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Targeting Design Intervention across Levels of Complexity

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Abstract | As service design continues to expand its reach and blur the lines between disciplines to address value co-creation and deeper contextual based challenges, it becomes increasingly crucial to work within an ecosystemic perspective. For the sake of simplicity, designers build frames of reference and construct metaphors to better understand and target possible intervention and the roles, activities and consequences of that intervention. In reality, when addressing increasingly complex issues, design action may cross the boundaries constructed by these models making it more difficult to understand. Using a more fluid metaphorical model to target design intervention across levels of complexity enables designers to consider the ecosystemic nature of an intervention, the level of control they have over the end outcome and the potential consequences it may bring.

KEYWORDS | ECOSYSTEM, LEVELS, VALUE, CO-CREATION, CONTROL

1. Introduction

As a heterogeneous and emergent discipline, Service design has over the last two decades evolved to blur the lines between disciplines. By borrowing and adapting concepts from management, participatory design, marketing and anything else that works to face the current challenges in design practice, it has expanded its reach and objective. (Kimbell & Blomberg, 2017) This expansion has followed a logical shift from a goods-oriented perspective towards a service-dominant one, (Vargo & Lusch, 2004; 2008) and consequently, toward new conceptualizations of design objectives. (Kimbell & Blomberg, 2011; 2017; Meroni & Sangiorgi, 2011; Wetter-Edman et al., 2014) These new conceptualizations form the basis for arguing the relevancy of service design as a means of designing not only meaningful service encounters but also value co-creating systems and socio-material configurations (Kimbell & Blomberg, 2011; 2017).

With the shift toward designing *for* services - instead of the design *of* services - designers are increasingly introduced to the complexities of services on both the 'front' and 'back-stage' of service delivery. These complexities reach past the interaction between product and user and into value networks and service systems where value is co-created for both users and service providers, within the context of a complex constellation of actors, institutions, stakeholders and technologies. (Normann & Ramirez, 1993) As the recognition of contextual effect on services grows, so also does the need for new ways of thinking and adapted tools to design for service ecosystems that additionally consider and even emphasize value created in-context (Nelson & Stolterman, 2012; Vargo & Lusch 2004).

1.2 From Linear to Ecosystemic

While some value propositions are conveniently constrained to linear service encounters and walled off from other channels of delivery, others "straddle digital and physical spaces; instantiated by individual actors moving freely and at will between locations, devices and contexts." (Lindenfalk and Resmini, 2016). Lindenfalk and Resmini (2016) go as far as to claim it is a "myth that the service designer can design a perfectly bounded artefact and simply drop it in place within a dynamic environment." Although they admit there are benefits to focusing on the experience of a single touchpoint, if complexity is unnaturally constrained to a linear path it can result in jarring over simplification.

To address this complexity designers can shift their perspective from linear to ecosystemic to focus on more than one perspective within the context of an ecosystem. Where a linear perspective considers the entire end-to-end experience, an 'ecosystemic' perspective also considers the many vantage points that make that experience work. To implement this shift, designers have to start considering both the different possible perspectives of actors and the possible value not just created in-use but created in-context, at each level of the ecosystem (Vink et al., 2017; Lindenfalk and Resmini, 2016). This infers the designer may also have to give up some control over each interaction in favor of the value that can be created in the

context of the greater ecosystem. This perspective refocuses the goal from a complete instance of value creation designed and controlled exclusively by the designer, to potentially creating the favorable conditions for interactions and relationships to co-create value - Kimbel (2011) describes such a shift from service design to design for services.

To guide further discussion on designing for ecosystemic value creation we will use the analogy and framework of an organism, which under different magnification can be viewed at an atomic, molecular and organism level with varying degrees of relational complexity. In its most complex and complete form, this analogy refers to an ecosystemic organism with emergent and adaptive qualities. As each level is no more important to the survival of the organism than the other, it produces value within its own sphere and as a part of a whole.

After outlining each level we will then discuss how being able to target a design intervention across these levels can help designers consider and target areas of intervention within complexity using a more fluid organizational model and visualization. This model outlines each level's characteristics, but only loosely constrains them to allow interventions to be framed and considered across multiple levels. The intention is not to propose new methodology or tools for working with ecosystems but possible ways of seeing and thinking about the objectives and goals of service design. Such a discussion can help form a clearer conceptualization of a context informed design process, and offers insights into the different roles and opportunities for designers within that process. This model also potentially frames the design intervention not just as design action but also as design consequence which can help designers better consider potential impact and the consequences of their participation in the intervention.

2. Atomic Level

2.1 The Encounter

According to Kimbell and Blomberg (2017), interactions at this level are conceptualized as 'The service encounter' which they propose is one object of service design and focuses, "on the experiences people have as they engage in interactions with touchpoints provided by others." This objective implies that the goal at the atomic level is that of new service development (NSD) and is outcome focused (Homlid et al., 2017).

Considered within the perspective of designing for service ecosystems, however, the goal expands to designing interactions as a means of reconfiguring the relationship between humans and the service to evaluate and create strong value propositions that clearly fulfil what Christensen et al. (2016) call the 'jobs to be done.' Although micro in comparison to the organism, interactions at the atomic level are crucial to the survival of the system as they form the basic arguments for desirability— the reasons why customers hire products and services to achieve their desired outcome (Christensen et al., 2005).

Focusing on relationships, channels and value propositions as part of the experience at this level connects it to the greater ecosystem and emphasizes the need for more co-design based practices to consider multiple perspectives when designing the digital and material artifacts that guide the service encounter (Vink et al., 2017). These value propositions also form the basic assumptions of interaction at the molecular level to consider even more complex relationships and value co-creation strategies.

2.2 Atomic Consequence

Uber, the American born ride-sharing service claims that, “In the United States alone, more than 45 rides on Uber happen every second” (West, 2019). From the Atomic level perspective Uber is a digital application that allows anyone to easily find and pay for a ride. As a relatively simple service, at least in concept, most experiences include one mobile interface and two dominant touchpoints, the application and the vehicle. As a relieving service the Uber app has many features designers have consciously included that allow riders to fulfil the Job-to-be-done and more are added each year to further personalize the experience. Many of these design choices are benign and solely focused on creating a good experience. Others are not so innocent and even an omission or lack of consideration can have serious ecosystemic implications.

In December 2019, Uber released its first Safety Report that reported “3,045 sexual assaults during its rides in the United States in 2018, with nine people murdered and 58 killed in crashes” (Conger, 2019; West, 2019). To combat these safety issues, starting in 2018 Uber has released many safety features including, pin identification, audio recording and even emergency response integration (Marshall, 2019; Dicky, 2018; Singh, 2020). Whether the possible consequences of a service like this were considered before seven years after its launch may be a mystery but we can clearly see how design decisions at this level, to include safety features or not, can not only influence the success of the experience but have very serious consequences for participants, the company and society as a whole.

3. Molecular Level

3.1 Value Co-creating System

At the molecular level of the organism the focus turns from the service encounter to the value co-creating system. Here, the materials and objectives fundamentally change from the orchestration of touchpoints to form positive service journeys (Blomkvist et al., 2018), to dynamic reorganization of resources to form arrangements between actors to achieve mutually beneficial outcomes and value creating relationships. (Kimbell and Blomberg, 2017; Vargo and Lusch, 2004) Typical tools used at this level include service ecosystem maps and value constellations to focus on the negotiations between actors, their desired outcomes and how they account for those outcomes (Kimbell and Blomberg, 2017; Patricio et al., 2011;

Normann and Ramirez, 1993). Although this level can involve professional designers working with methods and tools, a service eco-systemic perspective recognizes that design activities are not single actions in the process and that value co-creation is ongoing and collective in nature; each actor participating in the relationships they have entered into to realize preferred change (Vink et al., 2017; Manzini, 2016).

3.2 Beyond the Experience

To create value in context it is not enough to design a good experience. Designers must, as Normann and Ramírez (1993) put it, “redefine the roles, relationships and organizational practices,” of the business itself. Almost two decades later Normann and Ramírez’s example (1993) of IKEA in the furniture industry, still stands as a successful implementation of just such a redefinition of in-context value co-creation. In this example, IKEA ultimately shifted the responsibility of the assembly of their product from the business to the shopper. To do this they not only designed the assembly experience but the entire ecosystem around it. Judging by IKEA’s current success as #39 on Forbes top valued brands for 2019 valued at \$15.8 Billion with revenues of \$45.8 Billion (Forbes, 2019), IKEA continues to re-evaluate their value co-creating systems to keep them at the top of the industry.

3.3 Business modeling

While ecosystem maps and value constellations emphasize a focus on reconfiguring actor relationships and resource exchange, developing and investigating business models is another way of understanding and experimenting with creating value in-context (Osterwalder and Pigneur, 2010). This includes both the context of the business itself and as an entity within a market environment. Mapping the market forces, macro-economic forces, industry forces and key trends surrounding a business model and its parts can offer an environmental and eco-systemic view of issues and opportunities crucial to reconfiguring or maintaining the right value proposition, relationships and competitive edge. (Osterwalder and Pigneur, 2010, 2014; Porter, 1979)

This indicates that the value proposition, albeit crucial, is not the only element of a business model that describes how an organization creates and exchanges value (Osterwalder and Pigneur, 2010) and various forms of business modeling techniques and experience building tools can be used to organize these elements to create new services. New service development (NSD), however, is not the only purpose of service design at the molecular level. Holmlid, Wetter-Edman and Edvardsson (2017) argue that only viewing service design within an NSD process limits its scope and potential by treating services like goods— to be developed through the same type of process. In an ecosystemic perspective, however, the scope of service design expands to potentially include active participation in the development and reconfiguration of actors and resources, and implies a change in practice to arrange for implementation (Holmlid et al., 2017). This could be considered what Martin

calls 'the design of business' (Martin, 2009) and of which more traditionally falls in the camp of strategy, management and operations.

4. Organism Level

4.1 Emergent Value

While reconfiguring service encounters and value co-creating systems at the atomic and molecular levels takes into consideration the ecosystem, the value created at the level of an organism can be very different due to its emergent and adaptive qualities. The object of service design at this level also expands further to focus on the socio-material configurations that impact assemblages of people, entities and institutions; both formal and informal. (Kimbell and Blomberg, 2017; Vink et al., 2017). It is worth noticing that while such configurations are not exclusive of this level, unlike other levels, the focus here is on the broader ecosystem.

According to Nelson and Stolterman (2012), within an ecosystem, elements are interdependent and value is created both between relationships and as an aggregation of value co-creating systems. This value emergence co-occurs with the intentional actions and behaviors of actors as they pursue their desired futures and cannot be completely controlled through the design process (Vink et al., 2017; Jones, 2014; Manzini, 2016). This implies that the goal at the organism level is similar to what happens at the molecular level and is not to create a final product but to create the favorable conditions for the right relationships to happen (Kimbell, 2011; Vink et al., 2017). The main difference between these two levels, however, lies in how much control is relinquished to focus on allowing for value to emerge out of the context of the ecosystem and the potential for self-maintenance and reproduction of the ecosystem (Sangiorgi et al., 2017).

4.2 Blurring Boundaries

In the example of IKEA, Norman and Ramírez (1993) describe how the company redefines relationships internally and with its suppliers to form an efficient and successful machine. Although IKEA goes about doing this with consideration for the ecosystem, redefining relationships in this way relies on an amount of control as each entity in the system carefully negotiates desired outcomes. This control indicates that value created here, although created both in-use and in-context, does not directly facilitate uncontrolled emergence like an organism, and could be viewed as molecular in nature. On the other hand one example of emergent value does illustrate how these levels may not have as clear cut boundaries as often modelled.

IKEAHackers.net has since 2006 gathered IKEA furniture customizations into a blog to be viewed free by anyone. In 2014, however, IKEA threatened to take legal action claiming

IKEAHackers.net was infringing on intellectual property. After a vast public outcry, IKEA back-peddled and apologized about the situation claiming that they are actually excited about how this site and customization movement fuels desire for their products (Hanesgarde, 2014; Winston, 2014). In this case, value emerged from the arrangements of both formal and informal actors outside of the original design and context. Reportedly, some IKEA staff have even used IKEAHackers.net for inspiration in the design of new products (Winston, 2011), and IKEA has since then continued to open their doors to new ideas of customization (Chaudhuri, 2017). While the initial move to threaten legal action may have been short-sighted, the continued decisions to embrace and use this movement exemplifies an understanding of ecosystemic thinking and emergent value co-creation within a market.

4.3 Designing ‘Space’

At both the atomic and molecular levels, interactions in value co-creating relationships are typically dyadic. Even if one entity has relationships with many others each relationship is negotiated separately as one to one agreements with different aggregations of resources and value exchanged. At the organism level, however, these relationships can become entangled forming ‘many to many’ interactions, relationships and networks. With so many variables and negotiations happening between multiple entangled actors it becomes difficult to control a final outcome. In some cases the complexities become so dense that no single entity can understand the system. As such, the goal and object of service design can shift from designing the experience or relationships in the system to designing the service providers role in the service ecosystem and the ‘space’ or institutional arrangements needed to facilitate the emergence of relationships and co-created value (Sangiorgi et al., 2017; Jones, 2014).

The creation of ‘space’ to facilitate the emergence of value can refer to the design of platforms (both digital and social) that provide the necessary tools and conditions for “communities of contributors [to] build on...to create new services that expand the ecosystem.” (Sangiorgi et al., 2017). Although platforms can be broadly defined they all are characterized as ‘pull based’ and “[allow] each of us to find and access people and resources when we need them, while attracting to us the people and resources that are relevant and valuable, even if we were not even aware before that they existed.” (Hagel, 2016, Hagel et al., 2010). The opposite being ‘push based’ which is characterized by product ‘pushed’ out into the market and requires anticipating customer demand to align the right amount of resources or inventory to meet that predicted demand (Hagel et al., 2010).

Platforms are also defined by Hagel (2010) as,

“a governance structure, including a set of protocols that determines who can participate, what roles they might play, how they might interact, and how disputes get resolved.”

Based on recent tech trends, it is easy to think of platforms as only digital. Although trends in technology have allowed digital platforms to become the almost default option for bringing parties together, platforms can also be created in physical and social space, and may be more or less defined by set protocols (Björgvinsson et al., 2010). Examples of such a 'space' include maker's spaces or communal gardens that provide a physical platform for value creation, and tools and elements to engage people in an interaction without prescribing the details of the interaction or the possible outcome. These spaces must also constrain the interaction with set protocols or rules to keep participants safe and to protect against liability.

4.4 Institutional Creation and Disruption

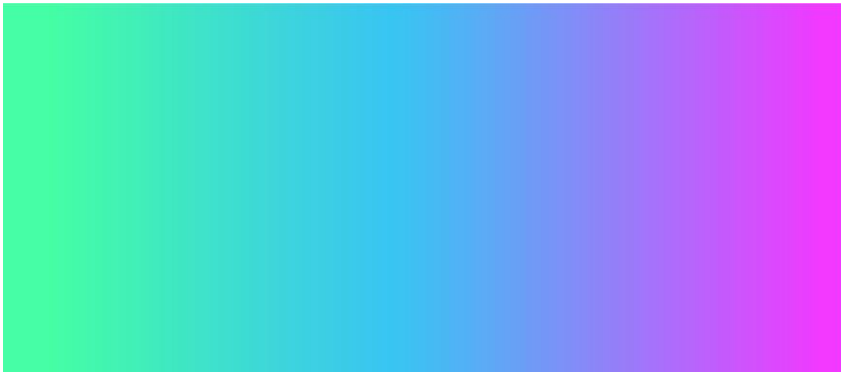
In some cases the object of service design at the organism level focuses less on roles and 'spaces' and more "as a means of reshaping the institutions that guide value co-creation in service ecosystems." (Vink et al., 2017). In this consideration, the word 'institution' relates to the 'rules, roles, norms and values,' that support an entity as they pursue a desired future (Vink et al. 2017). Institutions can be built, maintained or disrupted to facilitate preferred futures (Björgvinsson et al., 2010). Similar to how things present opportunities to realize new behavior, prototyping preferred futures and alternative institutional arrangements with participating actors can expose them to new ways of working and allow them to "iteratively develop and establish new [institutions] to support their preferred future" (Vink et al., 2017). In inconceivably complex ecosystems like healthcare, transportation or climate change, where the end outcome is difficult to control, reshaping or disrupting institutions to guide actors to pursue one desired future over another, can have a powerful effect on the emergence of patterns, properties and value, albeit with ethical concerns and considerations of unforeseen consequences and representation (Sangiorgi et al., 2017; Jones, 2014; Irwin, 2015). Partly due to its complexity, this level is still being understood and defined.

5. Targeting the Intervention

5.1 A More Fluid Model

So how does an understanding of these levels help designers target a design intervention and for what purpose? As we consider all of the levels as part of an ecosystem and present at varying degrees within a design intervention, the boundaries between each level start to dissolve (See Figure 1). To visualise this we propose using a gradient model. Rather than placing over simplistic and limiting boundaries between each of the levels, a gradient facilitates a fluid way of thinking across each level. (See Figure 1.) For example, Atomic level action within an intervention may grow in scope to start looking more like Molecular action as it navigates partnerships and value potential, or as discussed in the beginning of this paper, have far reaching effects at the Organism level.

It does not matter, necessarily, if a design action is strictly targeted to one level as long it is considered along the gradient. Although heuristics may be derived at each level, this more fluid way of seeing complexity better facilitates discussions of scope and designer roles as well as the consideration of actions and effects— rather than constraining them to limiting silos where exceptions abound and disagreements of nomenclature grow. Even while writing this paper some examples seemed to be able to be seen from more than one level. Business modelling, for instance can be used in a molecular setting to understand and coordinate the



Atomic

Molecular

Organism

elements within a company, but it can also be used to manipulate or provoke changes within a market context. Both may lead to creating value for the business but with different levels of controlled and uncontrolled emergence.

Figure 1. With no strict boundaries, a gradient show how each level flows into the other.

This model also provides a way for designers to start seeing ‘control’ as a key element of their participation in a design intervention, their role and the ultimate effect. Within an intervention the control a designer has over the end outcome shifts to inversely correspond to its complexity. (See Figure 2) This shift plotted along a curve illustrates that at the Atomic level a designer will have more control over the end outcome as they have more power to constrain the agency of the end user. At the Organism level, a designer will have less control over the end outcome and a user or participating actor will have less constraints placed on their agency. Used as a scoping tool designers can target how much control they actually have over the outcome of the intervention and plan the corresponding action. When used to define and align roles, designers can see where their specific skills fit into the intervention while still considering the ecosystemic effects of their decisions. From the previously discussed example of Uber (West, 2019), we can see that an absence of this consideration

can be far reaching and more dangerous than might be expected when only considered at one level alone.

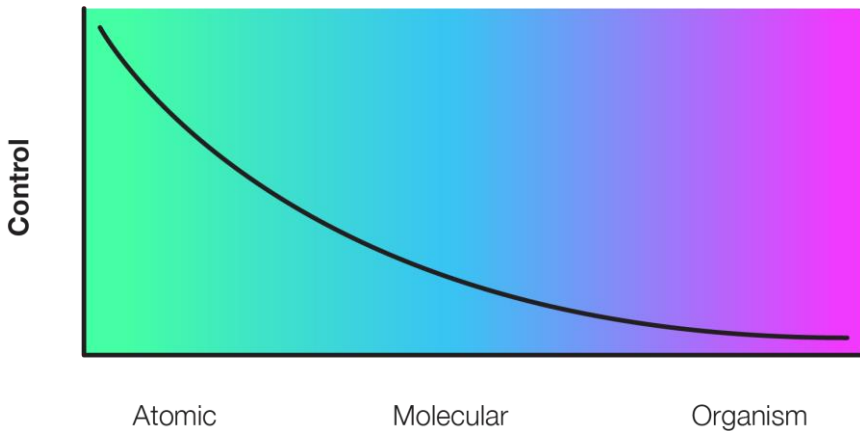


Figure 2. Control: The amount of control a designer has over the end outcome inversely corresponds to the level of complexity.

6. Conclusion

This perspective and model, although functional, can have an even deeper purpose of guiding designers to critically consider their decisions and actions as constraining, directing or enabling individual choice with corresponding levels of consequence. While some choices may be individual, facilitating the conditions to enable many individual choices can create a more ecosystemic consequence and ultimately an uncontrolled emergence of value.

As service design continues to expand its reach to address increasingly complex and contextual based challenges, it becomes crucial to consider the potential for this emergent value, whether positive or negative. Understanding opportunities, roles and effects at each level and within an ecosystem offers insights into the expanding roles designers play in the development of services within ecosystems and how to adapt processes and methods to fit the contextual inquiry (Author 2, 2016; Vink et al., 2017). As this expands the potential for strategic impact on business and society, does it also expand the responsibility to explore and consider the designer's place as they contribute to that impact?

References

- Björgvinsson, E., Ehn, P., & Hillgren, P.-A. (2010). Participatory design and “democratizing innovation.” Proceedings of the 11th Biennial Participatory Design Conference on - PDC '10 (Sydney, Australia, 2010), 41.
- Blomkvist, J., Clatworthy, S., & Holmlid, S. (2016). Ways of Seeing the Design Material of Service. Proceedings of the Service Design and Innovation Conference ServDes.
- Chaudhuri, S. (2017, January 29). IKEA's 'Open Source' Sofa Invites Customization. Wall Street Journal. from <https://www.wsj.com/articles/ikeas-open-source-sofa-invites-customization-1485715752>
- Christensen, C. M., Hall, T., Dillon, K., & Duncan, D. S. (2016). Know Your Customers' “Jobs to Be Done,” Harvard Business Review, November, 54-62.
- Christensen, C. M., Cook, S., & Hall, T. (n.d.). Marketing Malpractice: The Cause and the Cure. Harvard Business Review, December, 19.
- Conger, K. (2019, December 5). Uber Says 3,045 Sexual Assaults Were Reported in U.S. Rides Last Year. The New York Times. <https://www.nytimes.com/2019/12/05/technology/uber-sexual-assaults-murders-deaths-safety.html>
- Dicky, M. (2018). Uber gets better about safety with ride checks and address anonymization. (n.d.). TechCrunch. Retrieved February 11, 2020, from <http://social.techcrunch.com/2018/09/05/uber-safety-ride-checks-address-anonymization/>
- Hagel, J., (2016). The Power of Platforms, in Business Ecosystems come of age report, Deloitte University Press, 79. Retrieved May 5, 2019, from <http://dupress.com/articles/platform-strategy-new-level-business-trends>
- Hagel, J., Brown, J.S., & Davison, L., (2010). A Brief History of the Power of Pull. Harvard Business Review, April, 5.
- Hansegard, J. (2014, June 16). IKEA Fan Site to Stop Selling Ads. Wall Street Journal. <https://www.wsj.com/articles/ikea-fan-website-to-stop-selling-ads-1402949508>
- Holmlid, S., Wetter-Edman, K., & Edvardsson, B. (2017). Breaking free from NSD: Design and service beyond new service development. In Sangiorgi, D. & Prendiville, A. eds. 2017. Designing for Service: Key Issues and New Directions. Bloomsbury Publishing Plc.
- Irwin, T., Kossoff, G., & Tonkinwise, C. (2015). Transition Design Provocation. Design Philosophy Papers, 13(1), 3–11.
- Jones, P.H. (2014). Systemic Design Principles for Complex Social Systems. Social Systems and Design. G.S. Metcalf, ed. Springer Japan. 91–128.
- Kimbell, L. (2011). Designing for Service as One Way of Designing Services. International Journal of Design, 5(2), 41-52.
- Kimbell, L., & Blomberg, J. (2017). ‘The object of service design’ In Sangiorgi, D. and Prendiville, A. eds. 2017. Designing for Service: Key Issues and New Directions. Bloomsbury Publishing Plc.

- Lindenfolk, B., & Resmini, A. (2016). Blended spaces, cross-channel ecosystems, and the myth that is service. *Proceedings of the Service Design and Innovation Conference ServDes*.
- Manzini, E. (2016). *Design, When Everybody Designs*. MIT Press, Cambridge, MA.
- Marshall, A. (2019). Uber's New Features Put a Focus on Rider Safety. (2019, September 26). *Wired*. Retrieved February 11, 2020, from ?????
- Martin, R. (2009). *The Design of Business*. Harvard Business Press, Boston, MA.
- Meroni, A., & Sangiorgi, D. (2011). A new discipline. In A. Meroni & D. Sangiorgi (Eds.), *Design for services* (p. 9-33) Aldershot, UK: Gower Publishing
- How Competitive Forces Shape Strategy. (n.d.). Retrieved February 5, 2020, from <https://hbr.org/1979/03/how-competitive-forces-shape-strategy>
- Nelson, H.G., & Stolterman, E. (2012). *The Design Way: Intentional Change in an Unpredictable World*, MIT Press, Cambridge, MA. 76
- Normann, R., & Ramirez R. (1993). From Value Chain to Value Constellation: Designing Interactive Strategy, *Harvard Business Review*, 71, July–August, 65–77.
- Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*, John Wiley & Sons, Inc., Hoboken, New Jersey USA, 200.
- Patrício, L., Fisk, R.P., Falcão e Cunha, J., & Constantine, L. (2011). Multilevel Service Design: From Customer Value Constellation to Service Experience Blueprinting. *Journal of Service Research*. 14, 2 (May 2011), 180–200.
- Sangiorgi, D., Patrício, L., & Fisk, R. (2017). Designing for interdependence, participation and emergence in complex service systems. In Sangiorgi, D. and Prendiville, A. eds. 2017. *Designing for Service: Key Issues and New Directions*. Bloomsbury Publishing Plc.
- Singh, M. (2020). Uber is bringing audio recording, irregular ride checks and authentication code safety features to India. *TechCrunch*. Retrieved February 11, 2020, from <http://social.techcrunch.com/2020/01/09/uber-is-bringing-audio-recording-irregular-ride-checks-and-authentication-code-safety-features-to-india/>
- The World's Most Valuable Brands. (n.d.). *Forbes*. Retrieved February 11, 2020, from <https://www.forbes.com/powerful-brands/list/>
- Vargo, S.L., & Lusch, R.F. (2008). Service-dominant logic: continuing the evolution. *Journal of the Academy of Marketing Science*. 36, 1 (Mar. 2008), 1–10.
- Vargo, S.L., & Lusch, R.F. (2004). Evolving to a New Dominant Logic for Marketing, *Journal of Marketing*, January, 68
- Vink, J., Tronvoll, B., Edvardsson, B., Wetter-Edman, K., & Aguirre, M. (2017). *Service Ecosystem Design: Doing Institutional work through Design*, Fifth Naples Forum on Service, Sorrento, Italy, 15.
- West, T. (2019). *Uber Delivers U.S. Safety Report | Uber Newsroom US*. <https://www.uber.com/newsroom/2019-us-safety-report/>

- Wetter-Edman, K., Sangiorgi, D., Edvardsson, B., Holmlid, S., Grönroos, C. & Mattelmäki, T. (2014). Design for Value Co-Creation: Exploring Synergies Between Design for Service and Service Logic. *Service Science*. 6, 2 (Jun. 2014), 106–121.
- Winston, A. (2014). IKEA backtracks on legal takedown of biggest fan hack site. Retrieved February 11, 2020, from <https://www.dezeen.com/2014/06/19/ikea-backs-down-in-legal-kerfuffle-with-biggest-fan-site-ikeahackers/>
- Morelli, N., & De Götzen (2016). Conference paper. Service Dominant Logic. Changing Perspective, revising the toolbox. *Service Design Geographies. Proceedings of the ServDes. 2016 Conference*. Linköping University Electronic Press. 132-142

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