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The Ecosystem Value Framework: Supporting Managers to Understand Value Exchange between Core Businesses in Service Ecosystems

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Why this paper might be of interest to Alliance Partners:

This paper focuses on building a framework to help solve a factual problem often described by the managerial staff of companies. The problem is based on a lack of ability to understand the complete value exchange between partners in business ecosystems (this is considering key stakeholders in an ecosystem and focusing on the direct and indirect value capture and creation between them). The research question is: "What are the different types of value created within an ecosystem and captured by its customers?". The defined framework has helped managers to understand and evaluate the direct and indirect value exchanged between businesses in ecosystems. This has been successfully developed in collaboration with IBM, BAE, Zoetis and Caterpillar Inc.

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This paper focuses on building a framework to help solve a factual problem often described by the managerial staff of companies. The problem is based on a lack of ability to understand the complete value exchange between partners in business ecosystems (this is considering key stakeholders in an ecosystem and focusing on the direct and indirect value capture and creation between them). The research question is: "What are the different types of value created within an ecosystem and captured by its customers?". The defined framework has helped managers to understand and evaluate the direct and indirect value exchanged between businesses in ecosystems.

Increasingly, manufacturing firms are diversifying by offering services to their clients. In developed countries, two out of three companies, and internationally one-third of large manufacturing firms, offer services (Bowen et al., 1989; Cusumano et al., 2015; Neely, 2008; Visnjic Kastalli et al., 2013). Furthermore, research shows that on average onethird of revenue is generated by manufacturers from services (Fang et al., 2008). Despite the importance of services within the manufacturing field, many companies struggle to manage the change from a product-centric to a service-centric business (Bitner et al., 2008; Chesbrough, 2010; Ng et al., 2013; Reinartz and Ulaga, 2008). One aspect of this struggle is bringing value to the customer through a structure whereby multiple companies collaborate. These business structures are often referred to as ecosystems.

A business ecosystem is defined as a network of organizations and individuals that collaborate and evolve roles and capabilities, as well as synchronizing their investments to build value and increase efficiency (e.g. Moore, 1993; Williamson and De Meyer, 2012).

The paper focuses on building a framework to help solve a factual problem described by companies. The problem is based on a lack of ability to understand the complete value exchange between partners in business ecosystems (focusing on the direct and indirect value capture and creation between key stakeholders). By addressing the demand from practitioners we are answering not only the call of practitioners for a deeper understanding of value, but also academic calls to understand value (e.g. Lepak et al., 2007).

The research question is: "What different types of value are created within an ecosystem and captured by its customers?"

Theoretical background

The theoretical grounding of this study is based on the resource dependence perspective (Jaffrey Pfeffer and Gerald Salancik, 1978). This theory defines companies' inability to be sustainable without external dependencies. In the past this has been viewed less on a B2B context than on, for example, a human resources view. If we extend this, then companies, in order to survive or extend business, can create dependencies on other businesses and make strategic decisions based upon them. Therefore, other businesses can also be viewed as resources. The result is a business ecosystem, in which multiple companies coexist in a strategic interaction.

Business ecosystems evolve in different stages. The starting point is described as a mix of capital, customer interest and talent base, which is the starting point for an ecosystem's formation. This is followed by expansion, leadership and, finally, self-renewal or death (Moore, 1993; Ritala and Tidström, 2014). If the ecosystem is considered a success, there can also be a merger between the companies, which is considered to increase efficiency between the parties involved (Ritala and Tidström, 2014).

Value is created by the company itself or by its partners for the end customer. Therefore, every actor in the ecosystem creates and also captures value. This can take place upstream or downstream the value chain (Adner and Kapoor, 2010). However, it is important that there is a value increase to the value chain and as little as possible value slippage within the system (Lepak et al., 2007). This means that one can look at value in very different ways. One example is consumer benefit experienced, which is looking at the value creation from a benefit that the consumer can experience (Priem, 2007a)

For the purposes of this publication we are looking at value creation and capture in the context of the resource dependence perspective. Hence, if there is dependency between two organizations, such as an ecosystem, then they must both create and capture value as a result of being dependent on each other.

Here value will be seen as both direct and indirect value. Direct value is considered in the definition of a value provision (pain/gain), as defined by Osterwalder et al. (2014). However, services, in particular, are interchangeable, heterogeneous, inseparable and perishable (Lovelock and Gummesson, 2004). This also applies to the value they deliver and the value that companies exchange with one another. This paper contributes to the discussion on value creation in ecosystems and acknowledges that there is value exchange between companies when they operate in the same ecosystem. It will propose a framework on indirect value exchanged (created and captured) by companies within ecosystems.

Methods

Data collection

The data collection to develop the ecosystem value framework was grouped into three parts. First, a literature review was conducted using a structured approach (Tranfield et al., 2003). Over seventy papers were chosen and informed the building of a draft ecosystem value framework. The second stage was based on exploratory qualitative interviews, which asked managers how they see indirect value creation and capture in ecosystems. In addition, questions were asked about different indirect values, with examples including risk increase and reduction in ecosystems, as well as management coordination experience and its impact. In the final stage case studies were conducted in the form of workshops. Four case studies were completed using different drafts of the model. One of the case studies was audio recorded and transcribed; however, the others could not be recorded because of company sensitivities. All the workshops, however, enabled reflection and learning and, hence, changed the ecosystem value framework.

Phase	Data	Participants
1 – Building theory from literature	Seventy peer-reviewed papers	Selection criteria reviewed by three other senior researchers
2 – Interviews testing of the theory	Qualitative open-ended interviews, recorded and transcribed	Managing directors and general managers
3 – Verification workshops	Four case studies in multinational organizations	Managing directors and general managers

Table 1 – Types of Data Gathered

In total over a hundred and fifty-five pages of transcribed interviews were collected and later analysed.

The first case study was conducted in a multinational pharmaceutical company. Specifically, this was a strategic workshop, which was investigating which values were exchanged between two partners in the animal health ecosystem. The result was a new approach to engaging with the partner in future business. The second case study was conducted with a start-up, which was planning to engage in a multinational cooperation. Using the framework has helped an understanding of the missing parts of value created by the start-up and captured by the multinational. The third case study was conducted with a multinational engineering company and an international project, which were unclear about how they were exchanging value with an international partner. The result was the identification of new collaboration routes and clarification on indirect value such as engineering capability and the ability to solve problems within the organization. The final case study was carried out with an international operating chemical company. The framework has helped an understanding of whether there is value in outsourcing the development of an electronic component needed for a service platform. The result was to develop the component in-house, since offering the development externally would have given too much capability and external value to the cooperation.

Data analysis

The data analysis was conducted through coding of the transcribed material. Two researchers independently coded topics and then compared their results to discuss discrepancies in their analysis. The discrepancies were discussed and agreements found on concluding the data analysis.

The analysis was conducted with the support of the NVivo software package.

The framework

Ecosystems are multiple companies working together to create value for an outcome, as defined earlier.

For this study, the unit of analysis was the value exchange between partners. The framework was split into five parts. The paper argues that value is created and captured in both entities in an observed ecosystem. The manufacturer creates value for the B2B customer, which can be split into direct and indirect value. If the B2B customer is not able to capture value, then value created will be lost. One example from the interviews is a report. If the manufacturer creates a report on, for example, coordinating actions in the service delivery and there is no managerial structure capturing value through the report, then the value created is missed. Extending this idea, if the B2B customer captures, reads and puts information into action, then the value is created internally. Extending this further, there is a need for communication feedback to the manufacturer, which may be implementation status, changes carried out, delivery dates, or similar. If this information is not captured again on the manufacturer's side, leading to actions, then value is again lost.

When considering Figure 1, it is clear that managers should think not just about value creation, but also about value capture. Particularly in ecosystems this becomes strategically important in preventing value slippage and, hence, increased overheads between the partners in the ecosystem.

Strategically the above becomes important as managers are enabled to think about what the B2B customer captures and creates in the form of value. Therefore, what are the arguments for him or her to enter an ecosystem and support the means of a combined value delivery?

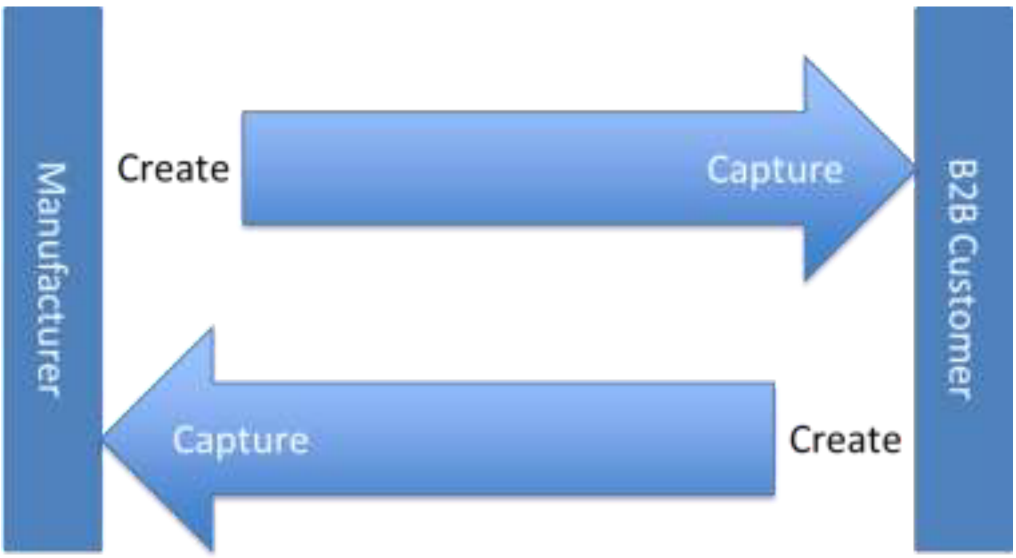

Figure 1 – Value creation and capture is an exchange

The following section will split Figure 1 into direct and indirect values. The focus for this study is to contribute to the discussion on indirect value. Consequently, direct value will only be mentioned for the sake of completion.

Direct value exchanged

Direct value exchanged in ecosystems is, in the context considered here, economic value exchanged. Hence, a service is created and economic value given back. The literature discusses different general models that can be applied for value exchange (e.g. Priem, 2007b). The aim of this publication and the research, however, was to discuss not direct value exchange, but indirect value exchange, with a focus on B2B context. The following sections address this value capture and creation. The question is who and how does value get created and captured. The first two parts address who creates and captures value in the B2B relationship – in this case, the organization or the manager/employee. The second two parts cover how value is created and captured, focusing on strategic value creation and the implications of risk.

Value creation for the organisation

The exchange of value between partners within an ecosystem is based on coopetition (cooperation and competition) and, hence, the interdependence of single organizations (Adner and Kapoor, 2010). Each partner's survival is dependent on the other organizations in the system, and they must exchange value and collaborate effectively in order to be successful (Letaifa, 2014). This means the organizations in the ecosystem will be in a mode of continuous interaction and exchange (Gummesson, 2008). The effect of this interaction brings value to the organizations involved. This may be in the form of the sharing of resources, and therefore the processes of one company are used. It may also be in the form of capability or marketing. Hence, in one case one organization was a startup and the focus organization was a multinational company. If the multinational company had decided to enter into an ecosystem with the start-up, the valuation of the start-up would have increased immensely. The previous examples show that there are numerous ways that organizations can create value for one another. The experience of conducting the study shows that the value created and captured by organizations may vary throughout the lifecycle of the ecosystem. Therefore, managers need to be aware of the lifecycle described by Letaifa (2014) and to ensure that there is a value exchange strategy over time that is sustainable.

The workshops conducted on the value canvas have shown that there are some interesting questions to be asked when thinking about the value transfer between two key players in the ecosystem. Is there trust or social proximity between the organizations? Is there a feeling of community or active cooperation (Letaifa, 2014)?

When it comes to value creation and capture within organizations, they can differ from one another by having R&D processes that are oriented inwardly or outwardly. Some have social conditions, which are open and collaborative, allowing partnering between organizations; and some are strongly protective or demonstrate intrinsic mistrust. The above factors are not necessarily negative or positive per se, but they may have an impact on whether partnering in an ecosystem will be effective, so the question is therefore whether the organization is good to work with across organizations.

Overall, there is a need to define the value that an organization can capture from collaboration in order to illustrate what the organization gets out of the exchange. If this is known then the value created can be designed to aim for the value captured by the other party. The outcome will be less value slippage.

Value creation for management

The literature shows that there is a difference between the organization as a whole and the entities or managers that make up the organization when it comes to value creation and capture. The differentiation regarding the above is that when looking at the culture of the organization one can look at the individual; however, management are the decision-makers. They have the ability either for ecosystem leadership or to reinforce and learn. On the other hand, they may not have the trust of the partnering organization. Lepak et al. (2007) argue that the value capture process is a unique experience of individuals and therefore the people who are organizing it. When looking at this in detail it can be linked to different findings.

The managers of an organization will govern the business model and, for example, incentivize the co-development of resources and capabilities (Amit and Zott, 2001). Management defines whether it is possible to integrate innovation processes or to have an adaptive platform of different business models enabling multiple business models to be run at the same time and, hence, the need to integrate the innovation process and the business model (Chesbrough, 2007; Chesbrough and Appleyard, 2007). However, not only does the business model have to be organized, but also the internal working of the organization must be adapted or be changeable by the individuals doing the organizing. This means that the managers also have to be able to organize and integrate the "supply chain" (Amit and Zott, 2001). The management needs to not only organize the value capture and creation, but also lead on it. Therefore, ecosystem leadership is another aspect that should be considered in a potential partnering organization (Letaifa, 2014). Here it is important to think about the evidence and experience of such a leader, but also about the power of this person within the organization. The question arises about how the manager can create value for him or herself and the organization in a partnership.

In the first case study the discussion about leadership and who has the ability to change and influence the system had a great impact. It made the workshop participants realize that the value proposition of the approached department was to keep the supply chain active and the shelves filled. It was very much the goal to keep the system up and running and not to influence the way in which the system works. However, the workshop participants worked out quickly that the change leaders, enabling a partnership between the companies, would be in a different department. Hence, any efforts until now have been seen as a logical failure.

In the second case study the manager involved in the interview had not understood how value capture in the organization would work on the basis of collaboration. The manager had thought in great detail about how and why value would be captured from a partnership. However, he had not given any thought to "why" a manager would make a positive decision on partnering, and how management would create value in the partner organization from a potential partnership. Indeed such one-sided thinking leaves a gap in communication and leaves the interpretation of value to the other side.

Strategic value creation

All organizations have a current execution and a strategy. This also means that they have strategic intent. An example is whether or not to build a new market or to extend the sales of a product or service. Indeed, this can also be extended to partnering and ecosystem participation. What does this mean for a collaboration between partners in ecosystems? The details of the companies' strategy is indeed important for planning a collaboration.

Allowing internal change and adaptation to an external collaborator will have an impact on the organization. So the strategic intent is important for the company to develop a market or a customer relationship (Rai and Tang, 2014).

The strategic rationale for companies to cooperate or collaborate with other businesses is described in four aspects (Ritala and Tidström, 2014):

- Value creation networks, whereby companies are enabled from within their own organization's strategy to leverage value through relationships with other companies. These usually split into three different states within an organization:
  - Collaborative: collaboration with other organizations is leveraged to create value.
  - Competitive: individual objectives are the reason to create value in the collaborative network.
  - Passive: there is currently no active collaboration in an ecosystem to leverage value.
- Value creation logic, which allows the company to act across companies and to create value. Contrary to the earlier mention of value creation logic, here there should be the aspect of observing strategic intent. Hence, does the company intend to engage with other organizations in value creation?
- Value appropriation objectives allow an organization to create a positive-sum perspective to collaboration. Here the important factor is that both parties in a relationship allow each other to create maximum value from their collaboration. If this is not the case, then the collaboration is indeed doomed to failure or to have a negative outcome for both parties. One party will lose a collaborator and one will lose business engagement, or even its business.
- Value appropriation logic allows the actor to create value from a network and its resources in either a zero-sum or positive-sum approach.

Furthermore, two aspects are mentioned in the literature that are considered important and may constitute a make-or-break situation for a strategically positive relationship between organizations. First, there is the impact of a partnership on the image of the organization (Essig and Amann, 2009) and also on the reputation of the customer (Tantalo and Priem, 2014). Both are strategically important, as they relate to a view of the market, both inside and outside the company. Hence, there is a potential reputation change within the market, but also to the internal identity of the company. One example of this was given in one of the research interviews, where it was stated that when the large company to which the interviewee belonged partnered with a smaller organization, then the image of the smaller company in the market would receive a significant boost and its financial valuation would increase. It would therefore be seen as very positive on the market for the smaller organization. However, for many employees of the small organization it would also be a sign of change.

These are indeed pointers towards guiding a discussion around the partnering of two companies. It is seen as important to understand the strategic intent of the company and its impact on an in-depth collaboration or partnership. This allows a higher capture of value on both sides and potentially a more focused value creation to enable the value capture to work better.

Value creation or capture through risk
A collaboration will always be resourceful if there is a reduction of risk or uncertainty for both parties. This offers great value for any organization, where the increase of risk is certainly negative. Usually there are trade-offs in collaborations. This is the point at which the trade-offs should be looked at and evaluated. So how does one have to look at risk when thinking about capturing or creating value?

The risk types split into tangible and intangible. Tangible are, for example, that the partnership brings concrete value to the ecosystem, which otherwise would have to be created with great uncertainty and investment. One example could be access to market and another could be access to data, information or capability, in cases where tangible risk-reduction partnering is a low-risk option for both.

Examples for intangible risks are technological uncertainty or market risks. An example is the creation of novel technological artefacts. A partner may be chosen to develop technology. Then the partners must manage the risk together. However, the risk is also transferred to the rest of the wider ecosystem. For example, if the technology is not market-ready, this could result in a larger problem on the market. The immediate result does not have to be to work only in-house, but it has implications for choosing the right partner. The example was taken from case studies one and three. In case study one this meant a technology (medicine) was ready to be used; however, someone in the supply chain was blocking the innovation, even though the medication was certified. This was despite the fact that the arguments throughout were positive for the adoption of the medicine.

Indeed, here a closer look at the structure of the partnership and, hence, the indirect value capture balance would be appropriate. The question would be how this partnership reflects on the ecosystem structure and whether it raises the risk. How much risk must the organization capture?

Another question for evaluation is the risk of excess value creation (Lepak et al., 2007). Excess value creation would be the case when one partner has to invest a lot more than initially thought into the partnership. Therefore, when is the right moment to stop a potential collaboration in execution and when is the last moment when one can still return?

Conclusion and relevance

The ecosystem value framework offers a good basis to help managers understand value exchanged in B2B ecosystem partnerships. This study began by asking: “What are the different types of value created within an ecosystem and captured by its customers?” The differentiation has been found to be that every partner in a B2B relationship creates and captures value. Value can be split into both direct and indirect value. While direct value is usually defined by a business model, indirect value can be split into four parts: first, value for the company; second, value for the management or employee; third, value for strategic intent; and, finally, value for risk. This was tested using multiple managers and four case studies were conducted.

The relevance and contribution of the framework is split into two: first, the work extends academic knowledge about value creation and capture in ecosystems and contributes to the ongoing discussion in the literature. Specifically, it defines that there are different types of direct and indirect value created and captured by every business, even though there may not be awareness of this by the managers. This also means that there is potential for value slippage within the companies. The second contribution of the framework is that it gives practitioners an opportunity to understand and define the value exchange in ecosystems. The feedback from practitioners included: "If we had known then what we know now, we would have made our value offer not to the start of the production chain but to the completely other end of the chain" (Director of Operations of a multinational pharmaceutical company); or "before using the model we have been going around in circles on value"; and "using the model has given us an advantage in being a collaborator as we were aware of the complete value exchange". Both quotes were from managers within a multinational defence company managing large multinational projects.

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