

SERVICE DOMINANT ARCHITECTURE TO MASTER DIGITAL TRANSFORMATION – CASE OF AN INSURANCE COMPANY

Peter Weiß^a, Andreas Zolnowski^b and Markus Warg^c
^aPforzheim University, Germany
^bUniversity of Hamburg, Germany
^cWedel University of Applied Sciences, Germany

ABSTRACT

Digitization spawns emergence of service ecosystems fuelled by interconnecting service systems and digital technologies. Examples are service-led digital businesses such as Amazon, Zalando, Uber or AirBNB. At the same time, companies lack clear digital strategies to take advantage of digital technologies. Often they miss access to required competences and resources to implement digital business models. Thus, our research addresses the key question, how companies can adopt and develop related digital capabilities systematically in order to sustain in the digital age.

KEYWORDS

Platform based strategies and innovations, service innovation, service science, resource integration, resource density

INTRODUCTION

Our research addresses the key question, how companies can adopt and develop related digital capabilities systematically in order to sustain in the digital age. To answer this question, SDA operationalizes requirements and characteristics for planning, designing and building customer centric solutions to foster digital transformation (Ross et al., 2017), (Warg et al., 2016), (Weill, Woerner, 2015), (Kane et al., 2015a, 2015b). New business models emerge that embrace digital technologies used by companies to differentiate their offerings from those of competitors. Service innovations are one opportune avenue companies can follow to react on increasing competition and shrinking margins in their core business (Chesbrough, 2011, 25). Subsequently we present the problem description and chosen research approach. Then, we motivate Service-Dominant Logic (SDL) as valuable perspective on value creation to develop unique value propositions that incorporates digital technologies (Ross et al., 2017, 6). SDL inspires new thinking on value creation and can explain many of emerging digital business models, because in their core they often rely on service innovations and adopt many facets of a service strategy.

PROBLEM DESCRIPTION AND RESEARCH APPROACH

Today, we face dramatic change of the business world through rapid digitization and new innovative business models breaking down industry barriers (Weill, Woerner, 2015). Digital technologies are creating new opportunities but require a clear digital strategy (Ross et al., 2017). Based on a clear digital strategy decisions concerning required IT investments and new infrastructure capability are achievable. Companies have to strive for strategic agility through building required IT capabilities (Weill et al., 2002). However, what are the required IT capabilities? Moore (2011) motivates a new generation of enterprise IT systems based on interactive IT infrastructure capabilities which he summarizes as “systems of engagement” (Moore, 2011).

Many companies feel the urge to transform their existing business to strive for innovative or even to offer unique value propositions to their existing or to new customer segments. Many incumbent companies rely on outdated enterprise IT systems mostly transaction-oriented and tailored towards stability as operational backbone (Ross et al., 2017). This refers to the concept of “system of records” introduced by Moore (2011). Former IT investments in stability and automating, transaction-oriented IT systems have been a differentiator and competitive advantage in the past. However, in the era of digitization those IT investments turn out to be a major inhibitor of developing unique value propositions based on either customer engagement or new products and services incorporating digital technologies (Ross et al., 2017).

Today, companies require integrated IT platforms of distinctive infrastructure capabilities that support business initiatives. Strategic agility is key (Weill et al., 2002), thus collaboration and increased intimacy between business and IT organisation are vital for any digital transformation endeavour.

Our research approach thus addresses the following pivotal research questions:

- How can digital strategies draw from a Service-Dominant Logic (SDL) perspective and related principles to derive and build new capabilities to build unique value propositions based on service innovations?
- What are respective IT infrastructure capabilities to be derived to support business initiatives and strategic agility to design and operate service-oriented business models incorporating digital technologies?

SDL and service science supports definition of digital capabilities to drive new business initiatives and translate it as elements of a digital strategy.

Whereby, enterprise architecture (Ross, 2006) translates those elements in respective IT infrastructure capabilities based on IT systems and IT services (Weill et al., 2002).

SERVICE INNOVATIONS AND DIGITAL AGILITY

SDL and service science literature is a valuable source to identify and derive IT infrastructure capabilities (Warg et al., 2016) to achieve digital agility (Ross et al., 2017). Drawing from foundational premises and principles of S-D logic (Vargo, Lusch, 2004, 2016), (Vargo, Akaka, 2012), (Vargo et al., 2015), (Grönroos, Voima, 2013), (Grönroos, Ravald, 2011), (Grönroos, 2008), (Grönroos, 2011), SDA introduces new capabilities such as resource liquefaction, integration and density. The latter being important elements in the set of future key competences required of companies to sustain their business in the digital era. By this, SDA supports mobilizing resources and dynamic resource configurations drawing on principles as open services innovation (Chesbrough, 2011; Lusch, Nambisan, 2015) and service science (service systems) (Spohrer, Maglio, 2010).

SOLUTION DESIGN BASED ON SERVICE DOMINANT ARCHITECTURE

Enterprise architecture translates identified capabilities derived from SDL principles into “[...] a clear vision of how IT will enable business objectives” (Ross, 2006). Hence, Ross (2006) motivates to use high-level architecture graphic to capture decisions to “[...] promote shared understanding of IT capabilities in the enterprise”.

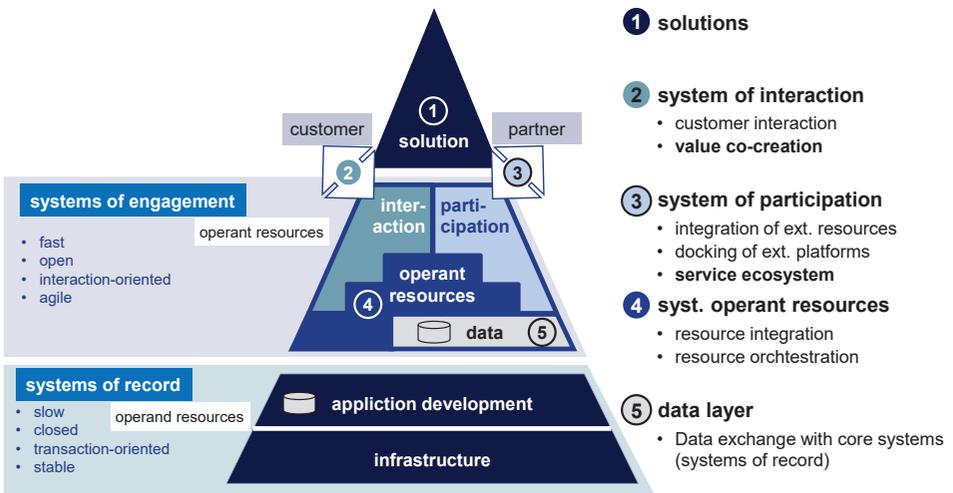


Figure 1: Service Dominant Architecture (SDA) and respective Subsystems: High-Level Architecture Graphic

Figure 1 shows an example of a high-level architecture graphic, namely Service-Dominant Architecture (SDA), to master digital transformation in the insurance business (Warg et al., 2016). SDA introduces new enterprise capabilities in the insurance company to compete digitally through a new level of customer engagement and service innovations.

Companies have to decide which digital strategy to pursue. Ross et al. (2017) proposes that digital strategies have to decide between two kinds of strategies: 1) customer engagement strategy and 2) digitized solution strategy. Companies probably have to converge both strategies and have to build required strategic agility to respond to market changes and new customer demands. Moreover, enterprise architectures should be flexible enough to incorporate easily newly emerging digital technologies to translate them into new IT capabilities.

SDA introduces service- and platform-oriented capabilities (systems of engagement) (Moore, 2011) such as connecting and interacting with various service systems to co-create value with customers and to integrate resources to support the customer process. To attain this goal, SDA motivates additional information system layers to an existing IT landscape on top of existing enterprise information and legacy systems (systems of record) (Moore, 2011).

Based on S-D logic foundational premises and principles, we suggest an assembly of interacting “purposed” subsystems (participation, interaction, system of operant resources) and a “data lake”. SDA integrates external resources via coupling with SDA-external service systems or flexible, loose coupling with resources provided through actors being part of the service ecosystem (Warg, Engel, 2016). Whereby, institutional settings and organizational structures arrange and clarify conditions, principles and mechanisms how to access and mobilize available resources.

Our solution design is an experimental design based on a real life case of an insurance company in Germany (Warg, Engel, 2016). Based on this case, we have investigated experimental user-centric solution designs based on derived requirements. The case provides further valuable insights and clear guidance to follow our action-oriented research approach. In this way, SDA as conceptual design can make a significant contribution to ongoing research on service systems engineering and action-oriented design (Böhm et al., 2014).

CONCLUSION AND OUTLOOK

This contribution introduced the Service Dominant Architecture (SDA) (Warg et al., 2016) as architectural design and core of a service-led digital strategy. Proposing an architectural vision, the SDA clarifies related high-level requirements with regard to underlying processes, structures, mechanisms as well as actors' roles (Eloranta, Turunen, 2016, p.183;

Voss, Hsuan, 2009; Parker et al., 2016; Lookegaard et al., 2016) for modular service development and delivery (Lusch, Nambisan, 2015). Based on this vision, SDA creates the missing link translating business requirements into implementable working architectures (Böhmman et al., 2014, Arthur, 2009; Spohrer, Maglio, 2010) and related technical concepts. Herewith, the SDA embraces a conceptual design of an IT platform which introduces required IT capabilities and enables service-led business initiatives to create service innovations to compete in the digital era.

REFERENCES

- Arthur, W.B. (2009): *The Nature of Technology: What it is and how it evolves*. Free Press, New York.
- Böhmman, T; Leimeister, J.M.; Mösllein, K. (2014): *Service Systems Engineering - A Field for Future Information Systems Research*. *Business & Information Systems Engineering*, 56 (2), pp. 73-79.
- Chesbrough, H. (2011): *Open Service Innovation*. Jossey-Bass, San Francisco, 2011.
- Eloranta, V.; Turunen, T. (2016): *Platforms in service-driven manufacturing: Leveraging complexity by connecting, sharing, and integrating*. In: *Industrial Marketing Management*, Volume 55, May 2016, Pages 178–186.
- Grönroos, C.; Voima, P. (2013): *Critical service logic: making sense of value creation and co-creation*. *Journal of the Academy of Marketing Science*, 41, pp. 133-150.
- Grönroos, C.; Ravald, A. (2011): *Service as business logic: implications for value creation and marketing*, In: *Journal of Service Management*, 22 (1), pp. 5-22.
- Grönroos, C.: (2008): *Service logic revisited: who creates value? And who co-creates?*, *European Business Review*, 20 (4), pp. 298 - 314.
- Grönroos, C. (2011): *Value co-creation in service logic: A critical analysis*. *Marketing Theory*. 11 (3), pp. 279-301.
- Kane et al. (2015a): *Strategy, not Technology Drives Digital Transformation: Becoming a digital mature enterprise*. MIT Sloan Management Review. Deloitte University Press. Summer, pp.3-24.
- Kane et al. (2015b): *Is Your Business Ready for a Digital Future?* In: MIT Sloan Management Review, 56 (4), pp. 37-44.
- Lokkegaard, M.; Mortensen, N.H.; McAlloone, T.C. (2016): *Towards a framework for modular service designs*. *Research in Engineering Design*, 27 (3), pp 237-249.
- Lusch, F.R.; Nambisan; S. (2015): *Service Innovation: A Service-Dominant Logic Perspective*. *MIS Quarterly*, 39 (1), pp. 155-175.

- Moore, Geoffrey (2011): Systems of Engagement and the Future of Enterprise IT: A Sea Change in Enterprise IT. AIIM Whitepaper; <http://www.aiim.org/futurehistory>; last visit 05 May 2016.
- Parker, G.P.; Alstynne, Van, M.W; Choudary, S.P. (2016): Platform Revolution. Norton & Company, New York London, 2016.
- Spohrer, J.; Maglio, P.P. (2010): Toward a Science of Service Systems. In: P.P. Maglio et al. (eds.), Handbook of Service Science, Service Science: Research and Innovations in the Service Economy, pp.157-194.
- Ross, J.W.; Sebastian, I.M.; Beath, C.M. (2017): How to Develop a Great Digital Strategy. In: MIT Sloan Management Review, Vol. 58, No. 2, Winter 2017 Issue, pp. 6-10.
- Ross, J.W.; Beath, C.M. (2002): Beyond the Business Case: New Approaches to IT Invest. In: MIT Sloan Management Review, Winter 2002, Vol. 43, No.2, 2002, pp.50-60.
- Ross, J.W. (2006): Enterprise Architecture: Driving Business Benefits from IT. In: MIT Sloan Management, CISR Working Paper 359, Massachusetts Institute of Technology, April 2006.
- Vargo, S. L; Lusch, R. F. (2004): Evolving to a New Dominant Logic for Marketing. In: Journal of Marketing, Vol. 68 (January 2004), pp. 1-17.
- Vargo, S.L; Lusch, R.F. (2016): Institutions and axioms: an extension and update of service-dominant logic. In: Journal of the Academy of Marketing Science. January, Vol. 44 No. 1, pp. 5-23.
- Vargo, S. L.; Akaka, M. A. (2012): Value Cocreation and Service System (Re)Formation: A Service Ecosystems View. In: Service Science, Vol. 4 No.3, pp. 207-217.
- Vargo, S. L.; Wieland, H.; Akaka; M. A. (2015): Innovation through institutionalization: A service ecosystems perspective. In: Industrial Marketing Management, Vol. 44, January, pp. 63-72.
- Voss, C.A.; Hsuan, J. (2009): Service Architecture and Modularity. Journal of Decision Sciences, 40 (3), pp.541-569.
- Warg, M.; Weiß, P.; Zolnowski, A.; Engel, R. (2016): Service Dominant Architecture based on S-D logic for Mastering Digital Transformation: The Case of an Insurance Company. RESER Conference Proceedings, Naples, Italy, 2016.
- Warg, M.; Engel, R. (2016): Service-Dominierte Architektur (SDA): Kernkomponente digitaler Transformation, Zeitschrift für Versicherungswesen, 12 (June).
- Weill, P.; Subramani M.; Broadbent, M. (2002): Building IT Infrastructure for Strategic Agility. In: MIT Sloan Management Review, Fall 2002, Vol. 44, No. 1, pp. 56-66.
- Weill, P.; Woerner, S.L (2015): Thriving in an Increasingly Digital Ecosystem. MIT Sloan Management Review, 56 (4), pp.27-34.