THE ROLE OF SYMBOLS IN VALUE CO-CREATION

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Abstract

The research aims to explore the role of symbols in value co-creation in order to develop a deeper understanding of how actors, communicate, interact and reconcile perspectives as they integrate and exchange resources to create value for themselves and for others. We draw on a service-ecosystems approach to value co-creation and propose a conceptual framework that highlights varying views of value and articulates the way in which value co-creation results from the integration of resources and interactions among multiple entities. We argue that symbols assist actors in co-creating shared meanings that help actors make decisions regarding current and future interactions. In this way, symbols support the *coordination* of interaction and *communication*, as well as the *computation* or evaluation of value, among actors. We provide an empirical example of our conceptual framework as supporting evidence for the role of symbols in value co-creation, and point toward directions for future research.

Keywords: Symbols, Service Ecosystems, Value Co-creation, Symbol Systems, Practices, Institutions

Introduction

Symbols are a central component of markets and marketing because they influence the co-creation of value within and among service ecosystems (Spohrer and Maglio 2010; Vargo and Lusch 2011a). In 1959, Sidney Levy drew attention to the importance of symbols in exchange by discussing the idea that "sellers of goods are engaged, whether willfully or not, in selling *symbols*, as well as practical merchandise" (p. 117, emphasis in original). This shift in interest toward the "symbolic," rather than "utilitarian," meaning of goods has since evolved into a substantial body of literature dedicated to studying the nature of brands and their meanings (e.g., Holt 2004) and has guided efforts toward understanding how firms can create and "sell" symbols through a variety of marketing activities (e.g., Levy 1959; Holt 2004). However, growing attention to cultural aspects of "consumption" (Arnould and Thompson 2005) and co-creation of value (Prahalad and Ramaswamy 2004; Vargo and Lusch 2008) indicates that customers, and other actors, also contribute to the creation of market-related symbols and their meanings.

The consideration of multiple actors as active participants in the creation of symbols aligns with a recent shift in marketing thought and practice toward a service-dominant (S-D) logic. S-D logic is based on the idea that service – the application of knowledge and skills – is the basis of all exchange (Vargo and Lusch 2004; 2008). This alternative approach, to traditional goods-dominant views, posits that service beneficiaries (e.g., customers) are always co-creators of value and meaning (Penaloza and Mish 2012) because value is created through the use of a market offering, in a particular sociohistoric context (Edvardsson, Tronvol and Gruber 2012; Vargo, Maglio and Akaka 2008). Importantly, in this view, goods are intermediaries rather than the central driver of value creation, and value is always co-created through interaction among

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multiple stakeholders within and among systems of service-for-service exchange (Vargo and Lusch 2008; 2011a).

In this paper, we apply an S-D logic, ecosystems approach (Vargo and Lusch 2004; 2008; 2011a) to explore the role of symbols in value co-creation. This systems-oriented view of value co-creation broadens the scope of market interactions to a network (e.g., multiple suppliers, firms and customers) of actors, and underscores the dynamics of social systems driven by exchange. The aim of this research is to develop a deeper understanding of how symbols 1) coordinate interaction and communication and 2) help to reconcile actors' multiple perspectives as they integrate and exchange resources to create value for themselves and for others.

We begin with a discussion of how symbols can be studied in the context of value co-creation, highlighting the importance of a holistic and systemic view of symbols. We then elaborate on the co-creation of value from an S-D logic, ecosystems view to emphasize the embeddeness of symbols in dynamic systems of service-for-service exchange. We articulate how symbols drive value co-creation by contributing to the coordination of interaction and communication as well as the computation of value in service ecosystems. An empirical example is provided of how symbolic meaning varies depending on institutional forces and sociohistoric context. Finally, we conclude with the implications of this approach for the study of value co-creation, as well as innovation, and point toward directions for future research.

Symbols in Value Co-creation

Marketing literature has embraced the importance of symbols, especially with regard to brands and branding (e.g., Holt 2004) and consumer culture (e.g., Arnould and Thompson 2005; Venkatesh, Penaloza and Firat 2006). Much of this work is based on Levy's (1959, p. 119, emphasis in original) view of symbol as "a general term for all instances where experience is

mediated rather than direct; where an object, action, word or picture, or complex behavior is understood to mean not only itself but also some *other* ideas or feelings". However, a look at several broader theoretical and philosophical frameworks (e.g., semiotics, practice theory) offers multiple avenues to study the nature and role of symbolic processes in value co-creation.

Signs and Symbols

Since Mick's (1986) exhortation for additional research on symbols and signs within marketing, numerous approaches have been adopted to examine the relationship between symbols, signs and meaning. One prominent approach is semiotics, which explores the epistemological question of what is meaning and the ontological quesiton of how meaning is co-created or emerges in relation to certain entities or practices, or from certain contexts. For instance, in Peirce's semiotics, a symbol represents "a sign which refers to the object that it denotes by virtue of a law, usually an association of general ideas, which operates to cause the symbol to be interpreted as referring to that object" (Peirce 1958, p. 249). Pierce and other semioticians suggest that actors assign meanings to signs – which then become symbols – according to particular 'rules' of interpretation that define their social world.

Others semioticians build on this view as well. For example, Nauta (1997) developed a multi-level conceptual framework called the semiotic cube which explores sign-sign relations, sign-object relations and sign-interpretant relations within a social system (Mick, 1986). Symbolic interactionism further extends Pierce's semiotics and explores how individuals attach meaning to interactions within a social context, which in turn is largely facilitated by symbols (Blumer, 1969; Solomon, 1983; Mick, 1986). The research stream of symbolic consumption within marketing also examines the symbolic meaning of consumers' use of various brands and service offerings.

Therefore, one avenue for exploring symbols in value co-creation may involve exploring the relationship between a sign (e.g. a physical form that a symbol takes), its interpreted meaning (e.g., the role in value co-creation), and the rules that determine this interpretive relationship (e.g., institutions within an ecosystem). For instance, in conceptualizing the market as a sign system, Venkatesh et al. (2006) draw attention to the linguistic conventions of signs (the rules of interpretation), such as shared images, in constituting the meaning (interpretation) of material objects and realities (signs) in describing the process of communication and exchange of economic value among actors in consumption and marketing practice (Domegan et al. 2012). Along a similar vein, Lobler (2012) argues that signs explictly coordinate interactions within service systems wheras practices implicitly coordinate the different interactions from which value emerges, i.e., practice serves as an important element of assigning meaning to signs and signifiers. Thus, the study of the relationship between signs and practices can lead to a deeper understanding of symbols and their role in service ecosystems in general and value co-creation in particular.

Symbolic Practices

The connection between signs and practices (Lobler 2012) also points toward the need to better understand how the enactment of practices contributes to the creation of symbols within a particular ecosystem or across multiple ecosystems. Central to a practice approach is the view that actors understand the world and themselves, and use know-how and motivational knowledge, according to particular practices, which reflect a shared possession of the collective (Reckwitz, 2002). Therefore, social practices, as a shared "nexus of doings and sayings" (Schatzki, 1996), are not only understandable to the agent who carries them out, but also understandable to potential observers.

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Recently, Shove and Patzar (2005) offered a conceptualisation of practices as interrelated assemblages of understandings (meanings and symbols), skills and competences (e.g., processes, know-how knowledge), and tools (e.g., material objects), that are integrated by actors through their routinized performances. Within this conception, shared symbols and participation in practices themselves can be perceived to co-ordinate the 'understanding' of practices, which, in turn, co-ordinate the skills and competencies and tools that are used to perform these practices. Along these lines, Kjellberg and Helgesson (2006) focus more specifically on the study of practices that perform markets, and identify "representational" practices as the way in which actors re-present things as symbols and depict markets. The enactment of practices and the participation in value co-creation therefore results in co-created meanings and generates sign value (Penaloza and Venkatesh, 2006; Venkatesh et al. 2006; Kelleher, Wilson and Peppard, 2012). Thus, we can endeavour to explore how actors use symbols in relation to their understanding of the skills and competencies that they, and others, develop and tools that they use to perform these practices (e.g., Schau et al., 2009) as they participate in value co-creation practices.

Symbol Systems

Finally, we can endeavor to consolidate our knowledge about the nature and role of symbols in value co-creation by deriving a holistic perspective of how actors practice value co-creation and how these practices impact the sign-interpretation-rules relationships constituting the role of symbols within ecosystems and visa-versa – that is, we can explore how the sign-interpretation-rules relationships impact how actors practice value co-creation within ecosystems. In this view, symbols are signs that are connected to practices (Lobler and Lusch 2013) and embedded within broader social institutions. Such investigations can potentially lead to a more informed

understanding of how actors communicate and interact within and across ecosystems using symbols, integrate and exchange resources to create value for themselves and for others, and how institutional factors are influenced by and influence these processes. We focus on this third approach to studying symbols in value co-creation by drawing on an S-D logic, service ecosystems approach to markets and marketing.

Value Co-creation in Service Ecosystems

The study of symbols in service ecosystems is central to understanding value co-creation because, in essence, service is value co-creation (Spohrer and Maglio 2010). Whereas conventional models of value creation depict a firm's production of an offering that is embedded with value for a customer to consume, the concept of value co-creation suggests that customers (and other stakeholders) are part of the value creation process. In this co-creation view, value is collaboratively created through interaction and exchange among firms and customers and uniquely determined through customers' experiences of integrating market offerings with other resources (Prahalad and Ramaswamy 2004; Vargo and Lusch 2008). Although the co-creation of value has been largely studied in the context of the firm-customer dyad, S-D logic provides a broader more networked and systemic view of interaction and value creation (Akaka, Vargo and Lusch 2012; Vargo and Lusch 2008).

As mentioned, S-D logic is based on the premise that service – the application of knowledge and skills – is the basis of exchange. This view of value co-creation focuses on interaction, rather than production, and emphasizes the phenomenological and contextual nature of value. Grounded in its emphasis on value co-creation, S-D logic posits that all social and economic actors are resource integrators (Vargo and Lusch 2008) and value is always phenomenologically determined (evaluated or assessed) by a service beneficiary, in a particular

context (Vargo et al. 2008). Recently, Vargo and Lusch (2011a,b) introduced the concept of the service ecosystem to extend this service-centered, value co-creation view to a more dynamic social context. Service ecosystems are defined as "relatively self-contained self-adjusting systems of resource-integrating actors connected by shared institutional logics and mutual value creation through service exchange" (Vargo and Lusch 2011b). Importantly, this definition and discussion of service ecosystems explicates the dynamic nature of social systems through which resources are integrated, service is provided and value is co-created. More specifically, Vargo and Lusch (2011a) draw attention toward the importance of institutions – social norms or "rules of the game" (Williamson 2000) – and how they guide interaction and contribute to the coordination of value co-creation.

From a service-ecosystems view, institutions are a central aspect to value co-creation because they enable and constrain the actions and interactions of actors. Thus, the consideration of institutions in value co-creation is important for conceptualizing the social context through which value is co-created and evaluated (Edvardson et al. 2011). It is important to note that institutions do not only influence the interaction that guides value co-creation, but also influences the evaluation and determination of value that emerges out of the integration and exchange of resources. According to Chandler and Vargo (2011), service ecosystems are composed of multiple levels of sub-ecosystems that intersect and overlap at micro, meso and macro levels of social interaction. Each of these levels of interaction is guided by varying sets of institutions and, thus, value co-creation is driven by multiple levels of interaction, as well as institutions. In this view, we argue that the interpretation of symbols is central to value co-creation because as institutions overlap and become integrated as resources with other institutions, symbols are re-

interpreted based on new social contexts, and new symbolic meanings, as well as institutions, emerge (c.f., Giddens 1984).

How Symbols Guide Value Co-creation in Service Ecosystems

From a service ecosystems view, it becomes clear that both service and value co-creation result from the integration of resources among multiple actors, which in turn requires communication and coordination (Maglio and Spohrer 2013). In this way, value co-creation is necessarily a kind of joint activity, which depends on establishment of mutual understanding to achieve mutual goals among distinct entities (Clark 1996). Mutual understanding can be achieved through shared experiences, shared context and shared information. Sometimes there is no need to state anything explicitly to achieve shared understanding. Other times, words are needed to communicate and coordinate interaction or exchange. Against the backdrop of service ecosystems – constituted of shared experience, culture and meanings – symbols play a critical role in helping to organize and coordinate action to achieve specific goals. Simply put, symbols enable the effective coordination of actions and interactions, communication of thoughts, and, ultimately, computation of value.

Coordination

Symbols (the combination of signs and practices) help to coordinate the provision and exchange of service, and the development of relationships within service ecosystems (Lobler 2012). For example, handing a check out clerk at a convenience store a package of gum and a dollar bill achieves the mutual understanding that you intend to buy the gum with the money offered, and this action will likely result in achieving the mutual goals of buying and selling gum. There is a lot going on in this transaction, but most of it depends on shared background knowledge and words themselves may not be necessary for the exchange to occur.

Communication

At another time, however, you might have to ask the clerk to retrieve an item from behind the counter, for instance, gesturing to the right and saying "D." In this case, the utterance "D" in conjunction with a hand movement pointing toward the location of the batteries behind the counter communicates your request for the clerk to retrieve D-size batteries. Achieving this result depends on much background knowledge – both you and the clerk must share knowledge of where the batteries are and of their inaccessibility to you – and the simple addition of a few language symbols to the actions and the context.

Computation

Ultimately, to co-create value, entities must reason about value from multiple perspectives (Maglio and Spohrer 2013). Specifically, to choose to interact and coordinate action, entities must judge that interaction will be valuable, leaving them better off than they were before (Vargo et al. 2008). Moreover, entities must judge potential interaction to be valuable to multiple stakeholders. Judgment of potential value from multiple perspectives requires simulation of the effects of action in the future. One way to simulate is through symbolic reasoning by representation and computation. Formalizing the description of entities capable of sophisticated symbolic reasoning, Newell and Simon (1976) introduced the notion of physical symbol systems, and demonstrated that symbol systems are equivalent to Turing machines, meaning powerful enough to stimulate all other machines (Newell 1980). By this account, symbol systems are equivalent to effective computational systems.

Thus, symbols enable effective coordination, communication and computation. However, this effective coordination and computation is never perfect. In fact, the notion of shared understanding does not mean that symbols have the exact same meanings for different actors

(e.g., Blomberg 2008). This is because each actor has a unique sociohistoric background and a breakdown of shared understandings occurs as actors with varying viewpoints interact. Even so, symbols are a central component of value co-creation because they guide the actions and interactions of stakeholders and help them to evaluate the potential value of future interactions. Furthermore, because symbols can both guide entity-internal processes and coordinate entity-external processes, shared symbolic representations can improve computational capabilities and interactive capabilities. The section below provides empirical evidence, using case examples, for the role of symbols in guiding the coordination of interaction and communication, as well as the computation or evaluation of value.

The Embeddedness of Symbols in Service Ecosystems: The Case of Lego

Our case examples are part of a broader research project conducted by Daniela Corsaro and colleagues on value co-creation in the *LEGO* ecosystem. The researchers conducted in-depth interviews both in the company (general director, brand manager, marketing manager, channel manager, communication manager, etc.) and with the other actors in the company networks, such as distributors, associations, members of the communities, game rooms, and many others. Direct observations also were made of interactions among the different actors. We selected this *LEGO* case because we believe that the role of symbols in value co-creation is particularly evident. For this paper, we have identified and will elaborate several examples from the findings of this broader case study to illustrate, and provide evidence for, the framework proposed above.

The *LEGO* Group is the world's third largest toy manufacturer in terms of sales. The group, famous for its *LEGO* bricks, provides toys, experiences and teaching materials for children and adults in more than 130 countries. Over time *LEGO* has acquired a unique position and a widespread presence in the global market (on average, every person on earth owns 80

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LEGO bricks). Interesting enough, *LEGO* offices are the same all over the world: same structures, same disposition, same equipment, same furniture, and same colors. In this way, independently from the place they are, employees and visitors feel comfortable and know how to move around: there is no need for adaptation.

One of the most evident symbols in the *LEGO* case is represented by the 'brick' itself. The brick, in fact, symbolizes a variety of things in different countries, and guides the *coordination of interaction* between *LEGO* and its customers in different ways. For example, in Germany and the UK, *LEGO* bricks are seen as an important learning tool – in these countries it is quite common for parents to buy a little toy to their children even every day as part of their cognitive development. However, in Italy, the *LEGO* brick represents something very different – it is considered mostly as a reward or a gift the child deserves on special occasions, such as on his/her birthday or at Christmas. This view can also explain why Italian families spend on average 152 euro on toys per year, compared to Germany where the average expenditure is 350 euro and UK, where it is around 450. Thus, the different meanings assigned to the brick also seem to have important consequences in the company ecosystem, such as in the coordination of interaction between *LEGO* and its distributors. In Italy, in fact, mass retailers often consider toys just as 'call birds' for the selling of other products. Thus, they tend to apply aggressive discounts on them, which dramatically reduce the perceived value of the brand and also miss important opportunities for value co-creation with producers, such as through joint branding activities.

This representation is also supported by results from an experiment *LEGO* carried out in Billund, the company's headquarters: *LEGO* employees spilled out 2 quintals of bricks in a room and left children from different nationalities to play with them freely. The result was that Italian children appeared to be less creative than the others – they mostly built 'towers'. This finding

could be also related to the fact that in Italy, *LEGO* creations are often used as 'ornaments' – they are static, and once made they are left unchanged. Rather the meaning of playing with bricks is should be that the composition has to be dissembled to create something new. Only in this way playing Lego can promote creativity. To *communicate* this idea, the association 'Build and Re-build' has been created. In addition, *LEGO* proposed the introduction of an annual celebration dedicated to children, the 'Child Day', which is already present in many European countries. However, local Italian associations strongly discouraged this initiative – they did not see it as something positive and useful, but merely as a commercial action. In order to communicate a shared idea about the brick, *LEGO* has strongly advised some Italian distributors to communicate with foreign distributors to better promote their products. To support its efforts to increase communication among distributors and customers, *LEGO* also invested in computational aspects, as elaborated below.

After a period of success, in the late '90s the *LEGO* Group started to perceive the first signals of alarm experiencing a deficit, which progressively led it near bankruptcy in 2003. Many of its innovation efforts – theme parks, *Clikits* craft sets (marketed to girls), and other products – were unprofitable or had failed outright and it was time for a new strategy. In 2004 the company launched *Shared Vision*, an Action Plan that involved a seven year strategy, which was aimed at rebuilding the company and revitalizing the *LEGO* brand. One of the key point of this strategy was that the mission of the entire company moved from increasing turnover to increasing consumer sales. This shift in the *LEGO* strategy has represented an important driver of evolution towards a really customer-centric company.

To support the understanding and the implementation of the new strategy the company developed a document called 'customer value proposition', which explained how they should

behave to implement the consumer sales driven business, from the top management to the switch-board operators.The *LEGO* partners, and in particular the distributors, have been actively involved in the execution of the *Shared Vision*, even if this process required a substantial amount of time and effort in order to align the perspectives of the different actors. Distributors, in Italy in particular, were very reluctant toward change. Traditionally, they were only aimed at increasing their turnover and they did not believe it was possible to earn a margin from the sale of toys. This view was also connected to the meaning they assigned to the toy itself. Even when *LEGO* had asked bigger distributors for their sales forecasts, they quite often simply did not know. Thus *LEGO* started to impose the practice of sending sales forecast on a weekly base, to better evaluate the potentialities for value co-creation.

The introduction of the new strategy also led to changes in the communication practices inside and outside the company. Although many new terms were introduced, in Germany it was quite easy for a buyer and seller to discuss and negotiate using a common language. However, in the case of some Italian distributors the new language for discussing *LEGO* posed serious problems. To make it easier, sales teams were trained about the shift from profitability to consumer sales and in particular on how to share this idea with other actors in the network, particularly with distributors. However, with respect to certain distributors, sales people preferred to continue using the same simple language, in order to avoid misalignment in the interactions, which limited their ability to co-create value (Corsaro and Snehota, 2011).

Interesting is also the case of Lego communities, among which the AFOLs (Adult Fan of *LEGO*) is the biggest. The AFOLs community is an autonomous community of passionate fans that integrate their resources to create new artifacts starting from *LEGO* bricks. After the "Dark Age" (the period generally 16-23 years old in which kids all over the world abandon Lego

considered as a symbol of their childhood), these people start to play again with bricks, generally specializing a specific area (cars, castles, trains, characters, etc.).

During the many annual public exhibitions, AFOLs show their artifacts to the other members of the community for appreciation and technical suggestions, but also to other individuals, both adults and kids. The AFOLs' network is a collaborative environment. When there is a new participant, people explain and communicate him/her immediately how the community works. There are not invidious relationships between participants; rather people in these communities help each other and give advice on how to do things. AFOLs also communicate through an online platform, *Lugnet*, where they share their ideas, exchange information on *LEGO* products and also to sell and market their own *LEGO* sets.

Over time AFOLs developed informal rules on how to communicate in the forum among the community's members and thus better coordinate their activities. For example, it would be not just enough to say 'this is a nice creation', but you really have to provide a constructive comment to the creator. Also, only conversations about issues related to Lego are admitted. The language used has to be technical, serious, and there should be no mistakes, or messages without a nice layout. Everyone has to be able to understand the content. In this way, language becomes an important way to enable value co-creation and those who make mistakes in communication are punished by the other members of the community.

Among the communities that are part of the *LEGO* ecosystem, there are those that are not strictly connected to the company brand or to the traditional *LEGO* bricks. For example, an independent community of gamers contribute to the development of *LEGO games,* which is a product line consisting of board games that players construct from classic *LEGO* bricks. Over time, the leader of the community, Ligabue, has become a consultant for *LEGO*, a key partner

who has allowed the company to enter and explore this new system, the gamers, thanks also to his role as art-director of the PlayModena exhibition. Ligabue has integrated his knowledge with the company knowledge base, and therefore co-created value through the exchange of new benefits.

Ligabue is an expert in analyzing the games' instructions: he has more than 3000 board games at his place and knows all their instructions. However, in general people do not enjoy reading instructions. Sometimes, even when they read them, they tend to misinterpret their meaning, which generates confusion about how the game works. In addition to this, when instructions are translated from one language to another, there could be mistakes in translations that make the situation even more complex. Based on this knowledge, Ligabue came up with the idea to provide instructions by uploading videos on YouTube where he personally explains how to play with *LEGO Games*. In this way people can listen to him rather than try to understand autonomously how to play and the process of creating a common idea among the different participants is facilitated. Also, future gamers can always refer to these videos as objective, reducing the risks of biases deriving from misinterpretations from previous gamers.

These examples from the LEGO case study illustrate the way multiple actors interact as they integrate a variety of resources to create value for themselves and for others. Furthermore, it is clear that a variety of symbols guide the coordination of interaction among these actors (e.g., firm to customer, firm to supplier, firm to distributor, customer to customer) within and across multiple levels (micro, meso and macro) of service ecosystems. These case examples provide evidence that, in order for interaction to occur, there must be shared or overlapping (e.g., symbolic) meanings of value for particular resources, in particular contexts. The case of LEGO in Italy suggests that one of the major challenges faced in value co-creation is the alignment of

meanings or perspectives on value. Thus, the co-creation of value depends on how effectively

LEGO is able to communicate and articulate the computation of potential value (i.e., value

propositions) for its customers, as well as its employees and distributors.

Conclusion

In this paper, we have identified several approaches to studying symbols in value co-creation and

proposed a service-ecosystems approach as a conceptual foundation for understanding how

symbols guide interaction and value creation in markets. We focus on a holistic and systemic

view of symbols in value co-creation by applying an S-D logic, service-ecosystems lens. Within

S-D logic, value co-creation results from the integration of resources among multiple actors, and,

thus, there are many perspectives of value. However, for interaction or exchange to occur, there

must be shared or overlapping (e.g., symbolic) meanings of value for particular resources. These

meanings can be utilitarian or hedonic or both, and they are based on past experiences, which

help to guide future interactions and determinations of value. Because views on value vary

among actors and contexts, the creation of value in service ecosystems depends critically on

effective communications, as well as the articulation and computation of potential value (i.e.,

value propositions). Based on this, symbols are a central factor in value co-creation because they

support communication among groups of actors as well as the computation or evaluation of value

for individual actors.

We propose a framework that emphasizes the systemic nature of symbols and argue for

the importance of symbols in value co-creation by discussing three critical processes that are

required for value co-creation to occur and reoccur in service ecosystems– coordination,

computation and communication. We provide evidence for how symbols guide these important

processes by discussing examples from a case study of *LEGO,* and shed light on how different

symbols associated with this company contribute to the coordination of interaction and

communication among employees and customers, and other stakeholders. In addition, these examples provide support for how symbols guide the computation or evaluation of value differently depending on the sociohistoric context and institutions that guide actions (i.e., practices) and interactions.

This present research has explored how symbols guide value co-creation, but we have only begun to scratch the surface for understanding the particular processes by which symbols guide coordination, communication and computation in markets. Further empirical research is needed to explore more deeply each of the roles that symbols have in value co-creation and service ecosystems. Moreover, little is known about how symbols are jointly created through the interactions of multiple stakeholders and how signs, as well as associated practices and meanings, change over time. It is our hope that this research will help to provide a conceptual framework from which more empirical studies can be done, and a deeper understanding of the role of symbols in value co-creation can be developed.

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