:20 [Target Audience – Describe the..] (1178:1255-1178:1389) (Super)
Target Audience – Describe the target market and audience for your product or service (businesses, consumers,
teachers, students, etc).
P 8: AWS_Announcements_1570.pdf - 8:1 [AWS Application Discovery Serv..] (1:11304-1:11563) (Super)
AWS Application Discovery Service helps Systems Integrators quickly and reliably plan application migration projects
by
automatically identifying applications running in on-premises data centers, their associated dependencies, and their performance
profile
P 8: AWS_Announcements_1570.pdf - 8:2 [DNS Failover, Amazon Route 53 ..] (41:9580-41:9749) (Super)
DNS Failover, Amazon Route 53 can help detect an outage of your website and redirect your end users to alternate
locations
where your application is operating properly.
P 8: AWS_Announcements_1570.pdf - 8:3 [It means your media files are ..] (43:3012-43:3124) (Super)
"control" platforms - Family: What]
It means your media files are processed faster and with less risk of delay due to bottlenecks at any one
stage.
P 8: AWS_Announcements_1570.pdf - 8:4 [Each partner brings unique cap..] (14:12032-14:12233) (Super)
Each partner brings unique capabilities within their database migration

practice, from specialization in cross-platform migrations to building high availability solutions to setting up a hybrid cloud.

P 8: AWS_Announcements_1570.pdf - 8:5 [We really appreciate customer ..] (34:983-34:1072) (Super)

We really appreciate customer feedback and use it to help us prioritize upcoming features.

P 8: AWS_Announcements_1570.pdf - 8:6 [Based on customer feedback and..] (59:596-59:724) (Super)

Based on customer feedback and usage patterns of Amazon SQS, we have made some changes to the service and its
pricing structure

P 9: AWS_Customer_Case_Studies_701.pdf - 9:1 [Armed with these insights, its..] (124:1020-124:1266)
(Super)

Armed with these insights, its personalization platform allows
travel companies to segment and target each customer individually in real time, and deliver tailored, personalized marketing messages and offers across any communication channel.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:2 [By using AWS, Cloud Kinetics c..] (193:335-193:473)
(Super)

By using AWS, Cloud Kinetics can
market solutions to a range of segments, from
small businesses to enterprise financial institutions.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:3 [The company segmented its busi..] (490:349-490:483)
(Super)

The company segmented its business into two groups:
hosted traffic for InfoSpace branded sites and distribution traffic for partners.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:4 [Observing behavior comprehensi..] (573:2355-573:2549)
(Super)

Observing
behavior comprehensively across media, not just campaigns, reduces bias and provides clients with greater accuracy and more sophisticated segmentation for targeting and analytics.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:5 ["At the same time, our clients..] (574:1844-574:2071)
(Super)

"At the same time, our clients have complete

freedom to change their minds and evolve their segmentation strategies without limits, which would not be possible with traditional, non-cloud-based infrastructure environments.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:6 [AWS Case Study: Razorfish-Razor..] (905:246-905:481)

(Super)

AWS Case Study: RazorfishRazorfish LogoAbout RazorfishRazorfish, a digital advertising and marketing firm, segments users and customers based on the collection and analysis of non-personally identifiable data from browsing sessions.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:7 [Results of the analysis are lo..] (905:1097-905:1368)

(Super)

Results of the analysis are loaded into ad-serving
and cross-selling systems that in turn deliver the segmentation results in real time.The ChallengeA common issue Razorfish has found with customer segmentation is the need to process gigantic click stream data sets.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:8 [InVision estimated that these ..] (1344:2088-1344:2426)

(Super)

InVision estimated that these small companies represented 85 percent of
the contact center market, and therefore represented a vast, untapped customer segment.With a number of cloud providers emerging, InVision wanted to offer a new WFM product delivered via the cloud that would meet the needs of smaller contact center operators.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:9 ["We can deploy our team member..] (3:1065-3:1561)

(Super)

"We can deploy our team members on more strategic,
revenue-generating projects rather than configuring servers and undertaking backup and maintenance activities." The business has also gained double the processing capacity at half the infrastructure costs than would be required with an on-premises or collocated data center.AWS has also provided a platform to enable 91App to expand into South East Asia, where many people access the Internet exclusively through their mobile devices.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:10 [As a result, our work helps le..] (4:572-4:706) (Super)

As a result, our work helps level the playing field, making
everyone's ad revenue, spend, app financials, and job salaries available.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:11 [In an on-premises data center,..] (12:836-12:1150)

(Super)

In an on-premises data center,

we would have had two unpalatable options—stop selling the service while developers worked on the issue, or defer the project launch date," says Booy.But in this situation, AWS auto-scaled, adding additional Amazon EC2 instances until CPU utilization stabilized at 60 percent.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:12 [direct benefits:82% savings in..] (26:1-26:572) (Super)

direct benefits:82% savings in initial stages of the startup versus on-premise deployment70% savings during beta stage versus on-premise deployment60% savings for market launch stage versus on-premise deploymentRoll says, "Indirect benefits are more difficult to quantify, but they include reduced risk of downtime; ability to respond to market conditions without over-provisioning; ability to mobilize resources quickly for a specific event, project, or piece of processing; and ability to correlate infrastructure cost to a business initiatives and revenues.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:13 [This approach enables the team..] (59:2003-59:2416)

(Super)

This approach enables the team to run

queries concurrently rather than sequentially, and take advantage of the ability to provision new Amazon EC2 instances quickly to expand database capacity."The end result is that we have been able to reduce the average turnaround time required to complete scenarios by over 50 percent —improving the quality and timeliness of our service to clients," says Marimuthu.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:14 [largest investment managers wi..] (226:1-226:141)

(Super)

largest investment managers with more than $400B in assets under management, whose use of CloudDOCX on AWS reduced turnaround time by half.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:15 [The much quicker turnaround ha..] (600:2284-600:2810)

(Super)

The much quicker turnaround

has been a win for our department, and for the business in trying to be more agile and more responsive to what is going on in the marketplace."Shahrazad McNeil, Vice President SAP Basis and Security Administration for LIONSGATE, adds: "The speed of building servers, disaster recovery, high availability, and better backup methods are really the wins that we will achieve using AWS."The company avoided acquiring additional data center space, saving an estimated $1M+ over three years.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:16 [AWS greatly reduced our turnar..] (956:943-956:1102)

(Super)

AWS

greatly reduced our turnaround time for scientific inquiry."Professor Petkovic estimates that their computing costs have been reduced by about 20 times.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:17 [In particular, the team was im..] (10:2924-10:3028)

(Super)

In particular, the team was impressed by the innovation and creativity
that could be achieved with AWS.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:18 [The fact that AWS regularly re..] (455:2294-455:2425)

(Super)

The fact that AWS regularly released new
services convinced HubWorks! that AWS shared its passion for innovation and creativity.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:19 [The company's founders also be..] (1:2541-1:2788)

(Super)

The company's founders
also believed that the emergence of AWS from the world's leading e-commerce provider, Amazon.com, gave the cloud provider a legacy and experience that the business could tap into when running its own e-commerce service.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:20 [In addition, now our IT resour..] (26:574-26:850)

(Super)

In
addition, now our IT resources are focused on generating direct value to the business through product enhancement, rather than provisioning, commissioning, and supporting hardware."According to Roll, the company is considering additional AWS services for future use.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:21 [Lee describes the support as "..] (2:1723-2:1862)

(Super)

Lee describes the support as "extremely helpful" in
extracting as much value as possible from the products and features provided by AWS.

P 9: AWS_Customer_Case_Studies_701.pdf - 9:22 ["Introducing new products fast..] (30:407-30:618)

(Super)

"Introducing new products faster boosts our value to our customers, which is a competitive advantage for us."The company is also using AWS for new products and services, such as its new mobile application. "W

P 9: AWS_Customer_Case_Studies_701.pdf - 9:23 [We see AWS as a strategic fit ..] (190:2016-190:2320)

(Super)
We see AWS as a strategic fit for our long-term business strategy."Classle uses Amazon Elastic Compute Cloud (Amazon EC2), with the Amazon Elastic Load Balancing (Amazon ELB), Auto Scaling, and Amazon Elastic Block Storage (Amazon EBS) features, to handle its application and analytics server needs.
P 9: AWS_Customer_Case_Studies_701.pdf - 9:24 ["Why Amazon Web ServicesIATA s..] (465:1467-465:1839)
(Super)
"Why Amazon Web ServicesIATA selected
AWS as its cloud provider because of the pace of innovation at AWS, as well as its big data services portfolio and security features. "We needed the best in breed in terms of cloud platform, so we chose AWS," Buchner says. "Moving to AWS was our only option if we wanted to survive in a world that's going faster and faster."
P 9: AWS_Customer_Case_Studies_701.pdf - 9:25 [Now Aldebaran saves staffing c..] (51:750-51:845)
(Super)
Now Aldebaran saves staffing costs and can quickly and flexibly
adapt to changing market needs
P10: AWS_Partner_Case_Studies_16.pdf - 10:1 ["AWS CloudFormation allows us ..] (3:16287-3:16515)
(Super)
"AWS CloudFormation allows us to automate the build process for customers, which leads to a faster turnaround time
to test and build new customer environments, as opposed to building new environments on-premise," explains Byrd.
P11: AWS_News_186pages.pdf - 11:1 [Of this partnership, Stefan Ja..] (11:1456-11:1699) (Super)
Of this partnership, Stefan Jansen,
Head of Channels and Alliances for AWS Australia and New Zealand, says the services Rackspace is offering will bring added choice to the rapidly growing AWS customer base across all segments in the region.
P11: AWS_News_186pages.pdf - 11:2 [Posted on: January 31, 2014 In..] (101:422-101:653) (Super)
Posted on: January 31, 2014
Infrastructure-as-a-service (IaaS) -- or the delivery of compute, storage and network resources via the cloud -- continues to be the fastest-growing segment of the overall public cloud services market.
P11: AWS_News_186pages.pdf - 11:3 ["The venture, which Amazon exp..] (180:1480-180:1643) (Super)
"The venture, which Amazon expects will grow into a significant business

segment, could help keep the company strong if retailers get hit by an economic downturn.

P11: AWS_News_186pages.pdf - 11:4 [The article concludes, "Knock ..] (2:1194-2:1369) (Super)

The
article concludes, "Knock on wood, we haven't had a single outage on any of our sites on AWS, and none of our sites have been compromised…that's huge, in and of itself."

P11: AWS_News_186pages.pdf - 11:5 [resolve them before end users ..] (7:1220-7:1349) (Super)

resolve them before end users are impacted by an issue, while bottlenecks or underperforming services can be isolated for review.

P11: AWS_News_186pages.pdf - 11:6 [DC Inno covers how AWS has low..] (14:1393-14:1542) (Super)

DC Inno covers how AWS has lowered the barrier for entry in cloud computing and next-gen data storage markets for startups, focusing on AWS customers

P11: AWS_News_186pages.pdf - 11:7 [Network World's Brandon Butler..] (23:1282-23:1458) (Super)

Network World's Brandon Butler reports that "despite having the
largest cloud offering on the market, Amazon Web Services had the least amount of outages among major vendors."

P11: AWS_News_186pages.pdf - 11:8 [AWS Breaking Barriers and Driv..] (73:1317-73:1379) (Super)

AWS Breaking Barriers and Driving Cloud Adoption in
South Asia

P11: AWS_News_186pages.pdf - 11:9 [BBC takes iPlayer video produc..] (74:1421-74:1504) (Super)

BBC takes iPlayer video production to AWS cloud to
beat bottleneck and storage woes

P11: AWS_News_186pages.pdf - 11:10 [In this interview with t3n he ..] (117:969-117:1143) (Super)

In this
interview with t3n he talks about the opportunities offered by cloud services, AWS outages, and data protection fears concerning the use of cloud services like AWS.

P11: AWS_News_186pages.pdf - 11:11 [You will see so much innovatio..] (136:610-136:720) (Super)

You will see so much innovation if
cost is not a barrier," said the man who is seen as one of those who helped

P11: AWS_News_186pages.pdf - 11:12 [Amazon Web Services, fresh off..] (139:1350-139:1496) (Super)

Amazon Web Services, fresh off an outage that brought down big-name sites such as Reddit and Imgur, today announced an 18% price reduction for its

P12: AWS_Whitepapers_109.pdf - 12:1 [The most efficient view of thi..] (137:2205-137:2430) (Super)
The most efficient view of this optimized delivery structure is the development and operations (DevOps) or the development, security, and operations (DevSecOps) models used by highly innovative enterprises such as Netflix.
P12: AWS_Whitepapers_109.pdf - 12:2 [AWS listens to customer feedba..] (572:1272-572:1441) (Super)
AWS listens to customer feedback and continues to innovate with new storage solution and features, providing new combinations of capacity, throughput, and durability.
P12: AWS_Whitepapers_109.pdf - 12:3 [To mitigate this challenge, co..] (148:414-148:623) (Super)
To
mitigate this challenge, consider creating a strategy for segmenting skills and competencies into separate roles and growing additional skills in team members through knowledge transfer and experience.
P12: AWS_Whitepapers_109.pdf - 12:4 [Offered via a pay-as-you-go ut..] (3:2192-3:2463) (Super)
Offered via a pay-as-you-go utility model, where at the end of each month customers simply
pay for their usage.
Allowed the flexibility to fluctuate based on market pricing so that customers can take advantage of the dynamic and competitive nature of cloud pricing.
P12: AWS_Whitepapers_109.pdf - 12:5 [See the pricing pages for each..] (9:1744-9:1862) (Super)
See the pricing
pages for each AWS service you will be using or the AWS Simple Monthly Calculator for full details.
P12: AWS_Whitepapers_109.pdf - 12:6 [Amazon S3 has three pricing co..] (57:2197-57:2361) (Super)
Amazon S3 has three pricing components:
storage (per GB per month), data transfer in or out (per GB per month), and requests (per n thousand requests per month).
P12: AWS_Whitepapers_109.pdf - 12:7 [In normal use, Amazon Glacier ..] (61:1860-61:2057) (Super)
In normal use, Amazon Glacier has three pricing components: storage (per GB per month), data transfer out (per GB per month), and requests (per thousand UPLOAD and RETRIEVAL requests per month).
P12: AWS_Whitepapers_109.pdf - 12:8 [Decreased clinical turnaround ..] (45:2044-45:2107) (Super)
Decreased clinical turnaround times from 4-6 months to 4-6 weeks

P12: AWS_Whitepapers_109.pdf - 12:9 [This approach ensures that cus..] (4:3055-4:3248) (Super)
This approach ensures that customers are getting the best
cloud services to meet their needs, the best value in these services, and the ability to take advantage of market-driven innovation.
P12: AWS_Whitepapers_109.pdf - 12:10 [Organizations that have built ..] (2:1687-2:1983) (Super)
Organizations
that have built successful cloud procurement strategies focus early on facilitating the rapid procurement of services, and on removing needless procurement complexity or irrelevant processes, which may serve as unnecessary barriers to fully realizing the benefits of the cloud.
P12: AWS_Whitepapers_109.pdf - 12:11 [Other connection optimizations..] (214:1404-214:1564) (Super)
Other connection optimizations are also
applied to avoid Internet bottlenecks and fully utilize available bandwidth between the edge location and the viewer.
P12: AWS_Whitepapers_109.pdf - 12:12 [These events can be caused by ..] (487:720-487:912) (Super)
These events can be caused by
technical problems (e.g. viruses, data corruption, human error, etc.) or natural phenomena (e.g. fires, floods, power failures, weather-related outages, etc.).
P12: AWS_Whitepapers_109.pdf - 12:13 [Upon request, AWS may work wit..] (389:2174-389:2265)
(Super)
Upon request, AWS may work with customers
who require AWS' assistance in legal proceedings.
P12: AWS_Whitepapers_109.pdf - 12:14 [Rewarding employees for cloud-..] (141:491-141:597) (Super)
Rewarding employees for cloud-based certifications can
help increase interest in growing cloud skillsets.
P12: AWS_Whitepapers_109.pdf - 12:15 [Do define success metrics and ..] (151:380-151:462) (Super)
Do define success metrics and create incentives aligned to those success
metrics.
P12: AWS_Whitepapers_109.pdf - 12:16 [Developers and system architec..] (869:1612-869:1645) (Super)
- Family: What]
Developers and system
architects
P12: AWS_Whitepapers_109.pdf - 12:17 [Enterprise architects] (869:1800-869:1820) (Super)

Enterprise architects
P12: AWS_Whitepapers_109.pdf - 12:18 [Auditors or risk and complianc..] (869:2015-869:2060) (Super)
Auditors or risk and
compliance professional
P12: AWS_Whitepapers_109.pdf - 12:19 [AWS listens to customer feedba..] (570:982-570:1155) (Super)
AWS listens to customer feedback and continues to innovate with new
instance types and sizes, providing new combinations of CPU, memory, storage, and networking capacity.
P13: AWS_investor_information.pdf - 13:1 [Beginning in the first quarter..] (90:1434-90:1551) (Super)
Beginning in the first quarter of 2015, we changed our reportable segments to North America, International, and
Amazon
P13: AWS_investor_information.pdf - 13:2 [We may have limited or no expe..] (93:2257-93:2375) (Super)
We may have limited or no experience in our newer market segments, and our customers may not adopt our new
offerings.
P13: AWS_investor_information.pdf - 13:3 [In certain international marke..] (94:1653-94:1819) (Super)
In
certain international market segments, we have relatively little operating experience and may not benefit from any first-tomarket advantages or otherwise succeed.
P13: AWS_investor_information.pdf - 13:4 [• conditions or trends in the ..] (98:5749-98:5828) (Super)
• conditions or trends in the Internet and the industry segments we operate in;
P13: AWS_investor_information.pdf - 13:5 [We have a risk analysis proces..] (18:573-18:741) (Super)
We have a risk analysis process and audit tools, including audit protocols, trainings, and scorecards to best
manage what we believe to be key risks in our supply chain
P13: AWS_investor_information.pdf - 13:6 [Our approach to pricing is als..] (36:2817-36:2985) (Super)
Our approach to pricing is also driven by our customer-centric culture – we've dropped prices 51 times, in
many cases before there was any competitive pressure to do so
P13: AWS_investor_information.pdf - 13:7 [In addition to price reduction..] (36:2988-36:3429) (Super)
In addition to price reductions, we've also

continued to launch new lower cost services like Aurora, Redshift, QuickSight (our new Business Intelligence service), EC2 Container Service (our new compute container service), and Lambda (our pioneering server-less computing capability), while extending our services to offer a range of highly cost-effective options for running just about every type of application or IT use case imaginable.

P13: AWS_investor_information.pdf - 13:8 [We even roll out and continuou..] (36:3431-36:3725) (Super)

We even roll out and continuously improve
services like Trusted Advisor, which alerts customers when they can save money – resulting in hundreds of millions of dollars in savings for our customers. I'm pretty sure we're the only IT vendor telling customers how to stop spending money with us.

P13: AWS_investor_information.pdf - 13:9 [Market leadership can translat..] (39:1820-39:1986) (Super)

Market leadership can translate
directly to higher revenue, higher profitability, greater capital velocity, and correspondingly stronger returns on invested capital.

P13: AWS_investor_information.pdf - 13:10 [Well-meaning people internally..] (1199:576-1199:793)
(Super)

What]
Well-meaning people internally and externally worried it would cannibalize Amazon's retail
business, and—as is often the case with consumer-focused innovations—there was no way to prove in advance that it would work.

P13: AWS_investor_information.pdf - 13:11 [As proud as I am of our progre..] (415:2892-415:3305)
(Super)

As proud as I am of our progress and our inventions, I know that we will make mistakes along the way –
some will be self-inflicted, some will be served up by smart and hard-working competitors. Our passion for pioneering will drive us to explore narrow passages, and, unavoidably, many will turn out to be blind alleys. But – with a bit of good fortune – there will also be a few that open up into broad avenues

P13: AWS_investor_information.pdf - 13:12 [In addition, we believe granti..] (22:485-22:690) (Super)

In
addition, we believe granting stock-based compensation to employees at all levels across the Company results in motivated, customer-centric people who think and act like owners because they are owners.

P13: AWS_investor_information.pdf - 13:13 [shareholder value, base salari..] (22:2319-22:2540) (Super)

shareholder value, base salaries for named executive officers are designed to provide a minimum level of cash
compensation and to be significantly less than those paid to senior leadership at similarly situated companies.
P13: AWS_investor_information.pdf - 13:14 [We will work hard to spend wis..] (40:667-40:862) (Super)
We will work hard to spend wisely and maintain our lean culture. We understand the importance of
continually reinforcing a cost-conscious culture, particularly in a business incurring net losses.
P13: AWS_investor_information.pdf - 13:15 [From the beginning, our focus ..] (40:1814-40:1895) (Super)
From the beginning, our focus has been on offering our customers compelling value.
P13: AWS_investor_information.pdf - 13:16 [Our present and future e-comme..] (96:4078-96:4542)
(Super)
Our present and future e-commerce services agreements, other commercial agreements, and strategic alliances create
additional risks such as:
- disruption of our ongoing business, including loss of management focus on existing businesses;
- impairment of other relationships;
- variability in revenue and income from entering into, amending, or terminating such agreements or relationships; and
- difficulty integrating under the commercial agreements.

P13: AWS_investor_information.pdf - 13:17 [the difficulty of incorporatin..] (97:195-97:333) (Super)
the difficulty of incorporating acquired technology and rights into our offerings and unanticipated expenses related
to
such integration;
P13: AWS_investor_information.pdf - 13:18 [the difficulty of integrating ..] (97:340-97:627) (Super)
the difficulty of integrating a new company's accounting, financial reporting, management, information and
information security, human resource, and other administrative systems to permit effective management, and the lack of control if such integration is delayed or not implemented;
P13: AWS_investor_information.pdf - 13:19 [Some decisions are consequenti..] (37:1784-37:2474) (Super)

Some decisions are consequential and irreversible or nearly irreversible – one-way doors – and these
decisions must be made methodically, carefully, slowly, with great deliberation and consultation. If you walk through and don't like what you see on the other side, you can't get back to where you were before. We can call these Type 1 decisions. But most decisions aren't like that – they are changeable, reversible – they're two-way doors. If you've made a suboptimal Type 2 decision, you don't have to live with the consequences for that long. You can reopen the door and go back through. Type 2 decisions can and should be made quickly by high judgment individuals or small groups.

P13: AWS_investor_information.pdf - 13:20 [We will continue to learn from..] (39:3236-39:3302) (Super)

We will continue to learn from both our successes and our failures.

P13: AWS_investor_information.pdf - 13:21 [We regard our trademarks, serv..] (91:3121-91:3929) (Super)

- Family: What] [TransformA: Manage knowledge - Family: What]
We regard our trademarks, service marks, copyrights, patents, domain names, trade dress, trade secrets, proprietary
technologies, and similar intellectual property as critical to our success, and we rely on trademark, copyright, and patent law,
trade-secret protection, and confidentiality and/or license agreements with our employees, customers, partners, and others to
protect our proprietary rights. We have registered, or applied for the registration of, a number of U.S. and international domain
names, trademarks, service marks, and copyrights. Additionally, we have filed U.S. and international patent applications
covering certain of our proprietary technology. We have licensed in the past, and expect that we may license in the future,
certain of our proprietary rights to third parties.

P13: AWS_investor_information.pdf - 13:22 [The People's Republic of China..] (95:589-95:758) (Super)

The People's Republic of China ("PRC") and India regulate Amazon's and its affiliates' businesses and operations in
country through regulations and license requirements

P13: AWS_investor_information.pdf - 13:23 [We may need to obtain licenses..] (98:4599-98:5078) (Super)

We may need to
obtain licenses from third parties who allege that we have infringed their rights, but such licenses may not be available on terms
acceptable to us or at all. In addition, we may not be able to obtain or utilize on terms that are favorable to us, or at all, licenses

or other rights with respect to intellectual property we do not own. These risks have been amplified by the increase in third
parties whose sole or primary business is to assert such claims.
P13: AWS_investor_information.pdf - 13:24 [The 2015 complaint alleges, am..] (147:3431-147:4126)
(Super)
The 2015 complaint alleges, among other things, that Amazon's Elastic Compute Cloud, Simple Workflow, and Herd
infringe
U.S. Patent Nos. 8,682,959, entitled "System And Method For Fault Tolerant Processing Of Information Via Networked
Computers Including Request Handlers, Process Handlers, And Task Handlers," and 9,049,267, entitled "System And
Method
For Processing Information Via Networked Computers Including Request Handlers, Process Handlers, And Task Handlers."
The 2015 complaint seeks injunctive relief, an unspecified amount of damages, treble damages, costs, and interest.
We dispute
the allegations of wrongdoing and intend to defend ourselves vigorously in these matters.
P13: AWS_investor_information.pdf - 13:25 [We operate customer service ce..] (90:3526-90:3623) (Super)
We
operate customer service centers globally, which are supplemented by co-sourced arrangements.
P13: AWS_investor_information.pdf - 13:26 [Our Business Could Suffer if W..] (96:2134-96:2300) (Super)
Our Business Could Suffer if We Are Unsuccessful in Making, Integrating, and Maintaining Commercial Agreements,
Strategic Alliances, and Other Business Relationships
P13: AWS_investor_information.pdf - 13:27 [Our Business Could Suffer if W..] (96:4546-96:4664) (Super)
Our Business Could Suffer if We Are Unsuccessful in Making, Integrating, and Maintaining Acquisitions and
Investments
P13: AWS_investor_information.pdf - 13:28 [the potential impairment of cu..] (97:9-97:187) (Super)
the potential impairment of customer and other relationships of the company we acquired or in which we invested or
our own customers as a result of any integration of operations

P13: AWS_investor_information.pdf - 13:29 [the difficulty of incorporatin..] (97:195-97:332) (Super)
the difficulty of incorporating acquired technology and rights into our offerings and unanticipated expenses related
to
such integration
P13: AWS_investor_information.pdf - 13:30 [the difficulty of integrating ..] (97:340-97:627) (Super)
the difficulty of integrating a new company's accounting, financial reporting, management, information and
information security, human resource, and other administrative systems to permit effective management, and the lack of control if such integration is delayed or not implemented;
P13: AWS_investor_information.pdf - 13:31 [for foreign transactions, addi..] (97:1128-97:1338) (Super)
for foreign transactions, additional risks related to the integration of operations across different cultures and
languages, and the economic, political, and regulatory risks associated with specific countries
P13: AWS_investor_information.pdf - 13:32 [We do not have long-term arran..] (100:1596-100:1800)
(Super)
We do not
have long-term arrangements with most of our suppliers to guarantee availability of merchandise, content, components, or
services, particular payment terms, or the extension of credit limits.
P13: AWS_investor_information.pdf - 13:33 [While the full Board has overa..] (8:146-8:360) (Super)
While the full Board has overall responsibility for risk oversight,
the Board has delegated responsibility related to certain risks to the Audit Committee and the Leadership Development and Compensation Committee.
P13: AWS_investor_information.pdf - 13:34 [For our named executive office..] (22:1632-22:2000) (Super)
For our named executive officers, who are employed on an at-will basis, we provide few perquisites and
generally do not provide cash bonuses other than in a new-hire context. We do not maintain nonqualified deferred compensation plans, supplemental executive retirement plan benefits, cash severance programs, or change-in-control benefits for our executive officers
P13: AWS_investor_information.pdf - 13:35 [we do not provide cash or equi..] (67:2026-67:2217) (Super)
we do not provide cash or equity

incentives tied to performance criteria, which could cause employees to focus solely on short-term returns at the expense of long-term growth and innovation.

P13: AWS_investor_information.pdf - 13:36 [The primary component of a nam..] (67:2861-67:3035)

(Super)

The primary component of a named executive officer's total compensation is stock-based compensation in order to closely tie total compensation to long-term shareholder value.

P13: AWS_investor_information.pdf - 13:37 [ctors Our directors do not rec..] (11:282-11:472) (Super)

ctors

Our directors do not receive cash compensation for their services as directors or as members of committees of the Board, but we pay reasonable expenses incurred for attending meetings

P13: AWS_investor_information.pdf - 13:38 [We will continue to make inves..] (39:2831-39:3020) (Super)

We will continue to make investment decisions in light of long-term market leadership considerations

rather than short-term profitability considerations or short-term Wall Street reactions.

P13: AWS_investor_information.pdf - 13:39 [We will continue to measure ou..] (39:3025-39:3301) (Super)

We will continue to measure our programs and the effectiveness of our investments analytically, to

jettison those that do not provide acceptable returns, and to step up our investment in those that work best. We will continue to learn from both our successes and our failures

P13: AWS_investor_information.pdf - 13:40 [We will make bold rather than ..] (40:3-40:261) (Super)

We will make bold rather than timid investment decisions where we see a sufficient probability of

gaining market leadership advantages. Some of these investments will pay off, others will not, and we

will have learned another valuable lesson in either case.

P13: AWS_investor_information.pdf - 13:41 [We will share our strategic th..] (40:431-40:662) (Super)

We will share our strategic thought processes with you when we make bold choices (to the extent

competitive pressures allow), so that you may evaluate for yourselves whether we are making rational long-term leadership investments.

P13: AWS_investor_information.pdf - 13:42 [We have invested and will cont..] (39:2280-39:2452) (Super)

We have invested and will continue to invest
aggressively to expand and leverage our customer base, brand, and infrastructure as we move to establish an enduring franchise

P13: AWS_investor_information.pdf - 13:43 ["Working backwards" from custo..] (819:777-819:1432)

(Super)

- Family: What] [SenseB: Analyze and select the environment - Family: What]
"Working backwards" from customer needs
can be contrasted with a "skills-forward" approach where existing skills and competencies are used to drive business opportunities. The skills-forward approach says, "We are really good at X. What else can we do with X?" That's a useful and rewarding business approach. However, if used exclusively, the company employing it will never be driven to develop fresh skills. Eventually the existing skills will become outmoded. Working backwards from customer needs often demands that we acquire new competencies and exercise new muscles, never mind how uncomfortable and awkward-feeling those first steps might be

P13: AWS_investor_information.pdf - 13:44 [We May Not Be Able to Adapt Qu..] (1255:1-1255:100)

(Super)

We May Not Be Able to Adapt Quickly Enough to Changing Customer Requirements and Industry
Standards

P13: AWS_investor_information.pdf - 13:45 [After two decades of risk taki..] (168:385-168:922) (Super)

After two decades of risk
taking and teamwork, and with generous helpings of good fortune all along the way, we are now happily wed to what I believe are three such life partners: Marketplace, Prime, and AWS. Each of these offerings was a bold bet at first, and sensible people worried (often!) that they could not work. But at this point, it's become pretty clear how special they are and how lucky we are to have them. It's also clear that there are no sinecures in business. We know it's ourjob to always nourish and fortify them

P13: AWS_investor_information.pdf - 13:46 [We established long-term relat..] (209:3383-209:3554)

(Super)

We established long-term relationships with many important strategic partners, including America
Online, Yahoo!, Excite, Netscape, GeoCities, AltaVista, @Home, and Prodigy

P14: Asay_2014_07_25_readwrite.pdf - 14:1 [By using industrystandard ope..] (4:1481-4:1591) (Super)

By using industrystandard open source software products, you
reduce your lockin down to an absolute minimum.

P14: Asay_2014_07_25_readwrite.pdf - 14:2 [AWS runs on a lot of opensour..] (4:1595-4:1795) (Super)
AWS runs on a lot of opensource software, of course, but it's not open source itself. While
I doubt AWS spends any time trying to find ways to lock its customers in, the reality is that many will be
P17: Bort_2013_05_19_businessinsider.pdf - 17:1 ["Amazon is a product ofthe pas..] (1:1227-1:1512)
(Super)
"Amazon is a product ofthe past laying the groundwork for the future. One of my friends who was a SDE
(Software Development Engineer) had the most mundane tasks ever. He actually quit as well and went to work somewhere for a little less money, but doing some far more rewarding work.
P17: Bort_2013_05_19_businessinsider.pdf - 17:2 ["Putting Amazon SDE on your re..] (1:1515-1:1724)
(Super)
"Putting Amazon SDE on your resume is quickly turning into the same thing as putting Google SDE on your
resume. So, while you may feel it's boring, the real reward will be the job opportunities in the future."
P18: Brandon_2013_09_17_bcn.pdf - 18:1 ["It's been a very good model. ..] (1:1033-1:1439) (Super)
"It's been a very good model. In the early days ofthe cloud, the old guard
companies poopooed it, saying 'nobody's going to use it for anything critical and enterprises will never use it'," Jassy said. He went on to add that these vendors are pushing private cloud solutions because they wanted to protect the traditionally high margins they're used to, rather than deliver value to enterprise users.
P18: Brandon_2013_09_17_bcn.pdf - 18:2 [He went on to add that these v..] (1:1239-1:1439) (Super)
He went on to add that these
vendors are pushing private cloud solutions because they wanted to protect the traditionally high margins they're used to, rather than deliver value to enterprise users.
P18: Brandon_2013_09_17_bcn.pdf - 18:3 [Speaking to a large group of e..] (1:787-1:1030) (Super)
Speaking to a large group of enterprise customers and technology partners,
Jassy, perhaps unsurprisingly, said that the "old guard" technology vendors hopped onto the private cloud bandwagon once enterprises began embracing the public cloud.
P19: Butler_2015_07_16_networkworld.pdf - 19:1 [A frequent topic of conversati..] (2:1318-2:1562)

(Super)
A frequent topic of conversation is when talking about AWS at a bar is: Would AWS ever sell a private cloud
that customers can run on their own premises? If you read my interview with Vogels, it doesn't sound like that will happen anytime soon
P19: Butler_2015_07_16_networkworld.pdf - 19:2 [AWS has been known as the mark..] (1:876-1:1283)
(Super)
AWS has been known as the market-leading infrastructure as a service provider, but it's also a great
platform for building and hosting applications. So does that make AWS a PaaS? I asked Vogels: Is AWS an
IaaS or a PaaS?
Vogels said customers don't care about definitions like that. They just want to get a job done. I find this fascinating: AWS is clearly a PaaS, or at the very least has PaaS services.
P19: Butler_2015_07_16_networkworld.pdf - 19:3 [What have you learned from bui..] (2:577-2:789)
(Super)
What have you learned from building AWS into what it is today?
He said that in the beginning they just built services and gave them APIs. Now, they have to do a lot more customer hand-holding to get deals done.
P20: Büst_2015_07_03_crisp.pdf - 20:1 [Innovation: 1.170 neue Funktio..] (1:2113-1:2170) (Super)
Innovation: 1.170 neue Funktionen und Services in 7 Jahren
P20: Büst_2015_07_03_crisp.pdf - 20:2 [Neben dem Vorteil als erster I..] (3:241-3:453) (Super)
Neben dem Vorteil als erster Infrastructure-as-a-Service (IaaS) Anbieter am Markt zu sein,
sorgen insbesondere zwei Faktoren für den radikalen Vorsprung: das Service-Portfolio und die Innovationsgeschwindigkeit.
P20: Büst_2015_07_03_crisp.pdf - 20:3 [Dies hat vor allem strategisch..] (4:2465-4:2567) (Super)
Dies hat vor allem strategische
Gründe, um die Innovation und Kreativität des Unternehmens zu fördern.
P20: Büst_2015_07_03_crisp.pdf - 20:4 [Gespräche mit Kunden, Partnern..] (5:2314-5:2401) (Super)
Gespräche mit Kunden, Partnern und
Systemintegratoren zeigen eine positive Entwicklung.
P21: Dignan_2010_06_24_zdnet.pdf - 21:1 [Vogels said the bottom line fo..] (2:1266-2:1433) (Super)

Vogels said the bottom line for pure cloud computing, which features scale, elastic pricing and
agility, really comes down to server utilization and economies of scale
P21: Dignan_2010_06_24_zdnet.pdf - 21:2 ["You're better selling the cyc..] (2:1726-2:1806) (Super)
"You're better selling the
cycle at 2 cents than throwing it away," said Vogels.
P21: Dignan_2010_06_24_zdnet.pdf - 21:3 [Simply put, if your cloud invo..] (1:1840-1:2022) (Super)
Simply put, if your cloud involves
capital expenditures, it's not really agile, flexible or cost effective. In a nutshell, you're buying assets that require time and people and cost.
P22: Fritzgerald_2015_03_04_businessinsider.pdf - 22:1 [Google in particular intends t..] (8:574-8:933)
(Super)
Google in
particular intends to push Amazon to the wall financially, though it was Bill Gates who said, “Never get into a price war with someone who has more money than you.” Amazon has notably lost its prior enthusiasm for price cuts and obliquely grouses about networking costs where Google and Microsoft have a huge advantage in terms of facilities
P22: Fritzgerald_2015_03_04_businessinsider.pdf - 22:2 [Scepticism has emerged over th..] (10:1324-10:1471)
(Super)
Scepticism has emerged over the last year
or two about whether the company will ever get out of “investment mode” and focus on financial returns.
P22: Fritzgerald_2015_03_04_businessinsider.pdf - 22:3 [Amazon has guided investors to..] (11:513-11:593)
(Super)
Amazon has guided investors to focus on
its free cash flow as opposed to profits
P22: Fritzgerald_2015_03_04_businessinsider.pdf - 22:4 [The free cash flow picture loo..] (11:865-11:977)
(Super)
The free cash flow
picture looks very different, in both magnitude and trend, when these leases are considered
P22: Fritzgerald_2015_03_04_businessinsider.pdf - 22:5 [And note this debt is being in..] (12:191-12:328)
(Super)
And note this debt is being incurred today

at unprecedentedly low interest rates, a phenomenon that is unlikely to continue much longer

P22: Fritzgerald_2015_03_04_businessinsider.pdf - 22:6 [Amazon's stock price obviously..] (10:1156-10:1471)

(Super)

Amazon's stock price obviously reflects
perceptions of the company broadly. It has been run as a profitless machine yet been richly valued for most of its history.

Scepticism has emerged over the last year or two about whether the company will ever get out of "investment mode" and focus on financial returns.

P23: Furrier_2015_01_29_medium.pdf - 23:1 ["The most compelling part of o..] (8:1748-8:1842) (Super)

"The most compelling part of our value prop is being able to innovate more easily and quickly.

P23: Furrier_2015_01_29_medium.pdf - 23:2 [Amazon's o?er to do the "non-d..] (8:1945-8:2103) (Super)

Amazon's offer to do the "non-differentiated heavy lifting" has enormous appeal to big companies because it frees up more time for their engineers to innovate.

P23: Furrier_2015_01_29_medium.pdf - 23:3 [y. AWS enabled innovators to p..] (10:779-10:902) (Super)

y. AWS enabled innovators to
prove the validity oftheir ideas in the marketplace, mitigating a lot ofrisk for investors.

P23: Furrier_2015_01_29_medium.pdf - 23:4 [It has cut the cost of doing b..] (12:1445-12:1688) (Super)

It has cut the cost of doing business down to the lowest it's ever been, provides real elasticity, the ability to move quickly, and lets innovators spend their scarce resources on driving product and service differentiation, not housekeeping.

P23: Furrier_2015_01_29_medium.pdf - 23:5 [Jassy and the AWS team's compe..] (12:1788-12:1921)

(Super)

Jassy and the AWS team's competitive
strategy is to be faster at iterating on new features to push new innovations at amazing speed.

P23: Furrier_2015_01_29_medium.pdf - 23:6 ["I think there are some compan..] (12:2319-12:2492) (Super)

decision-making protocols - Family: What] [Sense 2: Sensing and direct internal innovation - Family: What] [SenseA: Identify, target, select and exploit RDI - Family: What]

"I think there are some companies

that either fear innovation entirely orjust do it through acquisition," says Jassy. "At Amazon, we love innovation. We're builders here."

P23: Furrier_2015_01_29_medium.pdf - 23:7 [. "Cloud computing enables mor..] (7:2244-7:2365) (Super)

. "Cloud computing enables more use of technology," he says, "I believe it's expanding TAM by adding new user segments."

P23: Furrier_2015_01_29_medium.pdf - 23:8 [Amazon's enterprise infrastruc..] (9:1782-9:1878) (Super)

Amazon's enterprise infrastructure competitors are also responding to the "cloudification" trend.

P23: Furrier_2015_01_29_medium.pdf - 23:10 [In March ofthis year, the big ..] (7:2410-7:2603) (Super)

In March ofthis year, the big three public cloud providers, Google, Amazon and Microsoft, each announced price cuts in quick succession, reminiscent of airlines, which tend to price in packs.

P23: Furrier_2015_01_29_medium.pdf - 23:11 [In March ofthis year, the big ..] (7:2410-7:2602) (Super)

In March ofthis year, the big three public cloud providers, Google, Amazon and Microsoft, each announced price cuts in quick succession, reminiscent of airlines, which tend to price in packs

P23: Furrier_2015_01_29_medium.pdf - 23:12 ["We knew that the largest cons..] (8:1023-8:1342) (Super)

"We knew that the largest consumers of infrastructure would be large enterprise because they spend more absolute dollars," Jassy says, "But we also had a mental image of a college kid in his dorm room having the same access, the same scalability and same infrastructure costs as the largest businesses in the world."

P23: Furrier_2015_01_29_medium.pdf - 23:13 [When customers said that for a..] (10:2569-10:2749)

(Super)

whom] [Seize 1: Selecting technology/feature and product/service architecture - Family: What] [Seize 2: (Re-)Designing revenue structures - Family: What] [Seize 10: Avoiding anticannibalization tendencies - Family: What] [SeizeA: Redesign business model - Family: What] [SeizeB: Select decision-making protocols - Family: What] [Sense 7: Identifying changing customer needs - Family: What] [SenseB: Analyze and select the environment - Family: What]

When customers said that for archival process, they'd trade latency for lower prices, AWS built Glacier, an archival and back up storage service at a penny per gigabyte per month.

P23: Furrier_2015_01_29_medium.pdf - 23:14 ["Ifyou believe developers will..] (6:1519-6:2046) (Super)

"Ifyou believe developers will build applications from scratch using web

services as primitive building blocks, then the operating system becomes the Internet," says Jassy—an approach to development that had not yet been considered. Amazon asked itselfwhat the key components ofthat operating system would be, what already existed, and what Amazon could contribute. They realized they could contribute a great deal, because all ofthe components identified were non-existent. "We made a pretty quick decision to do it,"

P23: Furrier_2015_01_29_medium.pdf - 23:15 [Their ?rst critical decision w..] (6:2283-6:2766) (Super)

Their first critical decision was whether or not they should buildjust one service and see how it goes—either a storage solution, a compute solution or a database solution—or build a complete platform with all three from the get go. "All apps need a compute solution, almost all need storage and most need a database," Jassy says. "Most developers need some combination ofthe three, so we were strong about the platform approach right away." In March of 2006, AWS was launched.

P23: Furrier_2015_01_29_medium.pdf - 23:16 [. 'It stirs up the creativejui..] (8:2569-8:2679) (Super)

. 'It stirs up the creativejuices ofthe team because they know they can actually get their ideas out there."

P23: Furrier_2015_01_29_medium.pdf - 23:17 ["Businesses often compromise o..] (10:1603-10:1949)
(Super)

What]

"Businesses often compromise on hiring characteristics in the name of rapid growth, but we're vigilant about hiring builders—inventive, entrepreneurial, creative types that want to operate what they build," he explains, "We want missionaries, not mercenaries—people focused on building businesses that last beyond their tenure at the company."

P23: Furrier_2015_01_29_medium.pdf - 23:18 ["The most compelling part of o..] (8:1748-8:1941) (Super)

"The most compelling part of our value prop is being able to innovate more easily and quickly. Engineering teams and LOB leaders have a lot of ideas and a strong appetite for doing new things.

P23: Furrier_2015_01_29_medium.pdf - 23:19 ["In the sixteen years I've bee..] (11:2403-11:2609) (Super)

"In the sixteen years I've been here, I've noticed how easy it is to focus on the shiny new pennies," says Jassy, alluding to the natural tendency for Amazon culture to get excited about new capabilities.

P23: Furrier_2015_01_29_medium.pdf - 23:20 [This culture of constant itera..] (12:1979-12:2051) (Super)

This culture of constant iteration means they add capabilities very fast.

P23: Furrier_2015_01_29_medium.pdf - 23:21 ["But we'd built Amazon so quic..] (5:2386-5:2674) (Super)

"But we'd built Amazon
so quickly that a number ofthe pieces ofthe platform had become entangled."
To develop solutions for external partners, Amazon would need an effective way to communicate with them via hardened APIs, and that meant
decoupling the entangled parts ofthe platform.

P23: Furrier_2015_01_29_medium.pdf - 23:22 [Amazon AWS team was born as a ..] (6:769-6:1516) (Super)

Amazon AWS team was born as a startup within a large company. Arguably
the best "intrapreneurship" venture of our time. Amazon began to look seriously at what the business would look like under a much broader mission: enabling developers build their tech infrastructure on top of an Amazon-built cloud computing plaftorm. They began by asking some key early stage startup questions about the infrastructure services market and their position and opportunity in it:
Is the space big enough to become a significant part of our business? Yes. Is there a market need for a better solution than exists now? Yes.
Does Amazon have the competency to provide a successful product? Yes.
Does Amazon have a differentiated approach? Yes—and here it is:

P23: Furrier_2015_01_29_medium.pdf - 23:23 ["Invention", says Jassy, "requ..] (8:2682-8:3182) (Super)

"Invention", says Jassy, "requires two things: 1. The ability to try a lot of
experiments, and 2. not having to live with the collateral damage offailed experiments." Satisfying both criteria, cloud computing has been a perfect breeding ground for invention. In other words, if developers were pastry chefs, they can now stop spending most oftheir time milling flour and churning butter, and start spending most oftheir time combining and
presenting those ingredients in new and different ways.

P23: Furrier_2015_01_29_medium.pdf - 23:24 [And what ofthe wildly unpredic..] (12:759-12:1330) (Super)

And what ofthe wildly unpredictable open source—the Linuxs and MySQLs
ofthe world, which AWS both consumes and purveys—how does that fit in? "We view open source as a companion to our business model," says Jassy, "Our customers want to run services on top of open protocols because it gives them the freedom to move workloads around. We use it, contribute to it, think
it's important to the development community and it's not going away any time soon. So long as our customers are asking for services based on open source technologies, we'll continue to add them."

P23: Furrier_2015_01_29_medium.pdf - 23:25 [As the late Stuart Scott would..] (1:269-1:351) (Super)

As the late Stuart Scott would say "AWS has created so much value it's
ridiculous"

P23: Furrier_2015_01_29_medium.pdf - 23:26 [AWS has a compelling value pro..] (8:1506-8:1942) (Super)

AWS has a compelling value proposition for each case, and they're actually quite similar. Large companies are saying yes to AWS because it's simpler, less costly and less headache, "but what they really care about is agility," Jassy says. "The most compelling part of our value prop is being able to innovate more easily and quickly. Engineering teams and LOB leaders have a lot of ideas and a strong appetite for doing new things."

P23: Furrier_2015_01_29_medium.pdf - 23:27 [The pace of innovation at AWS ..] (11:2345-11:3039)

(Super)

The pace of innovation at AWS continues to run very high. "In the sixteen years I've been here, I've noticed how easy it is to focus on the shiny new pennies," says Jassy, alluding to the natural tendency for Amazon culture to get excited about new capabilities. He then tosses out a list ofAWS services with the enthusiasm of someone describing their first trip around the galaxy. "Elastic Compute Cloud, Elastic Map Reduce, S3 which stores trillions of objects, Dynamo DB—a very fast, high throughput, low latency, nonrelational database, RDS Service, Mobile Push Notification—demand for these servicesjust keeps accelerating. We're waiting for it to attenuate and it just hasn't yet."

P23: Furrier_2015_01_29_medium.pdf - 23:28 [As Bezos and Jassy dug into an..] (5:204-5:669) (Super)

As Bezos and Jassy dug into and examined their own internal development process and what they were doing for affiliates and partners, they kept bumping into one particular problem. What the business wasn't doing well was accurately forecasting the time it took to complete projects—both internal and external. Providing a solution for Target, for example, one of Amazon's early merchant.com deals, was "far more painful than we thought it would be," Jassy notes.

P23: Furrier_2015_01_29_medium.pdf - 23:29 [They began by asking some key ..] (6:1095-6:1500) (Super)

They began by asking some key early stage startup questions about the infrastructure services market and their position and opportunity in it:

Is the space big enough to become a significant part of our business? Yes. Is there a market need for a better solution than exists now? Yes.

Does Amazon have the competency to provide a successful product? Yes.

Does Amazon have a differentiated approach? Yes

P25: Greene_2014_11_12_seattletimes.pdf - 25:1 ["Our goal is that we can bring..] (4:1018-4:1103) (Super)

[Seize 13: Learning from mistakes - Family: What] [SeizeB: Select decision-making protocols - Family: What] [Sense 2: Sensing and direct internal innovation - Family: What] [SenseA: Identify, target, select and exploit RDI - Family: What] [Transform 1: Learning - Family: What] [TransformA: Manage knowledge - Family: What]
"Our goal is that we
can bring that innovation over faster than we have in the past."
P25: Greene_2014_11_12_seattletimes.pdf - 25:2 ["Every imaginable business seg..] (3:892-3:988) (Super)
"Every imaginable business segment is using AWS in a meaningful way," Jassy said in his keynote.
P25: Greene_2014_11_12_seattletimes.pdf - 25:3 [Jassy noted that AWS has cut p..] (2:820-2:897) (Super)
Jassy noted that AWS
has cut prices 46 times since it debuted nine years ago.
P25: Greene_2014_11_12_seattletimes.pdf - 25:4 [Jassy, though, said it would b..] (2:213-2:339) (Super)
Jassy, though, said it would be a mistake to believe that each region costs the same $1
billion Ohio authorities expect there.
P25: Greene_2014_11_12_seattletimes.pdf - 25:5 [But over a period of a few yea..] (2:453-2:592) (Super)
But over a
period of a few years, the costs could climb as datacenters get more use, leading Amazon to expand them to build more capacity.
P25: Greene_2014_11_12_seattletimes.pdf - 25:7 ["If you are going to pursue bi..] (3:227-3:445) (Super)
"If you are going to pursue big reinventions of industries, you have to be willing to invest over a long period of time, and you also have to be comfortable with being misunderstood for long periods of time," he said.
P25: Greene_2014_11_12_seattletimes.pdf - 25:8 [The cost of creating the massi..] (3:1412-3:1598) (Super)
Assessing legal and natural protection through an appropriability regime - Family: What] [SeizeA: Redesign business model - Family:
What] [SeizeC: Build loyalty and commitment - Family: What] [SeizeD: Select enterprise boundaries to manage complements and "control" platforms - Family: What]
The cost of creating the massive datacenters and the price of developing a broad variety of services that customers want are becoming a bigger barrier to entry for would-be competitors.
P26: Harris_2009_03_26_theguardian.pdf - 26:1 [That's always a compelling val..] (1:2137-1:2282) (Super)

non-economic factors, value and culture - Family: What] [SeizeB: Select decision-making protocols - Family: What] [SeizeC: Build loyalty and commitment - Family: What]
That's always a compelling value proposition for a CIO [chief
information officer] but particularly so in today's capital-constrained environment."
P26: Harris_2009_03_26_theguardian.pdf - 26:2 [When Amazon's virtual computin..] (1:2544-1:2845)
(Super)
When Amazon's virtual computing service,
the Elastic Compute Cloud (EC2), launched less than three years ago, it attracted impoverished startups and web 2.0 entrepreneurs. Now it has working partnerships with everyone from the Max Planck Institute and the New York Times to Sun, Oracle and even IBM.
P28: Hook_2015_11_04_financialtimes.pdf - 28:1 ["We have a very important cult..] (3:2495-3:2717)
(Super)
"We have a very important cultural principle that we want people to
respectfully challenge each other when they disagree." These types of challenging conversations were key for some of the early decisions at AWS, he adds.
P28: Hook_2015_11_04_financialtimes.pdf - 28:2 [Perhaps the biggest challenge ..] (3:1908-3:2365)
(Super)
Perhaps the biggest challenge of the moment is a crisis of culture. Amazon's harddriving work
culture has come under scrutiny after an exposé by The New York Times earlier this year, which described scenes of frequent confrontation and employees crying at their desks.
Mr Jassy, who has been at the company for nearly two decades, says Amazon's culture is a "real competitive advantage" for the company — and that healthy disagreements are part of that.
P28: Hook_2015_11_04_financialtimes.pdf - 28:3 [The fastpaced Amazon culture ..] (3:2720-3:2988)
(Super)
The fastpaced Amazon culture is one reason why people such as Mr Jassy stay at the company.
"Amazon is a place that really functions like a large startup. It is not slow and stodgy and bureaucratic, we move way more fast," he explains. "It is a pioneering culture."
P28: Hook_2015_11_04_financialtimes.pdf - 28:4 [Maintaining reliability as it ..] (3:1122-3:1273) (Super)
Maintaining reliability as it grows quickly is one: a

major outage at the end of September took its Virginia data centre region offline for five hours.

P28: Hook_2015_11_04_financialtimes.pdf - 28:5 [Another risk is losing its pos..] (3:1276-3:1581) (Super)

Another risk is losing its position as the darling of the analyst community. Among the investor
community, the enthusiasm around AWS helped Amazon's share price double in 2015.
That could wane, however, as the debt structures that AWS has used to finance its server purchases catch up with it over time.

P28: Hook_2015_11_04_financialtimes.pdf - 28:6 [Because the AWS business is gr..] (3:1584-3:1905)
(Super)

Because the AWS business is growing so quickly, its depreciation cost — the writedown it takes to
reflect its assets' loss ofvalue through age and use — is much lower than its capital expenditure . This means that profit margins will shrink for AWS as growth slows and depreciation catches up to its true capex levels.

P28: Hook_2015_11_04_financialtimes.pdf - 28:7 [AWS, which rents out computing..] (2:409-2:527)
(Super)

AWS, which rents out computing power and data storage,
accounted for half of group profits in the most recent quarter.

P28: Hook_2015_11_04_financialtimes.pdf - 28:8 [This means that profit margins..] (3:1785-3:1904)
(Super)

This means that profit margins will shrink for AWS as growth slows and depreciation catches up to
its true capex levels

P29: Lindner_2013_11_19_faz.pdf - 29:1 [Zum Beispiel in der Preisphilo..] (3:2889-3:3019) (Super)

Zum Beispiel in der Preisphilosophie: „AWS ist ein Geschäft mit
hohem Volumen, aber relativ niedrigen Margen, genauso wie Amazon."

P30: Malik_2013_12_30_gigaom.pdf - 30:1 [A few years ago, during the co..] (1:584-1:862) (Super)

A few years ago, during the course of an interview, he told us the cloud with its pay-as-you-go led to more tinkering
and
that was good for entrepreneurial activity
(http://gigaom.com/2010/02/01/amazon-cto-werner-vogels-onamazon%E2%80%99s-web-services-startups-and-inno vation/).

P30: Malik_2013_12_30_gigaom.pdf - 30:2 [What we'll continue to see is ..] (2:1615-2:1808) (Super)
What we'll continue to see is the trend in the U.S. as the front runner in
usage of the cloud, but the rest of the world is picking up pretty quickly in that sense and that is very interesting.
P30: Malik_2013_12_30_gigaom.pdf - 30:3 [The big challenge for Amazon (..] (3:286-3:443) (Super)
- Family: What] [TransformA: Manage knowledge - Family: What]
The big challenge for Amazon (and to some extent many US cloud-oriented companies) is going to be regulatory and
legal problems that exist in non-US markets.
P30: Malik_2013_12_30_gigaom.pdf - 30:4 ["Cloud and SaaS change the way..] (2:2398-3:283) (Super)
"Cloud and SaaS change the way companies compete," he said, citing the example of an Indian construction company
that used an open source ERP system, hacked and customized it, and then tied it to 2,000-odd suppliers. The
cloudbased system is much cheaper than the traditional ERP systems, and Vogels expect more companies to do precisely the
same. This might not be what Oracle, SAP and others want to hear. Even the smallest mom-and-pop operation has access
to the technology that gave giants an advantage. "[The] pay-as-you-go model is pretty empowering," Vogels said."The impact of cloud and SaaS will be huge on small and medium businesses," he said, especially in places like "India and
Indonesia where they are large part of the economy." He believes Amazon's growth will be driven by these small-andmedium sized business, who will embrace cloud.
P31: Malik_Vogels_2010_02_01_gigaom.pdf - 31:1 ["With the cloud comes unconstr..] (1:1847-1:2225)
(Super)
"With the cloud comes unconstrained thinking and willingness to tinker and experiment without worrying too much
about
cost," Vogels said. I agree — success-based scaling is perhaps one of the biggest disruptions of our times. In the old days
they used to call it getting your money's worth. Today, it's more commonly referred to as getting the most out of your
startup capital
P31: Malik_Vogels_2010_02_01_gigaom.pdf - 31:2 [One, that AWS remains a platfo..] (2:710-2:780)
(Super)
One,
that AWS remains a platform of innovation for a long time to come

P32: Martin_Geier_2015_07_02_itbusiness.pdf - 32:1 [Partnerkonferenz AWS Summit 20..] (1:755-1:786)
(Super)
- Family: To whom] [Seize 6: Designing partnerships - Family: What] [SeizeA: Redesign business model - Family: What]
Partnerkonferenz AWS Summit 2015
P33: Matzer_2015_07_24_cloudcomputinginsider.pdf - 33:1 [Wie so häu?g in deutschen Clou..] (2:783-2:905)
(Super)
Wie so häufig in deutschen Cloud-Projekten war auch für Audi
Business Innovator Geschwindigkeit von wesentlicher Bedeutung,
P34: McLaughlin_2015_08_04_crn.pdf - 34:1 ["We're allowing enterprises to..] (6:719-6:916) (Super)
"We're allowing enterprises to move much more quickly, and allowing them to innovate at a time
where a lot of these organizations have stopped feeling like they were able to innovate," said Jassy.
P34: McLaughlin_2015_08_04_crn.pdf - 34:2 [The idea is to let enterprises..] (6:1530-6:1699) (Super)
The idea is to let enterprises get the same advantages from using APIs as
Amazon does, thereby paving the way for faster development and innovation, according to Jassy.
P34: McLaughlin_2015_08_04_crn.pdf - 34:3 ["Once we got into that mode in..] (6:1970-6:2084) (Super)
"Once we got into that
mode inside Amazon, it dramatically changed the speed with which we were able to innovate."
P34: McLaughlin_2015_08_04_crn.pdf - 34:4 [Every Wednesday, Jassy holds a..] (5:781-5:1426) (Super)
Every Wednesday, Jassy holds a meeting with AWS management that involves spending about
two hours going through the operational performance data of AWS—"literally thousands of metrics on how the platform is performing," he said. That's followed immediately thereafter by a 90minute business review.
The Wednesday meetings are no picnic for AWS leaders whose businesses aren't performing up to expectations, according to Sirota. "The meetings were pretty intense and often included making difficult decisions, or unpleasant conversations about business metrics," he said. "If a presenter wasn't prepared, things could quickly go sideways."
P34: McLaughlin_2015_08_04_crn.pdf - 34:5 ["AWS, under Andy's leadership,..] (2:2354-2:2611) (Super)

"AWS, under Andy's leadership, has recognized the value the channel provides to the cloud
customer, and that having a strong partner ecosystem will help AWS grow faster," said Luis Benavides, founder and CEO of Day1 Solutions, an AWS partner in McLean, Va.

P34: McLaughlin_2015_08_04_crn.pdf - 34:6 ["The speed of execution [at AW..] (4:693-4:922) (Super)

"The speed of execution [at AWS] is intoxicating, and after 29 years of working on enterprise
systems, it's been a pretty foreign experience to be constantly looking for ways to deliver more value at lower cost," added Hamilton.

P34: McLaughlin_2015_08_04_crn.pdf - 34:7 [Then, we refined our answers u..] (4:2855-4:2960) (Super)

non-economic factors, value and culture - Family: What] [SeizeB: Select decision-making protocols - Family: What] [SeizeC: Build loyalty and commitment - Family: What]
Then, we refined our answers until the team believed the service created sufficient value for customers."

P34: McLaughlin_2015_08_04_crn.pdf - 34:8 ["Andy isn't a micromanager, bu..] (4:1333-4:1518) (Super)

"Andy isn't a micromanager, but he does inject himself into the review process to see if the
product is there yet, and provides useful feedback on issues a team is seeing," said Sirota.

P34: McLaughlin_2015_08_04_crn.pdf - 34:9 [Amazon has a process it calls ..] (4:1749-4:2069) (Super)

Amazon has a process it calls "working backwards," which requires product teams to write a
press release and an FAQ document before writing any code, said Jassy. This form of communication requires thoughtful, concise communication and ensures that all team members have a clear understanding of what they're building.

P34: McLaughlin_2015_08_04_crn.pdf - 34:10 ["The meetings were pretty inte..] (5:1215-5:1357) (Super)

"The meetings were pretty intense and often included
making difficult decisions, or unpleasant conversations about business metrics," he said.

P34: McLaughlin_2015_08_04_crn.pdf - 34:11 ["The AWS culture is one where,..] (5:2840-5:3065) (Super)

"The AWS culture is one where, when there's a significant launch, or a customer decides to use
the platform in a pervasive way, people will communicate about it, and people will tend to respond enthusiastically," Jassy said.

P34: McLaughlin_2015_08_04_crn.pdf - 34:12 ["But it's also a culture where..] (5:3067-5:3160) (Super)
"But it's also a culture where we celebrate quickly and then
move on to the next initiative."
P34: McLaughlin_2015_08_04_crn.pdf - 34:13 [In the early 2000s when Amazon..] (2:2632-2:2917) (Super)
In the early 2000s when Amazon started providing ecommerce technology to Target and other
thirdparty retailers, the company realized it had to decouple many components of its platform in order to expose them to customers through application programming interfaces (APIs), Jassy said
P34: McLaughlin_2015_08_04_crn.pdf - 34:14 ["The experience of having to d..] (2:3150-2:3336) (Super)
"The experience of having to deliver to customers in decoupled APIs—which was way harder
than we thought it was going to be—really changed the way we thought about software," said Jassy
P34: McLaughlin_2015_08_04_crn.pdf - 34:15 ["Partnering with AWS has allow..] (6:2247-6:2532) (Super)
- Family: To whom] [Seize 6: Designing partnerships - Family: What] [SeizeA: Redesign business model - Family: What]
"Partnering with AWS has allowed us to focus more of our efforts on what we do best and not
worry about the infrastructure and all the overhead that comes with maintaining it," said Kevin RisonChu, director of systems and infrastructure at Mirum Agency, a San Diegobased AWS partner
P35: Price_2016_03_12_businessinsider.pdf - 35:1 [But Amazon still has to cough ..] (2:1530-2:1703)
(Super)
But Amazon still has to cough up huge chunks of capitalexpense cash in
advance to outfit its data center, so it's motivated to find ways to do that as cheaply as
possible.
P35: Price_2016_03_12_businessinsider.pdf - 35:2 [the rise of the whole startup ..] (3:1220-3:1287) (Super)
the rise
of the whole startup culture is largely driven by cloud."
P36: Rao_2015_06_28_fortune.pdf - 36:1 [Microsoft and Google are also ..] (4:282-4:445) (Super)
Microsoft and Google are also doing something that's familiar to any retailer who has ever competed
with Amazon.com: They're engaging the incumbent in a price war.

P36: Rao_2015_06_28_fortune.pdf - 36:2 [The idea ofrenting computing p..] (3:563-3:857) (Super)
The idea ofrenting computing power from another company was
almost unheard of, but Jassy had a key backer in Dalzell, who recalls arguing that "we're going to invest in this anyway," since Amazon would always need datacenter resources for itself. In October 2003,
Jassy got the green light.
P37: Ruggiero_2015_10_08_siliconangle.pdf - 37:1 [He sees three majortrends atth..] (3:453-3:690) (Super)
He sees three majortrends atthe moment: autonomous driving, seamless integration ofthe car as a powerful IoT
device and mobilityservices gaininground. These trends have enabled BMWto utilize IoTthat's run through AWS atthe core.
P37: Ruggiero_2015_10_08_siliconangle.pdf - 37:2 [Docker integration with Compos..] (2:1154-2:1349)
(Super)
Docker integration with Compose was a muchapplauded newaddition giving Docker containers more abilities. These
are all powered bythe addition ofAmazon EC2 Container Registrythat's been added.
P37: Ruggiero_2015_10_08_siliconangle.pdf - 37:3 [The above announcements culmin..] (2:1892-2:2266)
(Super)
innovation and modularity - Family: What]
The above announcements culminated with the revealing ofAWS Mobile Hub, which is a development hub so that
mobile
developers cannot be restrained bythe back-end complexity ofmobile devices, but rather much more simply produce the
cloud-based application back-end processes and easily integrate them into the phone experience with end code sources being
produced as SDKs
P39: Vogels_2014_05_15_theguardian.pdf - 39:1 [Europe's fastest growing start..] (1:831-1:1140) (Super)
Europe's fastest growing start-ups, like Hailo, JustEat and WeTransfer, some of the largest
enterprises, like Royal Dutch Shell, SAP and Unilever, governments, education and research institutes, all are using cloud technologies to innovate faster and better serve their customers and the citizens of Europe.
P39: Vogels_2014_05_15_theguardian.pdf - 39:2 [Focusing on lowering prices wi..] (2:577-2:710) (Super)
Focusing on lowering prices will boost the

economy and prosperity of local businesses as more capital can be allocated to innovation.

P39: Vogels_2014_05_15_theguardian.pdf - 39:5 [I believe that what is needed ..] (1:2022-1:2345) (Super)

I believe that
what is needed for cloud to be successful relates to Europe's core values. As a Dutchman, I hold these values in close regard – such as the right to a fair and democratic society and a strong protection of privacy and freedom. Cloud – done right – enables broad expression and realisation of these values.

P39: Vogels_2014_05_15_theguardian.pdf - 39:6 [For cloud computing to be succ..] (1:2348-1:2457)

(Super)

For cloud computing to be successful in Europe, providers must hold exceeding customer
needs as a core value.

P39: Vogels_2014_05_15_theguardian.pdf - 39:7 [Another core value is putting ..] (2:1080-2:1340) (Super)

Family: What]
Another core value is putting data protection, ownership, and control, in the hands of cloud
users. It is essential that customers own and control their data at all times. Customers, governments and businesses, large and small alike, have concerns about this.

P39: Vogels_2014_05_15_theguardian.pdf - 39:8 [Another core value is putting ..] (2:1080-2:1179) (Super)

Another core value is putting data protection, ownership, and control, in the hands of cloud
users.

P40: Vogels_2015_02_04_computerwoche.pdf - 40:1 ["Im Jahr 2014 konnten wir beob..] (2:454-2:602)

(Super)

"Im Jahr 2014 konnten wir beobachten, wie Cloud Computing sowohl in Consumer- als auch Enterprise-Produkten zu
bedeutenden Innovationen geführt hat.

P40: Vogels_2015_02_04_computerwoche.pdf - 40:2 [Für Medienunternehmen wie "Tim..] (2:940-2:1182)

(Super)

Für Medienunternehmen wie "Times", "The Guardian", "The Telegraph", "New York Times",
"Washington Post" und das "Time Magazine" bedeutet die Cloud nicht weniger als den Wandel hin zu schlankeren,
†exibleren
und innovativen Geschäftsmodellen.

P40: Vogels_2015_02_04_computerwoche.pdf - 40:3 [Dennoch und trotz all der beei..] (2:1276-2:1388)
(Super)
Dennoch und trotz all der beeindruckenden Innovationen, die es bislang gab, stehen wir immer noch ganz am
Anfang.
P40: Vogels_2015_02_04_computerwoche.pdf - 40:4 [Die Cloud treibt innovative Lö..] (6:692-6:872)
(Super)
Die Cloud treibt innovative Lösungen voran, wie etwa die "HealthSuite" von Philips - eine Plattform, die
Gesundheitsdaten
verwaltet und sowohl Ärzte als auch Patienten unterstützt.
P40: Vogels_2015_02_04_computerwoche.pdf - 40:5 [Dropcam ist ein weiteres innov..] (5:1990-5:2193)
(Super)
Dropcam ist ein weiteres innovatives Beispiel dafür, wie VCA in der Kunden-Beziehung eingesetzt wird. Dropcam
analysiert
Videos, die von Internetfähigen Kameras übertragen werden, um Kunden zu alarmieren
P40: Vogels_2015_02_04_computerwoche.pdf - 40:6 [Werner Vogels verrät die Cloud..] (1:1116-1:1157)
(Super)
Werner Vogels verrät die Cloud-Trends 2015
P42: AWS_Analyst_reports.pdf - 42:1 [The midmarket and enterprise s..] (86:1838-86:1951) (Super)
The midmarket and enterprise space holds tremendous promise, and
AWS is a fringe player in these segments today.
P42: AWS_Analyst_reports.pdf - 42:2 [AWS retained a solid advantage..] (291:449-291:552) (Super)
AWS retained a solid advantage for the DevOps and coder segments -- and
as an overall choice for CIOs.
P42: AWS_Analyst_reports.pdf - 42:3 [¦ AWS is the best fit for the ..] (311:410-311:492) (Super)
AWS is the best fit for the DevOps pro segment, but scores high for all segments.
P42: AWS_Analyst_reports.pdf - 42:4 [The capabilities of AWS' appli..] (311:702-311:1069) (Super)
The capabilities of AWS' application services, coupled with its mature infrastructure
services, vast ecosystem of partners, including many of the rapid dev and coder-focused

platforms in this analysis, gave it high current offering and strategy scores across all but the rapid dev segment, where its degree of abstraction does not rise to the needs of this user.

P42: AWS_Analyst_reports.pdf - 42:5 [Cloud changes how IT gets done..] (84:1786-84:1908) (Super)

Cloud changes
how IT gets done, sometimes supplementing, and in other situations replacing, how services are delivered.

P42: AWS_Analyst_reports.pdf - 42:6 [A large ecosystem dramatically..] (296:2797-296:3005) (Super)

A large ecosystem dramatically improves the
customer's ability to deliver applications, find support for key components, supplement staff with consultants, and empower management of its cloud applications.

P42: AWS_Analyst_reports.pdf - 42:7 [Areas such as specialization i..] (333:2476-333:2931) (Super)

Areas such as specialization in security features, vertical industry expertise, costs per endpoint,
relationships with OEMs, and the ability to drive computing at the edge have become key battlegrounds for IoT purpose-built platform vendors that are seeking to demonstrate exceptional value to IoT buyers. One company that has emerged as a significant competitor in this market is Amazon Web Services, with its recent launch of the AWS IoT platform.

P43: Andy_Jassy_2010_04_29_itnews.pdf - 43:1 [Due to our scale, we are able ..] (2:1991-2:2057) (Super)

Due to our scale, we are able to pass on lower prices to customers.

P43: Andy_Jassy_2010_04_29_itnews.pdf - 43:2 [We utilise infrastructure seve..] (2:2194-2:2363) (Super)

We utilise infrastructure several orders of magnitude higher than any customer would. So we have
a better profit structure, and we can pass on lower prices to customers.

P43: Andy_Jassy_2010_04_29_itnews.pdf - 43:3 [I do believe that this will be..] (3:541-3:606) (Super)

I do believe that this will be a high volume, low margin business.

P43: Andy_Jassy_2010_04_29_itnews.pdf - 43:4 [In this environment, you think..] (3:833-3:903) (Super)

In this environment, you think about costs and prices very differently.

P43: Andy_Jassy_2010_04_29_itnews.pdf - 43:5 [Cloud computing allows you to ..] (2:1076-2:1154) (Super)

Cloud computing allows you to turn capital expenditure into a variable expense.

P43: Andy_Jassy_2010_04_29_itnews.pdf - 43:6 [First, what is different about..] (2:2615-2:2862) (Super)

First, what is different about what we do is that when we started this business seven years ago, we
knew we were very good at running services deep in the stack, and very good at running reliable data centres that are scalable and costeffective.

P44: Andy_Jassy_2012_11_28_geekwire.pdf - 44:1 [If you run a high volume, low ..] (2:924-2:1126) (Super)

If you run a high volume, low margin business … you think
about your pricing differently, you think about your cost structure differently, you think where you spend your innovation cycles differently….

P44: Andy_Jassy_2012_11_28_geekwire.pdf - 44:2 [Amazon Web Services chief Andy..] (1:855-1:1112)
(Super)

Amazon Web Services chief Andy Jassy essentially laid out the case today at the company's
Re:Invent conference in Las Vegas, telling some 20,000 attendees that the company's focus on high-volume, low-margin businesses is absolutely its strategic advantage.

P44: Andy_Jassy_2012_11_28_geekwire.pdf - 44:3 [then a high volume, low margin..] (2:673-2:712) (Super)

then a high volume, low margin business.

P44: Andy_Jassy_2012_11_28_geekwire.pdf - 44:4 [And, if you believe like we do..] (2:714-2:922) (Super)

And, if you believe like we do, that
the vast majority of computing is moving to the cloud over the next 10 years, it stands to reason that cloud computing is going to be a high volume, low margin business.

P44: Andy_Jassy_2012_11_28_geekwire.pdf - 44:5 [And then it will be interestin..] (2:1663-2:1902) (Super)

And then it will be
interesting to see how many of those companies will be good at operating high-volume, low margin businesses, because you don't flip a switch over night and become great at operating high-volume, low-margin businesses.

P44: Andy_Jassy_2012_11_28_geekwire.pdf - 44:6 [Well, it continues to cut pric..] (2:2017-2:2090) (Super)

Well, it continues to cut prices, making it
harder for rivals to compete.

P44: Andy_Jassy_2012_11_28_geekwire.pdf - 44:7 [the reductions come "largely i..] (3:459-3:540) (Super)

the reductions come "largely in the absence of any competitive pressure to do so."

P44: Andy_Jassy_2012_11_28_geekwire.pdf - 44:8 [Netflix CEO Reed Hastings, a b..] (3:543-3:799) (Super)

Netflix CEO Reed Hastings, a big user of AWS who later appeared on stage with Jassy, thanked
Amazon for yet another price reduction.
"Wow, a 25 percent price cut, I feel very welcome," said Hastings. "You saved us a fortune by just starting the day off."
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:1 [y. In fact, our customers are ..] (1:2928-1:3101) (Super)
y. In fact, our
customers are telling us that new ideas are now coming from across the organization and that employees are excited to innovate on behalfoftheir customers.
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:2 [We also have a culture that is..] (3:2849-3:2913)
(Super)
We also have a culture that is really leanforward on innovation.
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:3 [Think about what AWS does: We ..] (3:955-3:1159)
(Super)
Think about what AWS does: We provide
infrastructure, software, hardware and data center services. Ifyou think about that market segment, it's trillions ofdollars. There simply won't be only one player
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:4 [And ifthey fail, there's no co..] (1:2778-1:2928) (Super)
And ifthey fail, there's no collateral damage,
which is really exciting since it removes the paralyzing fear offailure that often stifles creativity
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:5 [Customers are telling us what ..] (2:4804-2:5053)
(Super)
Customers are telling
us what they want, and that drives a lot ofwhat we put on the roadmap. And I think you'll see us adding capabilities for companies with large data sets that want to do computing and processing, and then make that data useful
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:6 [At Amazon — and especially in ..] (3:2960-3:3153)
(Super)
At Amazon — and especially in AWS — the leadership team is
always trying to say yes. … That has a big impact on the team. It encourages people to come up with new
ideas that can help customers
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:7 [When the cost ofexperimentatio..] (1:2410-1:2608)
(Super)

When the cost ofexperimentation is high, and requires the
approvals ofa lot of committees and getting IT to schedule a project often weeks out, it's really hard to foster a culture of innovation.
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:8 [. Think about what AWS does: W..] (3:953-3:1052)
(Super)
. Think about what AWS does: We provide
infrastructure, software, hardware and data center services
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:9 [So we'll have about 175 course..] (1:1563-1:1658)
(Super)
So we'll have about 175
courses and 40 percent ofthem will be taught by customers or partners.
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:10 [Next week Amazon will hold its..] (1:789-1:928)
(Super)
Next week Amazon will hold its second re:Invent conference in Las Vegas, giving customers a chance to
learn about AWS's latest capabilities
P46: Andy_Jassy_2013_11_08_allthingsd.pdf - 46:11 [Ifwe don't offer all the funct..] (3:2355-3:2467)
(Super)
Ifwe don't offer all the functionality that they want now,
we're able to listen and quickly add what they want.
P47: Andy_Jassy_2013_11_12_wsj.pdf - 47:1 [?e h?ve ?? much ?c??e ?h?? ?e'..] (2:2217-2:2388) (Super)
We have so much scale that we're able to buy all the infrastructure at much lower prices and then pass those on at prices that are lower thant what can do on their own
P48: Andy_Jassy_2014_10_23_managermagazin.pdf - 48:1 [Ich habe jede erdenkliche Anal..] (2:2694-2:2826)
(Super)
Ich habe jede erdenkliche Analyse durchgeführt und glauben sie mir, AWS wird noch sehr lange Zeit einen freien Cash flow generieren.
P49: Geier_Rede_2015_04_13_computerwoche.pdf - 49:1 [Mit unserer Strategie wollen w..] (3:351-3:450)
(Super)
Mit unserer Strategie wollen wir dem deutschen Mittelstand helfen, innovativ zu sein und zu bleiben.
P49: Geier_Rede_2015_04_13_computerwoche.pdf - 49:2 [GEIER: Wir p??egen zahlreiche,..] (3:834-3:947)
(Super)

GEIER: Wir pflegen zahlreiche, intensive Technologie -Partnerschaften mit einer Vielzahl von Software-Herstellern.

P49: Geier_Rede_2015_04_13_computerwoche.pdf - 49:3 [Da der deutsche Mittelstand st..] (2:2868-2:3150)

(Super)

Da der deutsche Mittelstand stark mit Software-Anbietern
zusammenarbeitet und letztlich auch darauf setzt, dass diese ihre Software "as-a-service" anbieten, sind die Independent Software Vendors genauso wie die System-Integratoren wichtige Bausteine unserer Mittelstandsstrategie.

P50: Steffen_Krause_2013_08_26_t3n.pdf - 50:1 [Wichtig ist an der Stelle, das..] (2:838-2:1211) (Super)

Wichtig ist an der Stelle, dass die Anbieter die Möglichkeit haben, in
verschiedenen Lizenz-Modellen ihre Software gegen Geld oder auch kostenlos schlüsselfertig anzubieten. Kunden haben dadurch die Möglichkeit, die Software sofort nutzen zu können. Dadurch ergibt sich ein zusätzlicher Revenue-Stream für die Anbieter und auch ein zusätzlicher Nutzen für die Kunden

P50: Steffen_Krause_2013_08_26_t3n.pdf - 50:2 [Ganz wichtig ist natürlich die..] (4:719-4:846) (Super)

Ganz wichtig ist natürlich die Empfehlung, möglichst alles zu
automatisieren und möglichst alles über API-Steuerung zu machen.

P52: Werner_Vogels_2006_05_16_infoq.pdf - 52:1 [A lot of innovation was necess..] (1:752-1:857) (Super)

A lot of innovation was necessary to make this happen, as we were one ofthe first to take this approach.

P52: Werner_Vogels_2006_05_16_infoq.pdf - 52:2 [Giving developers operational ..] (1:1075-1:1653)

(Super)

Giving developers operational responsibilities has greatly enhanced
the quality ofthe services, both from a customer and a technology point ofview. The traditional model is that you take your software to the wall that separates development and operations, and throw it over and then forget about it. Not at Amazon. You build it, you run it. This brings developers into contact with the daytoday operation oftheir software. It also brings them into daytoday contact with the customer. This customer feedback loop is essential for improving the quality ofthe service.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:1 [The services model has been a ..] (2:4589-2:4707) (Super)

The services model has been a key
enabler in creating teams that can innovate quickly with a strong customer focus.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:2 [more sellers] (1:1576-1:1587) (Super)

more sellers

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:3 [The application that renders t..] (2:1928-2:2206) (Super)

The application that renders the
Amazon.com Web pages is one such application server, but so are the applications that serve the Web-services interface, the customer service application, the seller interface, and the many third-party Web sites that run on our platform.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:4 [A large part of Amazon.com's t..] (1:2028-1:2198)
(Super)

A large
part of Amazon.com's technology evolution has been
driven to enable this continuing growth, to be ultrascalable while maintaining availability and performance.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:5 [JG Let's postulate that somebo..] (6:2162-6:2514) (Super)

JG Let's postulate that somebody has come up with an
idea and the team has gone off and built something. How does the go/no-go decision get made?

WV It may depend on the criteria for success that were
defi ned up front. When the service is ready for beta testing, we will slowly introduce this to our customers, and then we measure relentlessly.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:6 [We have a very good understand..] (6:2561-6:2995)
(Super)

We have a very good understanding of how customers interact with the site as is. When we expose new
features we measure how they change the customer's behavior. For example, does it take the customer fewer steps to fi nd what he or she needs? This is hard because you are measuring human behavior; there are some things that customers are delighted about immediately and there are other things that they have to get used to.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:7 [WV There is, of course, long-r..] (6:304-6:567) (Super)

[SeizeB: Select decision-making protocols - Family: What] [SeizeC: Build loyalty and commitment - Family: What]

WV There is, of course, long-range business-strategy planning—whether it is our future in digital media or the way
we open up our platform for consumption by major partners—but there is also room for a lot of creative thinking by the larger Amazon community. I

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:8 [WV The Amazon development envi..] (8:532-8:651)
(Super)

WV The Amazon development environment requires

engineers and architects to be very independent creative thinkers. We
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:9 [Growth is core to Amazon.com's..] (1:1362-1:1479)
(Super)
Growth is core to Amazon.com's business strategy, and that has had a signifi cant impact on the
way we use technology
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:10 [The Amazon development environ..] (8:535-8:1062)
(Super)
The Amazon development environment requires
engineers and architects to be very independent creative thinkers. We are building things that nobody else has done before, so you need to be able to think outside the box. You need to have a strong sense of ownership, because in the small teams in which you will work at Amazon, your colleagues will count on you to pull your weight—especially when it comes to operating the service
that you have built. Can you take responsibility for making this the best it can be?
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:11 [The small-team concept means t..] (6:1120-6:1249)
(Super)
The small-team
concept means that you have a continuous feedback loop where you try to understand the impact for the customer.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:12 [There is another lesson here: ..] (2:4902-2:5084) (Super)
There is another lesson here: Giving developers operational responsibilities has greatly enhanced the quality
of the services, both from a customer and a technology point of view.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:13 [This customer feedback loop is..] (4:140-4:223) (Super)
This customer feedback loop is essential for
improving the quality of the service.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:14 [We provide incentives for some..] (4:4945-4:5265)
(Super)
We provide incentives for
some things, such as integration with the monitoring system and other infrastructure tools. But for the rest, we allow teams to function as independently as possible. Developers are like artists; they produce their best work if they have the freedom to do so, but they need good tools.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:15 [If applied, strict service ori..] (2:3745-2:3903) (Super)

If
applied, strict service orientation is an excellent technique to achieve isolation; you come to a level of ownership and control that was not seen before.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:16 [it's not only the technology s..] (2:4435-2:4707) (Super)

it's not only the
technology side that was improved by using services. The
development and operational process has greatly benefi ted from it as well. The services model has been a key enabler in creating teams that can innovate quickly with
a strong customer focus.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:17 [Giving developers operational ..] (2:4932-2:5283)
(Super)

Giving developers operational responsibilities has greatly enhanced the quality
of the services, both from a customer and a technology point of view. The traditional model is that you take
your software to the wall that separates development and operations, and throw it over and then forget about it.
Not at Amazon. You build it, you run it.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:18 [You've integrated with Sears, ..] (7:3870-7:3930) (Super)

You've integrated with Sears, Nordstrom, Target, and
so on.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:19 [Behind Amazon's successful evo..] (1:617-1:827) (Super)

Behind Amazon's successful evolution from
retailer to technology platform is its SOA (service-oriented architecture), which broke new technological ground and proved that SOAs can deliver on their promises

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:20 [We went through a period of se..] (2:1214-2:1436)
(Super)

We went through a period of serious introspection
and concluded that a service-oriented architecture would give us the level of isolation that would allow us to build many software components rapidly and independently

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:21 [How do you make sure that deve..] (5:3017-5:3126)
(Super)

How do you make sure that developers are
productive in this large distributed service-oriented architecture?

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:22 [This fast response to new idea..] (6:1473-6:2157)
(Super)
This fast response to new ideas is enabled through the
loosely coupled services model, both in technology and at the developer and operations level. From the outside, the services in our platform may appear chaotic, but chaotic in a good sense—in that we try not to impose a rigid structure on the different functional pieces, but we
expect there to be order when looking at it from a different dimension. Thinking about this whole system as a big deterministic system would be unrealistic. Life is not
deterministic, and a large-scale distributed system such as Amazon has many organic and emerging properties that can come to life only if you do not constrain it.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:23 [I think part of the chaotic na..] (4:4759-4:5265) (Super)
I think part of the chaotic nature—the emerging
nature—of Amazon's platform is that there are many tools available, and we try not to impose too many constraints on our engineers. We provide incentives for some things, such as integration with the monitoring system and other infrastructure tools. But for the rest, we allow teams to function as independently as possible. Developers are like artists; they produce their best work if they have the freedom to do so, but they need good tools.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:24 [There is quite a bit of develo..] (4:4017-4:4376) (Super)
There is quite a bit of development happening in
Eclipse, but IntelliJ's IDEA is also popular for Java development. Some development happens in Visual Studio.
Developers of our services can use any tools they see fi t to build their services. Developers themselves know best which tools make them most productive and which tools are right for the job.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:25 [The support environment around..] (5:86-5:198) (Super)
The support environment
around the service development should never get in the
way of the development itself.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:26 [If an idea is deemed worthy of..] (6:806-6:1118) (Super)
If an idea is deemed worthy of investigation, we
exploit our service development approach to scope and prototype the idea quickly. With a new radical service, you try to go into prototype mode pretty quickly, and then you start iterating on that until you feel that you understand your business problem.

P53: Werner_Vogels_2006_05_22_acm.pdf - 53:27 [Different groups at Amazon int..] (8:1829-8:2062)
(Super)
Different groups at Amazon interact with academia.
Often a service needs to develop new revolutionary technology from scratch, and they will look at who in the research world worked on these topics before and who can help out.
P53: Werner_Vogels_2006_05_22_acm.pdf - 53:28 [realize that it's hard in acad..] (8:3135-8:3467) (Super)
I realize that it's hard in academia to do research at
the scale of operation that Amazon requires. So we don't look to academia to solve those challenges for us. We're building data sets here at Amazon, however, to provide to academics so that we can get interactions going on some of the issues where they can contribute.
P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:1 [Each service has a team associ..]
(1:1965-1:2108) (Super)
Each service has a
team associated with it that takes the reliability of that service and is responsible for the innovation of that service.
P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:2 [We first had to develop it for..] (2:198-2:555)
(Super)
We first had to develop it for
ourselves in a way that those teams could focus on the innovation side and not become super app administrators and super operators, because there's no glory in that, although at Amazon-scale, all engineers need to be aware of scale, reliability, and be able to failover their services from one data center to another.
P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:3 [From an innovation point of vi..]
(5:2923-6:249) (Super)
From an
innovation point of view, quite a number of enterprises are considering moving some of their services into the cloud and then opening them up such that they
can become part of the cloud ecosystem, making it easy for Company X to access their services in the cloud and third parties to extend the platform they're building.
P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:4 [Integration between these diff..] (6:677-6:759)
(Super)
Integration between
these different platforms will become increasingly important.

P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:5 [Amazon is known as an open sou..]
(2:1206-2:1244) (Super)
Amazon is known as an open source shop.
P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:6 [Around the time I joined, we a..]
(1:1017-1:1534) (Super)
Around the time I joined, we already had established this large-scale service-oriented architecture. The phase before that, Amazon was mainly databases and application servers. That had come to sort of an end of life as an architecture around 2000, 2001. We moved to this service-oriented architecture by taking individual pieces of business logic that sat in the application servers, looked for the data that they operated on, brought those together, and put an API on them, that's what we call a service.
P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:7 [One is isolation, driven by th..] (3:1942-3:2223)
(Super)
One is isolation, driven by the service-oriented architecture. There's no direct database access except for the pieces of software that run on the service, and the service has a hardened API. That is the only way that services or software pieces can interact with each other
P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:8 [The second piece, and it's a m..] (3:2227-4:135)
(Super)
The second piece, and it's a more fundamental architecture piece, is these software components are loosely coupled, where the interaction between them is there's no tight connection or dependency between different pieces, which means if failure happen or if overload occurs, it's easy for software components to switch to other components that aren't faulty or provide better availability. We do that at a micro level and at a number of higher abstraction levels, even to the point our systems are designed to withstand complete data center failures. We have a rule internally in the e-commerce space that we should be able to lose a complete data center without the SLA to the customer getting violated. So isolation and loosely coupled are the two building principles that we use to construct the overall architecture.
P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:9 [I think there are a number of ..] (7:106-7:516)
(Super)
I think there are a number of standard principles that we can apply in terms of hierarchies, of loose coupling, of probabilistic techniques that I'm confident will serve us for quite a bit of time. When we developed these services, we were looking ahead in terms of what kind of scale we could

achieve, and we're not there yet. Even then, I'm confident that the choices we've made were the right ones.

P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:10 [customer-oriented development]

(4:2743-4:2771) (Super)

customer-oriented development

P55: Werner_Vogels_2008-12-19_informationweek.pdf - 55:11 [I've heard customers talk abou..]

(6:1490-6:1702) (Super)

- Family: What] [SeizeA: Redesign business model - Family: What]

I've heard customers talk about partner clouds,

where they may have an internal one for ease of development, maybe some shared services with partners and, after that, they move things into the public cloud.

P56: Werner_Vogels_2008_07_31_virtualization.pdf - 56:1 [Venture capitalists seem upset..] (1:1664-1:2031)

(Super)

Venture capitalists seem upset about side effects, such as startup funding independence, as these fast growing tech companies are no longer in need to burn lots of VCmoney on hardware platforms and technologies upfront. They can now scale their offering dynamically, driven by organic growth, while generating the necessary revenues to cover the extra cloud cost.

P56: Werner_Vogels_2008_07_31_virtualization.pdf - 56:2 [How hard was it to integrate t..] (2:1800-2:2313)

(Super)

How hard was it to integrate the Xen hypervisor into your cloud platform?

"I think Xen is a great product. It is easy to use. But most importantly is the very active community around it. I would not

say many 'issues' around using Xen, but 'challenges' are addressed there with the things every virtual machine has to deal with. Things such as: I/Oissues, guaranteed scheduling issues, domain zero security concerns,…The community out there is very helpful. That was a very big reason for us in selecting Xen."

P56: Werner_Vogels_2008_07_31_virtualization.pdf - 56:3 [It is remarkable to hear the C..] (1:685-1:929)

(Super)

It is remarkable to hear the CTO of a multinational openly

thank the open source community for their active support on Xen and hear him claim this to be the main reason for having chosen Xen as a crucial Amazon cloudenabling building block.

P56: Werner_Vogels_2008_07_31_virtualization.pdf - 56:4 [Let's first start of with the ..] (3:853-3:1122)

(Super)

Let's first start of with the notion of vendor lockin. As I mentioned in my talk, I like to believe that Amazon works very
hard to provide APIs, which are so simple that there is hardly any vendor lockin. We use standard techniques to give people access to our APIs.

P57: Werner_Vogels_2009_11_27_computerweekly.pdf - 57:1 [Commercial software can also b..]
(3:505-3:621) (Super)

Commercial software can also be licensed to run on AWS, although each
software firm sets its own licensing policies.

P57: Werner_Vogels_2009_11_27_computerweekly.pdf - 57:2 ["Eli Lilly is doing collaborat..] (2:1659-2:1773)
(Super)

"Eli Lilly is doing collaborative drug research using external researchers who collaborate
over AWS," says Vogels.

P57: Werner_Vogels_2009_11_27_computerweekly.pdf - 57:3 [People are using AMS not only ..] (2:684-2:876)
(Super)

People are using AMS not only for software development, testing and
prottyping new applications, but also to support collaboration using applications like Microsoft SharePoint hosted on AWS."

P57: Werner_Vogels_2009_11_27_computerweekly.pdf - 57:4 [Moving software development in..]
(2:1112-2:1254) (Super)

Moving software development
into the cloud is a good way for users to understand how cloud computing can be used in a production environment,

P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:1 [AWS customers are doing some r..] (2:1146-2:1597)
(Super)

AWS customers are doing some really innovative things around dealing with Big Data. For example digital advertising and marketing firm, Razorfish. Razorfish targets online adverts based on data from browsing sessions. A common issue Razorfish found was the need to process gigantic data sets. These large data sets are often the result of holiday shopping traffic on a retail website, or sudden dramatic growth on a media or social networking site

P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:2 [Our pace of innovation has bee..] (2:2630-2:2708)
(Super)

Our pace of innovation has been rapid because of our relentless customer focus.

P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:3 [Third, we recognized that Hado..] (3:1203-3:1369)

(Super)
Third, we recognized that Hadoop was gaining
substantial popularity in the industry with multiple customers using Hadoop and many vendors innovating on top of Hadoop
P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:4 [Big Data holds the promise of ..] (2:484-2:634) (Super)
Big Data holds the promise of helping companies create a competitive
advantage as through data analysis they learn how to better serve their customers
P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:5 [We chose Hadoop for several re..] (3:849-3:1369)
(Super)
technology/feature and product/service architecture - Family: What] [SeizeA: Redesign business model - Family: What] [Sense 1: Sensing external innovation - Family: What] [Sense 2: Sensing and direct internal innovation - Family: What] [Sense 3: Encouraging open innovation focused on a broad external base - Family: What] [SenseA: Identify, target, select and exploit RDI - Family: What] [TransformC: Support open innovation and modularity - Family: What]
We chose Hadoop for several reasons. First, it is the only available
framework that could scale to process 100s or even 1000s of terabytes of data and scale to installations of up to 4000 nodes. Second, Hadoop is open source and we can innovate on top of the framework and inside it to help our customers develop more preformat applications quicker. Third, we recognized that Hadoop was gaining
substantial popularity in the industry with multiple customers using Hadoop and many vendors innovating on top of Hadoop
P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:6 [We've lowered our prices 12 ti..] (2:3196-2:3288)
(Super)
We've lowered our prices 12 times in the past 5 years with no competitive pressure to
do so.
P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:7 [We also see that existing BI v..] (3:1428-3:1574)
(Super)
We also see that existing BI
vendors such as Microstrategy are willing to work with us and integrate their solutions on top of Elastic MapReduce.
P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:8 [There's really no substitute f..] (2:2935-2:3088)
(Super)
There's really no substitute for the

accelerated learning we've had from working with hundreds of thousands of customers with every imaginable use case.

P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:9 [We found, though, that there h..] (2:3984-2:4195)

(Super)

We found, though, that there had been some struggles with applying the concepts so
we published the paper as feedback to the academic community about what one needed to do to build realistic production systems.

P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:10 [Why didn't you develop Open So..] (2:4275-2:4379)

(Super)

Why didn't you develop Open Source data platforms from the start like for example Facebook and LinkedIn?

P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:11 [I believe anything we can do t..] (3:495-3:604)

(Super)

I believe anything we can do to make AWS
lowercost and widely available will help the community tremendously

P58: Werner_Vogels_2011_11_02_odbms.pdf - 58:12 [We are also relentless about d..] (2:3091-2:3193)

(Super)

We are also relentless about driving efficiencies and passing along the cost savings to our customers.

P59: Werner_Vogels_2013_09_20_channelpartner.pdf - 59:1 [Hinzu kommt unser starker Foku..]

(2:2899-2:2970) (Super)

Hinzu kommt unser starker Fokus auf Innovationen und Preisreduzierungen.

P59: Werner_Vogels_2013_09_20_channelpartner.pdf - 59:2 [Im Rahmen des AWS Partner Netw..]

(3:2936-3:3105) (Super)

- Family: To whom] [Seize 6: Designing partnerships - Family: What] [SeizeA: Redesign business model - Family: What]
Im Rahmen des AWS Partner Network (APN) können sich Reseller als AWS-Partner qualifizieren und die AWS-Dienste,
für die
sie Boni erhalten, mit eigenen Services veredeln.

P59: Werner_Vogels_2013_09_20_channelpartner.pdf - 59:3 [Wir haben neben den großen Con..]

(3:2147-3:2322) (Super)

19: Deciding and managing integration, outsourcing and insourcing - Family: What] [SeizeA: Redesign business model - Family:

What] [SeizeD: Select enterprise boundaries to manage complements and "control" platforms - Family: What] [Transform 7: Developing integration, coordination and reconfiguration skills - Family: What] [TransformC: Support open innovation and modularity - Family: What]
Wir haben neben den großen Consulting- und Integrationspartnern sehr viele neue Partnerschaften mit
Resellern geschlossen, die vom Start weg auf unsere Cloud-Angebote setzten.
P59: Werner_Vogels_2013_09_20_channelpartner.pdf - 59:4 [All unsere Dienste basieren au..] (2:3411-2:3804)
(Super)
All unsere Dienste basieren auf offenen, standardisierten APIs - mehr Standardisierung geht nicht. Die Services
wurden von
Grund auf so entwickelt, dass Kunden sehr einfach von einer Umgebung zu einer anderen migrieren können.
Entsprechend sind auch
unsere Verträge so gestaltet, dass der Kunde beispielsweise jederzeit zu einem anderen Anbieter wechseln kann. Er behält die volle Kontrolle.
P59: Werner_Vogels_2013_09_20_channelpartner.pdf - 59:5 [Obendrein investieren wir mass..]
(1:2461-1:2567) (Super)
Obendrein investieren
wir massiv in neue Sicherheitstechnologien, beispielsweise bei der Verschlüsselung
.
P59: Werner_Vogels_2013_09_20_channelpartner.pdf - 59:6 [Viele traditionelle Player ver..] (2:2587-2:2897)
(Super)
Viele traditionelle Player verfolgten über vieleJahre hinweg die Strategie, Kunden an ihre Technologie zu binden. Die
einzige
Möglichkeit für Kunden, den Preis für die Dienste und Ausstattung zu senken war es, langfristige Verpflichtungen einzugehen. AWS setzte
dagegen von Anfang an auf offene Technologien.
P59: Werner_Vogels_2013_09_20_channelpartner.pdf - 59:7 [Die höchste Priorität messen w..] (4:248-4:705)
(Super)
Die höchste Priorität messen wir der Security und der Operational Excellence bei und in beide Themen werden wir
entsprechend
investieren - das war schon immer so und daran werden wir festhalten. Zweitens werden wir die internationale Expansion weiter

vorantreiben. Ein dritter Fokus wird auf der Weiterentwicklung der Management-Tools liegen, um es Kunden
einfacher zu machen,
unsere Dienste zu nutzen und diese in ihre bestehende Umgebung mit einzubinden
P59: Werner_Vogels_2013_09_20_channelpartner.pdf - 59:8 [Amazon will über Partner die U..] (1:397-1:448)
(Super)
Amazon will über Partner die Unternehmens-IT erobern
P61: Werner_Vogels_2014_07_19_recode.pdf - 61:1 [Our customers set the roadmap...] (3:1860-3:1889)
(Super)
Our customers set the roadmap.
P63: Werner_Vogels_2015_04_29_cnbc.pdf - 63:1 ["?here'? ? difference be??een ..] (2:863-2:1096) (Super)
"There's a difference between pricing, low pricing and commodity. If you look at sort of the wirde range of services that we have availableon AWS, if you look at the cloud in2010, its almost the bottom layer of what Amazon is now.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:1 [With recent investments for ad..] (4:568-4:1033)
(Super)
With recent investments for
additional capacity and other innovations, we also expect AWS to become an increasingly positive gross margin contributor--the segment posted 23.6% segment operating income in 2015 and believe this segment can deliver 30%-plus margins over a longer horizon--because of its highly scalable nature and other services outside of cloud storage, including a network of third-party software providers selling on the AWS marketplace.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:2 [Other downside risks include e..] (6:25-6:233) (Super)
Other downside risks include exposure to volatile discretionary spending
patterns and expansion into peripheral business lines, which could distract management or lead to poor capital-allocation decisions.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:3 [We believe the Fire Phone char..] (6:1770-6:2045)
(Super)
We believe the Fire
Phone charges were a wake-up call for management's future capital decisions, as the company runs the risk of losing key personnel without stronger returns on invested capital, owing to the equity component of many employees' compensation structure.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:4 [In Amazon's case, we do not be..] (4:1309-4:1534)

(Super)
In Amazon's case, we do not
believe traditional P/E and enterprise value/EBITDA metrics are meaningful, given the impact that technology, content, and infrastructure investments are expected to have on near-term margins.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:5 [Bezos owns about 20% of the sh..] (6:664-6:943)
(Super)
Bezos owns about 20% of the shares, takes no equity
compensation or bonus pay, and collects a paltry salary. Although the board is small, it is elected every year, receives no cash compensation, avoids insider relationships, and hasn't implemented antitakeover provisions.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:6 [Aided by the network effect in..] (1:666-1:981)
(Super)
Aided by
the network effect inherent in 285 million global active users and recent fulfillment infrastructure, technology, and content investments, Amazon owns one of the wider economic moats in the consumer sector and is likely to remain a disruptive force in retail, digital media, and enterprise software.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:7 [continue to outpace global e-c..] (1:1222-1:1345)
(Super)
continue to outpace global e-commerce trends, suggesting
that Amazon is gaining share while fortifying its network effect.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:8 [Its low-cost operations, netwo..] (2:1339-2:1582)
(Super)
Its low-cost operations,
network effect, and laser focus on customer service provide it with sustainable competitive advantages that traditional retailers cannot match; this should yield additional market share gains in the years to come.
P64: Hottovy_2015_10_23_analysisreport.pdf - 64:9 [We also believe Amazon Web Ser..] (3:2465-4:61)
(Super)
We also believe Amazon Web Services has similarly developed cost advantage, intangible asset, and network effect
moat sources.
P65: Lopez_2012_04_22_gigaom.pdf - 65:1 [Once the network effects fully..] (2:2266-2:2679) (Super)
Once the network

effects fully kick in, there will be even less incentive for application vendors to support other platforms.
The thought of a single player dominating an industry is always uncomfortable. However, unless its competitors get their
act together soon, the dominance of Amazon in the cloud market will continue to grow; it's already starting to look eerily
similar to that of Microsoft in the 90s.
P65: Lopez_2012_04_22_gigaom.pdf - 65:2 [These packages are available f..] (2:871-2:1091) (Super)
These packages are available free of charge, but no matter how much we try to simplify the experience, there is still
significant friction in the process in terms ofjust making the decision to give an application a try.
P65: Lopez_2012_04_22_gigaom.pdf - 65:3 [However, the initial version o..] (2:1598-2:1925) (Super)
However, the initial version of the AWS Marketplace is not perfect and there are still issues that will need to get
ironed out
around licensing, payment and support, including how to handle upgrades or integrating existing activation schemes with
the one-click deployment model. But the first stake has been put in the ground.
P65: Lopez_2012_04_22_gigaom.pdf - 65:4 [At BitNami.org, we package ope..] (2:742-2:869) (Super)
At BitNami.org, we package open source applications so they are easy to install in any environment, including the
Amazon cloud.
P66: Morgan_2015_04_09_nextplatform.pdf - 66:1 [These customers have toughprob..] (3:284-3:574)
(Super)
These customers have tough problems and they want to solve them and this drives Innovation that other customers benefit from. "There's a real neetwork effect when you are AWS." Well, there is a network effect for all technology providers, so this is not actually unique to AWS
P66: Morgan_2015_04_09_nextplatform.pdf - 66:3 [What canbe honestlysaid is tha..] (3:578-3:846) (Super)
What can be honestly said is that the massive head start that AWS has after being in the field for
more than a decade and its relentless pursuit to innovate and radically upset the IT business as we know it is why customers are flocking to AWS with their workloads.
P67: Schonfeld_2008_04_21_anand.pdf - 67:1 [There are two basic underlying..] (1:1276-1:1504) (Super)
There are two basic underlying forces behind the network effects:

1. Code that works with large amounts ofdata needs to be close to the data (in the network topology sense).
2. Any processing that consumes data generates data.

P67: Schonfeld_2008_04_21_anand.pdf - 67:2 [The network effect extends acr..] (1:2061-1:2302) (Super)

The network effect extends across companies as well. Often data created by company A is consumed by company B.
When
this "data interface" is voluminous, it makes economic sense for company B to move into the same utility cloud as company A.

P67: Schonfeld_2008_04_21_anand.pdf - 67:3 [The network effects argument l..] (1:2706-1:3106) (Super)

The network effects argument leads to the interesting possibility that cloud computing becomes a winnertakeall
game,
like auctions; we might end up with one winner (maybeAmazon?) A more likely outcome is, we might end up with a couple ofbig generalpurpose clouds (Amazon and Google, perhaps?) and a few niche clouds optimized for different ecosystems (such as ad networks and social networks).

P67: Schonfeld_2008_04_21_anand.pdf - 67:4 [There are some ecosystems wher..] (1:2304-1:2558) (Super)

There are some ecosystems where utility computing players are already exploiting this trend; for example,
AppNexus is creating a utility cloud optimized for the use ofad networks and their associated ecosystem: analytics for publishers and advertisers.

P67: Schonfeld_2008_04_21_anand.pdf - 67:5 [I think in many cases, the net..] (2:741-2:890) (Super)

I think in many cases, the networkbandwidth is not the bottleneck usually the data transformations and load
process itselftend to be a bottleneck

P67: Schonfeld_2008_04_21_anand.pdf - 67:6 [A highranking Amazon executiv..] (1:453-1:894) (Super)

A highranking Amazon executive told me there are 60,000 different customers across the various Amazon Web
Services, and most ofthem are not the startups that are normally associated with ondemand computing. Rather the biggest customers in both number and amount ofcomputing resources consumed are divisions ofbanks, pharmaceuticals companies and otherlarge corporations who try AWS once for a temporary project, and then get hooked.

P67: Schonfeld_2008_04_21_anand.pdf - 67:7 [There are a large number of di..] (2:1010-2:1182) (Super)

There are a large number of different data centers/hosting services out there today. Ifthe network effects were so
strong, I'd have
expected there to be far fewer ofthose

P67: Schonfeld_2008_04_21_anand.pdf - 67:8 [Companies frequently need to m..] (2:593-2:1003) (Super)

Companies frequently need to move data between different applications and end up doing this through a whole
bunch ofways (ETL
tools for example). I think in many cases, the networkbandwidth is not the bottleneck usually the data transformations and load
process itselftend to be a bottleneck. So, it maybe feasible for two different apps to be in two different data centers and consume each
others data.

P68: Golden_2013.pdf - 68:1 [From the AWS perspective, the ..] (36:1370-36:1546) (Super)

From the AWS perspective, the network effect means that, if you're providing a new cloud-based service, it makes sense to offer it where lots of other cloud users are locate

P68: Golden_2013.pdf - 68:2 [The technical aspects of AWS p..] (36:1923-36:1973) (Super)

The technical aspects of AWS play a
part as well.

P68: Golden_2013.pdf - 68:3 [If you're setting up a new ser..] (37:716-37:838) (Super)

If you're setting up a
new service, you'll be attracted to AWS because lots of other services are already located there

P68: Golden_2013.pdf - 68:4 [The service is already up and ..] (37:1583-37:1889) (Super)

The service is already up and running within AWS. You don't have to obtain the software, install it, configure it, test it, and then integrate it into your application. Because it's already operational in the AWS environment, you can skip directly to the last step
— perform the technical integration.

P68: Golden_2013.pdf - 68:5 [The services have a cloud-frie..] (37:1894-37:2353) (Super)

The services have a cloud-friendly licensing model. Vendors have already figured out how to offer their software and charge for it in the AWS environment. Vendors often align with the AWS billing methodology, charging per hour of use or offering a subscription for monthly
access. But one thing you don't have to do is approach a vendor that

has a large, upfront license fee and negotiate to operate in the AWS environment — it's already taken care of.

P68: Golden_2013.pdf - 68:6 [Support is available for the s..] (37:2358-37:2683) (Super)

Support is available for the service. You don't have to figure out why a software component you want to use doesn't work properly in the AWS environment — the vendor takes responsibility for it. In the parlance of the world of support, you have, as the technology industry rather indelicately puts it, a throat to choke.

P68: Golden_2013.pdf - 68:7 [Performance improves. Because ..] (38:41-38:213) (Super)

Performance improves. Because the service operates in the same environment that your application runs in, it provides low latency and helps your application perform better

P68: Golden_2013.pdf - 68:8 [An interesting trend within AW..] (35:1961-35:2207) (Super)

An interesting trend within AWS is the increasing move by traditional software vendors to migrate their applications to AWS and provide them as SaaS offerings rather than as applications that users install from a CD or DVD on their own machines.

P68: Golden_2013.pdf - 68:9 [The reason the AWS ecosystem h..] (36:519-36:772) (Super)

The reason the AWS ecosystem has become the computing marketplace for all and sundry can be captured in the phrase network effect, which can be thought of as the value derived from a network because other network participants are part of the network.

P68: Golden_2013.pdf - 68:10 [In fact, one key Amazon strate..] (113:1501-113:1708) (Super)

In fact, one key Amazon strategy is to offer a rich set of complementary services that support and reinforce one another, all with the goal of making it easier to develop and deploy applications on AWS.

P68: Golden_2013.pdf - 68:11 [AWS environment acts as an int..] (41:206-41:370) (Super)

- Family: What] [TransformC: Support open innovation and modularity - Family: What]

AWS environment acts as an integrated collection of hardware and software services designed to enable the easy, quick, and inexpensive use of computing resources

P68: Golden_2013.pdf - 68:12 [Netflix created its own AWS ma..] (50:1726-50:1940) (Super)

Netflix created its own AWS management

tools to manage any of its applications running in AWS. Netflix even offers the tools under open source licenses so that other AWS users can take advantage of its work.

P68: Golden_2013.pdf - 68:13 [All of the incumbent technolog..] (351:1592-351:1813) (Super)

All of the incumbent technology market
leaders had no incentive to change the way they did business. It took an outsider like Amazon, which had no legacy business to protect, to rethink the
way technology is delivered.

P69: Jeff_Bezos_2013_01_hbr.pdf - 69:1 [When things get complicated, w..] (4:377-4:940) (Super)

When things get complicated, we simplify by saying what's best for the customer? And then we take it as an article of faith if we do that, it'll work out the long term. So we can never prove that. In fact, sometimes we've done a price elasticity studies, and the answer is always we should raise prices. And we don't do that because we believe– and again, we have to take this as an article of faith– we believe by keeping our prices very, very low, we earn trust with customers over time, and that that actually does maximize free cash flow over the long term

P69: Jeff_Bezos_2013_01_hbr.pdf - 69:2 [Percentage margins are not one..] (3:1921-3:2132) (Super)

Percentage margins are not one of the things we are seeking to optimize. It's the absolute dollar-free cash flow per share that you want to maximize, and if you can do that by lowering margins, we would do that.

P69: Jeff_Bezos_2013_01_hbr.pdf - 69:3 [And if you get here, and you ?..] (4:2198-5:122) (Super)

And if you get here, and you find that you get your motivationfrom having a more competitive-focused culture, you
might find our culture dull. We don't. We find a culture intensely fun.

P69: Jeff_Bezos_2013_01_hbr.pdf - 69:4 [I do know of companies, and th..] (3:1036-3:1361) (Super)

I do know of companies, and their annual planning
process starts with the list of their three top enemies, and they work from there. They get motivation from the competitive zeal. Our approach is not to start with that list. We do look at other companies, and so we pay attention, but it's not where we get our energy form.

P69: Jeff_Bezos_2013_01_hbr.pdf - 69:5 [When they wake up and are thin..] (4:2017-5:122) (Super)

When they wake up and are thinking in the shower in the
morning, they're thinking about customers, and thinking about how to invent on behalf of

customers, and they find that fun. And if you get here, and you find that you get your motivationfrom having a more competitive-focused culture, you might find our culture dull. We don't. We
find a culture intensely fun.
P69: Jeff_Bezos_2013_01_hbr.pdf - 69:6 [And the people who like our me..] (5:254-5:394) (Super)
And the people who like our mentality of exploration and
pioneering, they tend to stay here, and have fun here, and that's self-reinforcing.
P69: Jeff_Bezos_2013_01_hbr.pdf - 69:7 [sometimes we've done a price e..] (4:585-4:941) (Super)
sometimes we've done a price elasticity studies, and the answer is
always we should raise prices. And we don't do that because we believe– and again, we have to take this as an article of faith– we believe by keeping our prices very, very low, we earn trust with customers over time, and that that actually does maximize free cash flow over the long term.
P70: Subramanian_2011_02_23_cloudave.pdf - 70:1 [He pointed out to how Amazon i..] (1:1971-1:2222)
(Super)
He pointed out to how Amazon is
already living in peace with competing third party merchants on their ecommerce platform. He even highlighted the fact that Amazon has a history of cannibalizing their own business to support a customer oriented view.
P70: Subramanian_2011_02_23_cloudave.pdf - 70:2 [Remeber, in spite of the openn..] (1:1260-1:1550)
(Super)
Remeber, in spite
of the openness we tout in the cloud world, the cost of moving the infrastructure away from Amazon will be prohibitive for Netflix. Will Amazon play dirty games to kick a competitor away from the market or will it play straight and protect their booming cloud business.
P71: Rossmann_2015.pdf - 71:1 [Amazon's leaders define their ..] (2:32-2:518) (Super)
Amazon's leaders define their goals clearly and then use metrics to establish whether they are right. They don't make the same mistakes over and over. There is an implicit understanding that Amazon's leaders will be right far more often than they are wrong. I f they do fail at anything, they are expected to learn from their mistakes, develop insights from those mistakes and share them with
the rest of the company so the same mistake doesn't get recycled over and over.
P71: Rossmann_2015.pdf - 71:2 [PowerPoints are not allowed at..] (2:521-2:1117) (Super)
PowerPoints are not allowed at Amazon management meetings. Instead, leaders

are required to write out their ideas in a two-page narrative. Then, at the beginning of the meeting, that two-page document is handed out and everyone sits quietly reading it before discussing the idea.
"When you have to write your ideas out in complete sentences and complete paragraphs, it forces a deeper clarity of thinking. By contrast, in the typical PowerPoint show, you get very little information, you get bullet points. This is easy for the presenter, but difficult for the audience. "
P71: Rossmann_2015.pdf - 71:3 [To further clarify an idea, Am..] (2:1139-2:1626) (Super)
To further clarify an idea, Amazon leaders also develop and articulate project vision statements in the form of "future press releases."
A future press release is a short, simple and clear statement of how the project will be viewed if it achieves its aims and objectives. It is imagined this is what will be written once the project has come to fruition and as such will describe what was developed, why this is important to customers and what goals were achieved.
P77: Haug, Kretschmer and Strobel_2016.pdf - 77:1 [Cloud enablers or complementor..] (4:1369-4:1461)
(Super)
Cloud enablers or complementors are auditors, brokers, or additional-value service providers.
P77: Haug, Kretschmer and Strobel_2016.pdf - 77:2 [This cost advantage could orig..] (4:3912-4:4050)
(Super)
This cost advantage could originate from a specialized cloud computing vendor reaping
economies ofscale vis-à-vis an in-house IT solution
P78: Isckia and Lescop_2009.pdf - 78:1 [The case shows that by using W..] (2:1380-2:1880) (Super)
The case shows that by using
Web services to enhance collaboration in business ecosystems, some companies could support open innovation and expand the value of the goods and services they deliver to customers. It sheds light on the role of ICTs in sustaining Amazon's approach to open innovation. Platform strategy and web services are the cornerstone of Amazon's open innovation model since they allow and foster application-to-application interactions within its business ecosystem.
P78: Isckia and Lescop_2009.pdf - 78:2 [Amazon Web Services (AWS) have..] (2:1881-2:2168) (Super)
Amazon Web Services (AWS) have helped achieve
loosely-coupled networks that support collaboration between business partners. Even if we cannot generalize the findings of the case study, lessons can be drawn about open innovation in the context of an ICT-based business ecosystem.

P78: Isckia and Lescop_2009.pdf - 78:3 [Today, many firms, independent..] (9:962-9:1157) (Super)

Today, many firms, independent developers and middleware integrators
use these Web services to interact with Amazon's platform, creating a business ecosystem very suitable for open innovation.

P78: Isckia and Lescop_2009.pdf - 78:4 [Three layers appear in the ope..] (10:389-10:810) (Super)

Three layers appear in the open innovation strategy of Amazon. First,
Amazon opened up its platform and ICT infrastructure through Web services. Secondly, it acts as an incubator for e-businness. Thirdly, the company expands the use and finally the reputation of its platform thanks to Amazon certified integrators. This enhances the attractiveness of the whole platform and hence value creation opportunities.

P78: Isckia and Lescop_2009.pdf - 78:5 [Until now, open innovation suc..] (14:2026-14:2404) (Super)

Until now, open innovation success
stories generally refer to large companies with market power, trust and success. Of course, it doesn't mean that SMEs or even start-ups cannot achieve an open innovation strategy but it seems easier when carried out by established companies with well-known brands and a robust knowledge base from which they can build a value network.

P78: Isckia and Lescop_2009.pdf - 78:6 [network externalities are at t..] (15:648-15:943) (Super)

network externalities are at the very core of the open innovation
dynamic. Platforms combine software stacks that can be used by other companies to innovate their business that in turn will bolster Amazon's platform in a self-reinforcing cycle, spreading its knowledge into its ecosystem.

P78: Isckia and Lescop_2009.pdf - 78:7 [AWS are used by independent de..] (15:1622-15:1908) (Super)

AWS are used by independent developers to explore new services
while they are used by certified integrators to exploit existing services. This duality is an important dimension of Amazon's open innovation strategy: platform as repository of knowledge, AWS as vectors of innovation.

P78: Isckia and Lescop_2009.pdf - 78:8 [platforms become open architec..] (6:1170-6:1847) (Super)

platforms become
open architectures enabling members of an ecosystem to access and use resources to develop new services that may interact and enhance those already available on the platform. This approach gives incentives for some firms to explore new strategic options and implement very innovative business models. Thus, shifting the focus from ownership to the concept of openness requires a special attention to the technological devices such as platform in coordinating partners' relationships within

business ecosystems. All these arguments tend to show that a business ecosystem managed by a keystone player is well-fitted for open innovation purposes.

P78: Isckia and Lescop_2009.pdf - 78:9 [The global value of the platfo..] (8:450-8:1285) (Super)

The global value of the platform
depends on positive network externalities which offer incentives for the leader to expose its most valuable services in order to seduce more complementors and partners. Thus, the leader doesn't only shape the global value network; he also reduces uncertainty in the ecosystem standardizing its partners' business models. In addition, since the growth of the periphery relies on a decentralised process, the more the leader will facilitate openness and access and the more he will explore and exploit the knowledge landscape. If the leader builds and clearly communicates methods or techniques (such as APIs) by which other partners can access modules and operate services via the platform, he will have the opportunity to become a hub supporting open innovation and value creation.

P78: Isckia and Lescop_2009.pdf - 78:10 [the ecosystem-based view offer..] (16:481-16:746) (Super)

the ecosystem-based view offers a complementary
framework to better appreciate how value is created and shared amongst ecosystem members. It also helps better understand each partner's incentives to join the network and choices regarding their business models.

P78: Isckia and Lescop_2009.pdf - 78:11 ["these initiatives are advanta..] (14:1487-14:1927) (Super)

What] [Transform 1: Learning - Family: What] [Transform 9: Embracing open innovation - Family: What] [TransformA: Manage knowledge - Family: What] [TransformC: Support open innovation and modularity - Family: What]
"these initiatives are advantages not only because
they drive the firm up the learning curve in the activity but also because the path dependent resources created over time, organizational experience and understanding of e-commerce markets, are likely to provide the firm competitive advantage in future periods" (SUBRAMANI & WALDEN, 1999). In this sense, these investments capture the dynamic capabilities of Amazon's platform.

P78: Isckia and Lescop_2009.pdf - 78:13 [value capture imposes a constr..] (15:2236-15:2301) (Super)

value capture imposes a constraint on the
openness of the system

P78: Isckia and Lescop_2009.pdf - 78:14 [While pursuing its historical ..] (9:697-9:957) (Super)

While pursuing its historical E-retailer business, Amazon
transformed itself into a true application service provider and decided to make its knowledge in the development of e-commerce services available to its partners, opening up his innovation process.

P78: Isckia and Lescop_2009.pdf - 78:15 [Web services: A bridge between..] (10:814-10:861) (Super)
Web services: A bridge between business partners
P78: Isckia and Lescop_2009.pdf - 78:16 [Finally, the project was appro..] (11:681-11:978) (Super)
Finally, the project was
approved and the generalised use of XML allowed Amazon to launch its first Web service in early 2002: Amazon E-Commerce Service (ECS). This Web service is win-win for both the affiliates and Amazon, but it is also an interesting solution for other Amazon partners.
P78: Isckia and Lescop_2009.pdf - 78:17 [the impact of Web services is ..] (11:2360-11:2695) (Super)
the
impact of Web services is not only limited to the syndication of content and the creation of a network of partners. Opening up its platform has also enabled Amazon to tap into new value deposits: the innovative applications dreamed up by external developers. Today, these applications have vastly increased Amazon's reach.
P78: Isckia and Lescop_2009.pdf - 78:18 [The most salient feature illus..] (13:333-13:718) (Super)
The most salient feature illustrated by these examples is the creativity
expressed by Amazon Light and ScoutPal and their experimentation with
new services based on AWS. With this approach, Amazon fosters cocreation of new services and encourages innovative effort by independent
developers, demonstrating its commitment to delivering innovation to its partners and customers.
P78: Isckia and Lescop_2009.pdf - 78:19 [Amazon has delivered about ten..] (13:1372-13:1542) (Super)
Amazon has delivered about ten different Web services that have
created significant opportunities for their business partners, and offer customers real business value.
P78: Isckia and Lescop_2009.pdf - 78:20 [Moreover, since they help othe..] (14:988-14:1224) (Super)
Moreover, since they help other companies to build their
own value proposition based on Amazon technology, they potentially create opportunities for these partners to innovate their business models in search for new value deposits.
P78: Isckia and Lescop_2009.pdf - 78:21 [The development of platforms s..] (15:239-15:627) (Super)
The development
of platforms shapes the nature of relationships between partners engaged in an open innovation process. The more the platform is open, the more it will

enhance collaboration between business partners. These platforms generate more innovative opportunities for the business ecosystem when they rely on open and modular architecture rather than on a monolithic one.

P79: Kolakowski_2009.pdf - 79:1 [The major risk in the use of S..] (1:3116-1:3278) (Super)

The major risk in the use of SaaS platforms for
complementors is related to platform lock-in. This is highest for Force.com, and lowest for Amazon Web Services

P79: Kolakowski_2009.pdf - 79:2 [Higher level services, facilit..] (5:3633-5:3874) (Super)

Higher level services, facilitating configuration, management
and monitoring are instead provided by complementors. As for example by Rightscale, which offers tools for automation, control and portability for applications deployed on EC2.

P79: Kolakowski_2009.pdf - 79:3 [Amazon needs to build trust am..] (5:3876-5:4313) (Super)

Amazon needs to build trust among such
complementors, as they may fear that it would incorporate their products into the platform. To do this the company announces new features before they are released and discusses the roadmap with complementing firms.
As the Amazon CTO, Werner Vogels, said: "We wanted to make sure people had a look at our roadmap, our goal is to be very respectful and recognize the value of the ecosystem".

P79: Kolakowski_2009.pdf - 79:4 [Costs of owning more than one ..] (9:1170-9:1207) (Super)

Costs of owning more than one platform

P79: Kolakowski_2009.pdf - 79:5 [Better opportunities in reachi..] (10:5648-10:5800) (Super)

Better opportunities in reaching the market increase incentives for start-ups,
without established reputations and existing customer base, to innovate.

P79: Kolakowski_2009.pdf - 79:6 [Activities in this area includ..] (5:4642-5:4829) (Super)

business model - Family: What]
Activities in this area include the Co-Marketing program and partnership arrangements allowing to use the AWS
trademark, as well as organising conferences for investors and entrepreneurs.

P79: Kolakowski_2009.pdf - 79:7 [Currently server costs dominat..] (9:4554-9:4681) (Super)

Currently server costs dominate, but as
computer prices fall and power becomes more expensive, the latter may become dominant.

P79: Kolakowski_2009.pdf - 79:8 [The software industry is chara..] (10:71-10:602) (Super)

The software industry is characterised by high costs in the development process. For this reason, the
first unit is very expensive in traditional software, but the marginal cost of producing subsequent units is very low. One can argue that, despite the elimination of infrastructure capital expenses, SaaS providers still have high fixed costs of development. However, SaaS platforms facilitate component suppliers in building applications as well, by reducing time and lowering the technical expertise required to do this.

P79: Kolakowski_2009.pdf - 79:9 [Platforms reduce transaction c..] (10:4499-10:4631) (Super)

Platforms reduce transaction costs that different parties in the ecosystem would need to incur to get
together (Evans, et al. 2006)

P79: Kolakowski_2009.pdf - 79:11 [Amazon Web Services permit dev..] (11:1792-11:2576) (Super)

Amazon Web Services permit developers to run standard programming
language applications, which can theoretically be ported out. This is, however, more difficult when those applications use platform-specific APIs. In fact platform APIs comply with standards in terms of the protocol (e.g. SOAP), however, there are no industry standards, as to how they define operations related to SaaS platform utilisation. There are no standard APIs either, for data portability, so the two platforms have their own proprietary storage interfaces. Nevertheless, Amazon permits any database server to run on EC2, which guarantees portability. Summarising, moving applications from App Engine and AWS is possible but, since it depends on the use of specific APIs, it is not always easy.

P79: Kolakowski_2009.pdf - 79:12 [Namely, it is possible to diff..] (1:2058-1:2200) (Super)

Namely, it is possible to differentiate
among the PaaS-type platforms and there are not strong enough network effects for IaaStype platforms.

P79: Kolakowski_2009.pdf - 79:13 [In the case of AWS, there are ..] (8:3164-8:3341) (Super)

In the case of AWS, there are no network effects
between the end users and the complementors, because there is no core application, such as Salesforce.com CRM or Google Apps.

P79: Kolakowski_2009.pdf - 79:14 [in the case of the low-level p..] (9:1657-9:1793) (Super)

in the case of the low-level platforms (IaaS),
such as AWS, the network effects are not strong enough for a platform leader to emerge.

P79: Kolakowski_2009.pdf - 79:15 [lowest degree of platform lock..] (13:1677-13:1777) (Super)
lowest degree of platform lock-in is
associated with low-level virtualisation platforms, such as AW
P80: Duryee_2015_05_19_geekwire.pdf - 80:1 [Cloud wars: Amazon is the clea..] (1:358-1:429) (Super)
Cloud wars: Amazon is the clear leader, with
Microsoft a distant second
P81: Brachmann_2015_05_01_ipwatchdogs.pdf - 81:1 [Amazon is currently disputing ..] (3:522-3:863)
(Super)
Amazon is currently disputing two
allegations of wrongful patent infringement filed in U.S. district courts over its AWS business. St. Louis-based cloud computing startup Appistry is accusing Amazon of infringing two patents which were the topic of discussions
between Appistry and Amazon officials between August and September of 2004.
P81: Brachmann_2015_05_01_ipwatchdogs.pdf - 81:2 [Also of interest is the fact t..] (4:245-4:513) (Super)
Also of interest is the fact that, on first glance, Amazon doesn't seem to have the strongest
IP portfolio in the world of cloud computing. A search of cloud computing technologies using Innography's patent analysis tools turns up 55 U.S. patents held by the company.
P81: Brachmann_2015_05_01_ipwatchdogs.pdf - 81:3 [Importantly, Amazon Web Servic..] (1:943-1:1204)
(Super)
Importantly, Amazon Web Services isn't just making money, it's also generating a heavy
profit for the company. Barron's has reported that, although AWS only produces about 7 percent of Amazon's revenues, it was the source of 37 percent of Amazon's total profit.
P81: Brachmann_2015_05_01_ipwatchdogs.pdf - 81:4 [What makes cloud computing so ..] (2:526-2:710)
(Super)
What makes cloud computing so valuable is the way that it can be scaled effectively to a
customer's needs, allowing Amazon to make a profit on small businesses and big corporate alike.
P82: Delaney_2012_08_06_morrisonfoerster.pdf - 82:1 [Read literally, this language ..] (1:2115-1:2438)
(Super)
- Family: What] [TransformA: Manage knowledge - Family: What]

Read literally, this language would appear to impose a covenant on AWS customers not to sue AWS—or its
affiliates, customers, vendors, business partners or licensors—for patent, copyright or other intellectual property infringement in connection with web services made available not only byAWS but also by its affiliates.

P83: Darrow_2015_01_22_gigaom.pdf - 83:1 [The contract's Section 8.5 on ..] (1:1205-1:1471) (Super)

- Family: What] [TransformA: Manage knowledge - Family: What]
The contract's Section 8.5 on license restrictions includes the usual restrictions that customers or their
end users cannot modify, tamper with, reverse-engineer or create derivative works of the AWS service offerings, or use
them in a way to avoid paying for them.

P83: Darrow_2015_01_22_gigaom.pdf - 83:2 [During and after the Term, you..] (2:226-2:558) (Super)

- Family: What] [TransformA: Manage knowledge - Family: What]
During and after the Term, you will not assert, nor will you authorize, assist, or encourage any
third party to assert, against us or any of our affiliates, customers, vendors, business partners, or licensors, any patent infringement or other intellectual property infringement claim regarding any Service Offerings you have used.

P83: Darrow_2015_01_22_gigaom.pdf - 83:3 [Basically, AWS is invoking its..] (2:577-2:764) (Super)

Basically, AWS is invoking its rights not to be sued for patent infringement by its customers not only for the time
you're
using its service, but going forward — in theory — in perpetuity

P83: Darrow_2015_01_22_gigaom.pdf - 83:4 ["So once a user agrees to thes..] (2:1539-2:1854) (Super)

"So once a user agrees to these terms, they can never assert a patent or other IP infringement claim against Amazon
or
any other customer or user of AWS, against an AWS Service offering," the attorney said via email. "This is even true if Amazon first sues the user for patent infringement on anything else." Hmmm.

P83: Darrow_2015_01_22_gigaom.pdf - 83:5 [What's interesting here is tha..] (3:371-3:553) (Super)

What's interesting here is that, in theory, this 8.5 provision could allow Amazon to defend itself against customers (or
former customers) if it ends up using their IP down the road.

P85: Miniman_2013_12_16_wikibon.pdf - 85:1 [Amazon is a large consumer ofO..] (2:3188-2:3275) (Super)

Amazon is a large consumer ofOpen Source Software (OSS) but is not a public contributor

P85: Miniman_2013_12_16_wikibon.pdf - 85:2 [Amazon is not content to simpl..] (2:3914-2:4158) (Super)

Amazon is not content to simply take components offthe shelf; Hamilton stated that it has two engineers working
solely on
server power supplies where redesigns that are pennies cheaper or a fraction more efficient translates into huge
savings.

P85: Miniman_2013_12_16_wikibon.pdf - 85:3 [said that 10 years ago he beli..] (2:1641-2:2007) (Super)

said that 10 years ago he believed that architecture
should be a giant collection ofcommodity gear where software provides most ofthe value. He now believes that this thinking is wrong and that it
is through hyperspecialization that Amazon can continue to deliver innovation. The scale ofAWS S3 is trillions ofobjects delivering over 1.5M
requests per second.

P85: Miniman_2013_12_16_wikibon.pdf - 85:4 [When building any infrastructu..] (3:1998-3:2380) (Super)

When building any infrastructure, you pay for the peak but only monetize the average. In a typical data center, even
with a heavily virtualized
environment, getting 30% utilization is great. Cloud methodology is to combine noncorrelated workloads over infrastructure at scale so that the
law oflarge numbers allows the difference between the peak and average workloads to shrink.

P86: Schrage_2014_04_30_hbr.pdf - 86:1 ["Innovation Partnerships." Loo..] (2:237-2:346) (Super)

"Innovation Partnerships." Look at Amazon Web Services,
GitHub, Toyota and YouTube's investments in suppliers

P88: Woods_2013_11_06_thenextweb.pdf - 88:1 [At Amazon, we're quite differe..] (2:1177-2:1490) (Super)

At Amazon, we're quite different from other companies. We do not have an R&D department,
we do not have an IT department, all our engineering and business are deeply intertwined with each other. There is no VP of Innovation. Every team is charged with innovating, and that's what the whole company drives on.

P88: Woods_2013_11_06_thenextweb.pdf - 88:2 [Speaking about Amazon's own in..] (2:863-2:1174)
(Super)

Speaking about Amazon's own internal innovation, which includes diversification into
a number of different markets and verticals, Vogels revealed that the retailing and cloud giant doesn't have an R&D department, or an IT department. Instead, innovation is expected to come from every team in the business.

P88: Woods_2013_11_06_thenextweb.pdf - 88:3 [However, Vogels cautioned that..] (2:1493-2:1802)

(Super)

However, Vogels cautioned that it's easy to dampen innovation and support for new
ideas with entrenched norms and that naysayers are often the winners of the war. At Amazon, however, if an employee wants to put stop to a new idea they have to fill out a full report outlining exactly why they think that.

P88: Woods_2013_11_06_thenextweb.pdf - 88:4 [If you want to block innovatio..] (2:1805-2:2146) (Super)

If you want to block innovation and new ideas, you have to do the work. If you are the one
that say 'this is not going to work' then you'll have to write a four or six page report [explaining] why absolutely you think the company should not be doing this. Believe me, this kills about 99 percent of all the objections to any innovation.

P88: Woods_2013_11_06_thenextweb.pdf - 88:5 [While this will occasionally l..] (2:2149-2:2360) (Super)

While this will occasionally lead to a dead-end, product-wise, Vogels said it has also allowed the company to diversify its business sucessfully in a way it would have not if it had listened to the naysayers.

P89: Writer_2015_03_10_itnews.pdf - 89:1 [turning internal innovation ar..] (2:940-2:1023) (Super)

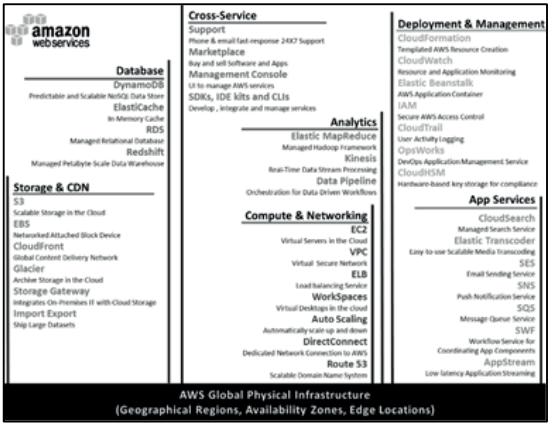
turning internal innovation around 180 degrees and exposing it directly to customers

9.2 Appendix B: Extracts

Appendix B1: Website links to cloud platform ecosystem actors

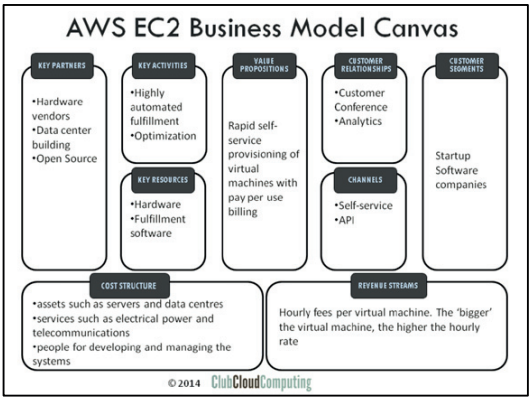
Actor name	Level I group	Level II group	Level III group	Level IV group	Website address
Salesforce.com	Cloud partner ecosystem	Cloud service provider	Software-aaS	-	https://www.salesforce.com
Github	Cloud partner ecosystem	Cloud service provider	Software-aaS	-	https://github.com/
Gmail (Google Inc.)	Cloud partner ecosystem	Cloud service provider	Software-aaS	-	https://mail.google.com
Dropbox, Inc.	Cloud partner ecosystem	Cloud service provider	Software-aaS	-	https://mail.google.com
Google Cloud Platform	Cloud partner ecosystem	Cloud service provider	Platform-aaS / Infrastructure-aaS	-	https://cloud.google.com
Amazon Web Services	Cloud partner ecosystem	Cloud service provider	Platform-aaS / Infrastructure-aaS	-	https://aws.amazon.com
AT&T Inc.	Cloud partner ecosystem	Cloud service provider	Infrastructure-aaS	-	https://www.at.com
EMC Corporation	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud architects	www.emc.com
Deloitte Touche Tohmatsu Limited	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud auditors	http://www2.deloitte.com
KPMG	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud auditors	https://home.kpmg.com
CSS Corp	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud integrators (SIs + MSPs)	https://www.csscorp.com
Capgemini S.A.	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud integrators (SIs + MSPs)	https://www.capgemini.com
Informatica	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud software vendors (ISVs)	https://www.informatica.com
Software AG	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud software vendors (ISVs)	www.softwareag.com
Texas Instruments Inc.	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud hardware vendors	www.ti.com
Intel	Cloud partner ecosystem	Complementors / Partners	Cloud service support provider	Cloud hardware vendors	www.intel.com
Blue Wolf Group LLC	Cloud partner ecosystem	Complementors / Partners	Cloud service brokerage	Service aggregators	www.bluewolf.com
Appirio Inc.	Cloud partner ecosystem	Complementors / Partners	Cloud service brokerage	Service aggregators	https://appirio.com
Bitnami (Bitrock Inc.)	Cloud partner ecosystem	Complementors / Partners	Cloud service brokerage	Reseller (VARs)	https://bitnami.com
Capgemini Consulting (Capgemini S.A.)	Cloud partner ecosystem	Complementors / Partners	Cloud service brokerage	Strategy Management Consultancies	https://www.capgemini-consulting.com
Accenture Strategy	Cloud partner ecosystem	Complementors / Partners	Cloud service brokerage	Strategy Management Consultancies	https://www.accenture.com/us-en/strategy/index
ETSI (European Telecommunications Standards Institute)	Governmental Bureaucrats / Policy Makers / Regulators	-	-	-	www.etsi.org
CSA (Cloud Security Alliance)	Governmental Bureaucrats / Policy Makers / Regulators	-	-	-	https://cloudsecurityalliance.org
NIST (National Institute of Standards and Technology)	Governmental Bureaucrats / Policy Makers / Regulators	-	-	-	https://www.nist.gov
eit (European Institute of Innovation & Technology)	Outside innovators / Research institutes	-	-	-	https://eit.europa.eu
Digital Institute (Newcastle University)	Outside innovators / Research institutes	-	-	-	http://www.cloudinnovationcentre.com/
Telekom Innovation Laboratories	Outside innovators / Research institutes	-	-	-	www.laboratories.telekom.com
IC4 (Dublin City University)	Outside innovators / Research institutes	-	-	-	http://www.ic4.ie/
Fraunhofer	Outside innovators / Research institutes	-	-	-	www.ipa.fraunhofer.de/cloud_platforms.html
Cloud Apps Capital Partners	Entrepreneurs / Investors	-	-	-	www.cloudappscapital.com
AME Cloud Ventures	Entrepreneurs / Investors	-	-	-	www.amecloudventures.com
Notion Capital Ltd.	Entrepreneurs / Investors	-	-	-	www.notioncapital.com
Blue Cloud Ventures	Entrepreneurs / Investors	-	-	-	www.bluecloudventures.com
Cloud Capital Partners	Entrepreneurs / Investors	-	-	-	www.cloudcapitalpartners.net

Appendix B2: AWS service overview



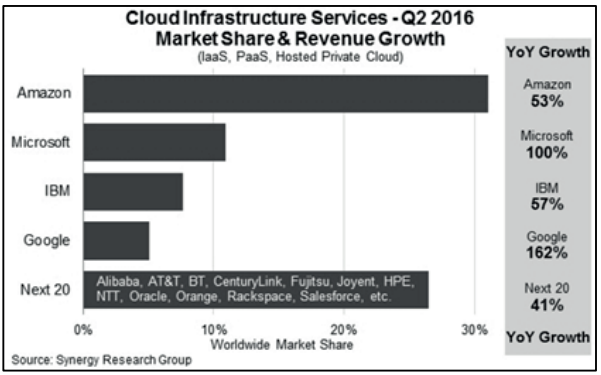
(Varia and Mathew, 2013)

Appendix B3: AWS's business model



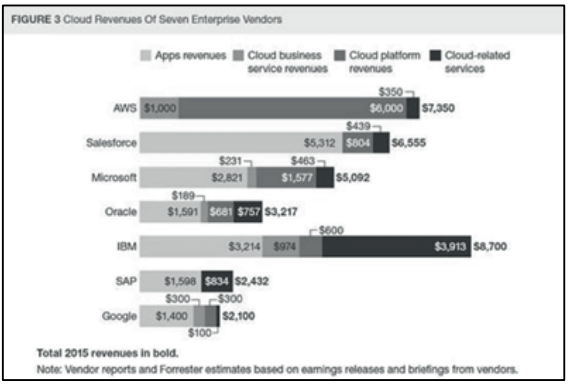
(Peter van Eijk, 2014)

Appendix B4: Market share and revenue growth of the cloud infrastructure services market



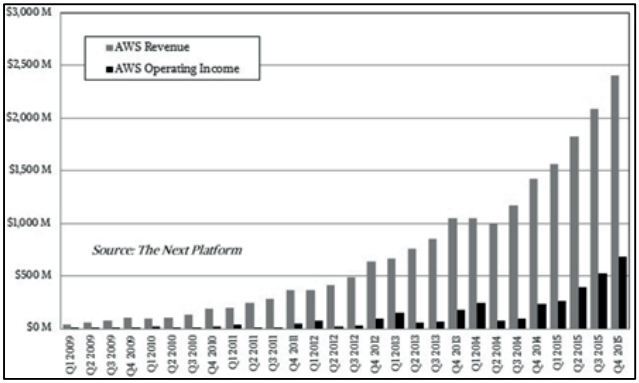
(Synergy Research Group, 2016)

Appendix B5: Cloud revenues of seven enterprise vendors



(John R. Rymer, 2015)

Appendix B6: AWS platform revenues



(Timothy Prickett Morgan (2016) over theNextPlatform.com)
(accessed at 28 August 2017)