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Innovation and Value Creation in Business Ecosystems

Hassan Sherwani and Richard Tee

2.1 Introduction

Business ecosystems are an emergent type of organizational form that can be defined as “the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize” (Kapoor and Adner 2012). Gulati et al. (2012) have identified such ecosystems as a novel type of organizational form, which combines open membership boundaries with a highly stratified and more hierarchical decision-making. Such new organizational forms are increasingly important in highly competitive global industries (Ilinitich et al. 1996; Volberda 1996). Examples of these managed ecosystems include Apple’s iOS app store and the Google’s Android Smartphone operating system. In both cases, membership to each ecosystem is open to any firm or

H. Sherwani (✉) · R. Tee

Department of Business and Management, LUISS Guido Carli University,
Rome, Italy
e-mail: hsherwani@luiss.it

R. Tee
e-mail: rtee@luiss.it

individual that wants to develop applications for it. At the same time, actors operating in such ecosystems need to ensure that knowledge is generated and transferred. Therefore, a key issue for firms operating in business ecosystems is how to manage knowledge integration, which impacts the rate and degree at which innovations arise and value is created. This chapter focuses on how firms manage knowledge integration in business ecosystems, and how the strategic management of various interdependencies affects innovation and value creation in business ecosystems.

2.2 Background Literature

2.2.1 Business Ecosystems

The term “ecosystem” has been of rising interest in discussions of strategy (Moore 1993; Iansiti and Levien 2004; Clarysse et al. 2014; Kapoor and Adner 2012). Businesses are moving toward a more networked approach which creates new opportunities as well as subsequent challenges (Adner 2017). Hence, this idea of ecosystem has sparked a rising interest among innovative organizations. It has raised awareness for firms in terms of how ecosystems affect their business models and value networks (Christensen and Rosenbloom 1995), thereby attempting to improve overall value creation and value capture.

The ecosystem is a term that has been taken from biological sciences, which in a business context refers to interdependent networks of organizations. As in the case of biological ecosystems, each member would depend on other members for its own survival and so learn to participate and contribute to the overall system. This scenario becomes relevant in the business context where the survival, growth, and success of each organization is affected by the ecosystem holistically (Iansiti and Levien 2004). In business, ecosystems outline the network of firms which collectively create an overall integrated technological system for creation of value for customers. Understanding the mode of ecosystems in which their operations change may provide useful information for

firms that lie or associate themselves within these networked environments (Mäkinen and Dedehayir 2012).

According to Moore (2006), markets, hierarchies, and ecosystems are the three main components of the contemporary business. These pillars, therefore, should provide the basis for companies to compete, regulate policy, and counter negative or antitrust actions. Most companies tend to adopt this approach; however, haphazard adoption may create issues. There is a confusion related to boundary, overlap, redundancy, applicability, unit, and focus for analysis (Kapoor and Adner 2012).

According to Moore (1993),

An economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world. The economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organisms also include suppliers, lead producers, competitors, and other stakeholders. Over time, they co-evolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments, and to find mutually supportive roles.

To elaborate this idea given by Moore (1993), business ecosystems are a network of interdependent organizations that coordinate each other in order to create success. Traditionally, companies are considered to be rivals who fight each other for a maximum market share. This concept of corporate rivalry has been contradicted as organizations in modern times work in a different environment. Competition has different meanings. Firms tend to integrate competition and cooperation so that they could produce more diverse value for the end customer. This practice is important for competitors as they could rely on other firms in order to survive. It is worth noticing that business ecosystems consist of actors (Moore 1993), who participate within the organization. In addition, distribution channels and suppliers are considered part of the system as well. There are certain extended participants such as customers, standard bodies, and suppliers of complementary products. There

are some actors who are thought to be an external influence on the system; however, they have an impact on the main functions of business. Examples are trade partners, unions, key investors, and regulatory bodies.

As mentioned earlier, the ecosystem describes an environment containing an organization. Though similar, the business environment and business ecosystems are not same. It is also significantly different as it refers to the systematic nature of the total environment and key components making up that system. The ecosystem also addresses the internal evolutionary process through which an organization must go, adoption capability of the firm in a transition period, and coevolution of a business firm and its external environment. According to Hagel and Brown (2005), a business ecosystem may be able to explain a specific type of environment. In this case, clusters of companies focusing a specific type of business or technology might decide to locate their operations in close geographic proximity to each other.

To understand the role and dimension of the business ecosystems, companies comprising these may be diverse and unique in terms of their capabilities. However, they have come closer due to this business collaboration. An organization may go through intensive development of its infrastructure first to be competitive. This infrastructure includes various activities such as finance, accounting, legal issues, deployment of sales and marketing units, recruitment at executive and mid-level, and maintenance of relations with other partners. Through this consistent process of infrastructure development, there could be a chance of building up links within different units and departments. Now, consider this scenario at a bigger level where there are more number of companies and each organization acts like an actor at the individual level. The same phenomena of organizational structure will be followed but at a higher level. In this scenario, other institutions such as research centers, universities, governmental organization, and nonprofit organizations may serve an extra blend of network interaction (Hagel and Brown 2005).

The role of business ecosystems is to surround, permeate, and reshape given markets and hierarchies (Moore 2006). Most companies in modern competitive environment emphasize efficiency and effectiveness

as the basis of innovation. Profit margins are still important but they are not the only criteria to compete. In addition, companies have realized that they cannot change the system by individual approach, and innovation phenomena remain incomplete without collaboration with other companies. Firms embrace business ecosystems in order to coordinate innovation through a continuous evolution of multiple markets and hierarchies (Moore 2006). This provides a win-win scenario for customers as they could get maximum benefits through innovation. Furthermore, there are complementary innovations that need to be coevolved across company lines because there is no way that one firm could achieve all required knowledge, technical resources, and managerial skills to fulfill the demand.

Organizations may decide to coordinate together but, at the same time, may wish to keep a certain level of autonomy. Therefore, there is a need for an organization whose agents are themselves legally autonomous and not linked through employment relationships (Gulati et al. 2012). Hence, such ecosystems have been identified as a novel type of organizational form, which combines open membership boundaries with a highly stratified and more hierarchical decision-making. An agent could be an organization in itself; however, it can be taken as unitary actor for the purposes of analysis and this type of legally autonomous organization is called meta-organization. It may consist of networks of organizations or even individuals who are recognized by a system-level body, however; they are independent of authority-oriented employment relationships or contracts. These networks do not mean that organizations within this network would have unified goals.

Each organization may have their own goals; for instance, improving production quality system could be important for one firm. Yet, another firm might prioritize managing the levels of sales. Ecosystems allow each firm to fulfill its need under a unified network where it is not necessary for constituent agents to share it. This is just like a traditional organization system in which individuals are free to have their own priority. Hence, the meta-organizations comprise of networks of firms where each agent has its own motivation, goals, and incentive systems. These organizations are still different from traditional business setting. The meta-organizations are associated through authority-based

contracts (Gulati et al. 2012). These contracts make all actors inside this infrastructure independent of each other at the firm level. They are connected through a network that allows them to stay connected and have full autonomy.

To understand this concept, consider communities of economic agents where individual business activities could measure the overall community market value. For example, tech firms that make services for Apple iPod. They can be taken as iPod business ecosystem. Another example is entertainment companies that choose to license music through iTunes or iPod connected music sites. In other words, a business ecosystem can also be conceived as a network of interdependent actors that collaborate and innovate (Moore 2006).

2.2.2 Collaboration and Knowledge Integration

Ecosystems and collaboration process seem a win-win for all. However, there could be some issues that could lead to undesired results. One of the main concerns in this network approach is knowledge complementarities. This can create interdependencies that need to be resolved (Thompson 1967). At one end, knowledge adds a great part in value creation, however; there could be serious barriers in the process of transfer and replication of knowledge. Hence, knowledge utilization matters. It is worth noticing at this point that it, in a broader sense, represents both 'explicit' knowledge and 'tacit' knowledge. Explicit knowledge refers to that which can be written down, whereas tacit knowledge cannot (Grant 1996; Kikoski and Kikoski 2004; Nonaka et al. 2000).

To further elaborate this concept, explicit knowledge is described as what can be encapsulated as a language or even a code. This coding style allows organizations to communicate, process, and store this set of knowledge conveniently. One example of explicit knowledge is patents or copyrights (Dalley and Hamilton 2000). Through this process, explicit knowledge becomes a direct asset for the organization. On the other hand, tacit knowledge is personal and hard to be codified and formalized, which is rooted in actions, procedures, commitment, value, and emotions (Kikoski and Kikoski 2004). Tacit and explicit knowledge

are both complementary, which means that both are equally required for knowledge creation. Knowledge is created through interaction between tacit and explicit and not from either tacit or explicit knowledge alone. However, competitive advantage is achieved by the organization through tacit knowledge because explicit knowledge is known to each and every individual.

The significance of knowledge is described by Polanyi (1969) as the knowledge that is considered to be better explained than said. As far organization is concerned whether a newly born start-up or an established market player, every individual associated with the firm has a unique set of skills. These skills are like an asset for the company, and every firm wishes to translate these skills into knowledge. The problem is that one cannot codify these skills as they come along the hard way of individual's focus, training, and experience. Others could learn them through the process of keen observation. In terms of an organization, whether it is a large company or a start-up, each individual possesses skills that are unique and, once unlocked, can be a creative contribution in an organization (Kikoski and Kikoski 2004).

It is important to notice that tacit knowledge plays its role indirectly in innovation, and hence, it is very significant at organizational or even network level. This type of knowledge helps organizational activities and functions by creating new knowledge. This knowledge is called new as it has been extracted from skills and competence of individuals or group working within an organization. This knowledge plays its role in various applications such new product development, novel business concepts, and procedures. All of these are the outcome of tacit knowledge and its adoption, and these end results are the reason for innovation. Hence, tacit knowledge enables each skilled individual to contribute through novel ideas and concepts. In addition, it provides beneficial knowledge at personal level that is available to others (Alwis and Hartmann 2008; Kikoski and Kikoski 2004). This is the same in a network scenario where new companies learn a lot from market dominant players that would have not been possible without translating tacit knowledge in that respective ecosystem.

Knowledge management is directly related to the capability of any firm toward its information processing ability. Information processing

setups are very useful in knowledge utilization within firms (Tushman and Nadler 1978). They could be very interesting in these business networks and ecosystem context. Information processing consists of information gathering, information interpretation, and information synthesizing. These all components act as a process of knowledge integration within an organization.

Knowledge conversion is an essential aspect for any enterprise (Nonaka et al. 2000). There are four modes of knowledge conversion:

1. *Socialization* From tacit knowledge to tacit knowledge,
2. *Externalization* From tacit knowledge to explicit knowledge,
3. *Combination* From explicit knowledge to explicit knowledge, and
4. *Internalization* From explicit knowledge to tacit knowledge.

Knowledge created by this spiral process can be valuable, as this created knowledge moves along the system (Nonaka et al. 2000). Tacit knowledge can be challenging as it comes through experience, and it can only evolve through more experience. This could be time-consuming and takes place through trial-and-error procedures. Different companies use different methods toward socialization (e.g., the Kanban model in software development companies). The benefits of tacit knowledge are obvious, and hence, it should of high priority for organizations to motivate the creation of tacit knowledge (Alwis and Hartmann 2008).

Knowledge sharing and transfer can be more complex in ecosystem networks as companies may not share the same motivation, and they might contain some information within the walls of the respective organization. At an internal level of the firm, knowledge integration is significant as an individual does not possess enough cognitive power to contain all of it. Hence, it is not feasible for each individual and his/her ability to understand and learn the knowledge given by other specialists (Grant 1996). That is why knowledge is shared in an organization.

Replication of knowledge integration across a meta-organization is rather difficult. In the case of explicit knowledge, it is not easy to keep this knowledge safe enough through copyrights or patents. We observe many patents dispute in the regular business setting. It is hard for a start-up especially to open up its explicit knowledge toward a network

that openly. Most technological firms tend to be careful about sharing particular types of knowledge. As that knowledge and those tools are the only assets they possess, and hence, they try to protect them. Joint ventures are one example where organizations do share knowledge more freely, and as there is a win-win for both, they tend to cooperate more.

As far as tacit knowledge is concerned, it is even harder due to difficulty in knowledge transfer level. Companies within an ecosystem may have uneven market information and different levels of hierarchy. For understanding integration process with tacit knowledge in consideration, there are two mechanisms. One is related to identifying direction through which knowledge would be communicated between specialists and specialists in some other fields (Demsetz 1991). For example, British Airways has global aircraft maintenance facilities. These main maintenance facilities include service and repair that are handled by a specialized host who is familiar with procedures and directives based on Federal Aviation Authority. Others services such as guidance and technical information are given by manufacturers. Hence, these rules, formulae, expert systems directives, policies, and procedure are tackled by a number of specialists and how they communicate to either nonspecialists or those who are familiar with other aspects.

In other words, direction refers to codifying tacit knowledge into explicit rules and instruction that are useful for those who have partial or no knowledge. There is an issue, however. As Polanyi (1966) describes that there is a danger of losing some important knowledge in the process of this transition. "We can know more than we can tell." Hence, converting tacit knowledge into explicit knowledge as a form of rules, directives, and policies could cause a certain degree of loss.

The second mechanism is organizational routines. This fills up the potential issues associated with direction mechanism. According to March and Simon (1958), organizational routines touch on a mechanism for coordination which is independent of the need for communicating the knowledge in explicit form at all. It could depend on a number of activities by developing a fixed response to already defined response or stimuli. In this process, an individual may develop a certain pattern through which they may interact. This interaction allows the integration of their respective specialized knowledge without being

converted to explicit knowledge. This certainly has an advantage over direction by having a great capacity to vary responses to a wider range of situation. In addition, it could be more economic to apply in any organization or even in a network instead of documenting all the knowledge. This mechanism needs strong coordination though.

As this is an informal procedure, it could not work in the absence of interaction among teams, commonly developed roles, and training (Pentland and Rueter 1994). This might work as a disadvantage for those companies who are not into an interactive environment and team building process. Another problem is that in the case of new collaborations, there is a need for the same training of constant repetition and processes that could be time-consuming. In the long term, this could help in harnessing knowledge effectively, and integration could be a smoother procedure once firms could develop an interactive environment around this (Grant 1996).

According to Tushman and Nadler (1978), knowledge processing within a firm could be comprised of three components. They are knowledge gathering, knowledge interpretation, and knowledge synthesis. Every component acts as a stage. At first level, knowledge is collected through individuals and teams in an organization. This process of information gathering remains same in business networks context as well. The data could be collected from given and desired organization where teams or individuals participate. This information is taken as exploration. At this stage, given information does not have much of meaning. At the second stage of knowledge interpretation, this knowledge starts getting used. At this final stage of knowledge synthesis, knowledge is exploited for the benefits of business ecosystems around knowledge hubs.

Knowledge interpretation is a process where information is processed and is valued. It is important to know what set of information is valuable for a network and what information is not. Some of the data are discarded at this level. In the third stage of synthesis, knowledge is combined and integrated into networks to be used for future use. This information might be documented or stored in an information system.

As far as knowledge conceptualization is concerned, the knowledge transfer approach evolves in three ways. The first one is the traditional

approach that assumes knowledge as distinct from practice. In this case, knowledge is taken as an object rather than a process. This object view states that knowledge is like a mental representation, which is then exhibited in terms of written words, representation, and routinized behavior (Nicolini et al. 2003). This view is interesting as it considers knowledge as a thing or object that acts like an asset with significant value for a company. Just like intellectual capital, every organization wants to enhance and grow knowledge by deeply focusing on creation, codification, and knowledge capture.

If knowledge transfer takes places at organizational levels, then the best approach is to create a network where participants could create a common or feasible means of knowledge transfer. This approach is called a “syntactic” approach. This common means could be common code, a language, a set of guidelines or procedures, or even a computer capability. For example, a standardized manual in a department could be viewed as common means of knowledge transfer and could ease the transfer of knowledge from an individual or firm. It is also useful in identifying issues that might slow down the process of information transfer. This approach is feasible if there is clarity about a problem statement and if there is an agreement within the organization on how to deal with it (Weber and Khademian 2008).

If, on the other hand, knowledge is not clear and there is no real identification system, then one could use the semantic view coined by Carlile (2002). This approach takes our problem statement from being a means for transferring information toward receipt of knowledge. This addresses the challenge that organizations might face in recognizing the role of interpretation while receiving and disseminating knowledge. A semantic approach tends to acknowledge the differences within organizations at the individual or collective level. These differences could be at different levels, i.e., mid, managerial, or executive. The nature of these differences may vary depending on experience, culture, language, and relationships among each other. It is important to position these points of differences and then organize a way out.

It is important to consider the relationship between knowledge and practice. This takes an approach called the “pragmatic view of knowledge” (Carlile 2002; Weber and Khademian 2008). According to this

view, knowledge should be taken in the context of practice rather than as a means of communication. It must be situated in a setting with geographic limits, a point in time, or a particular set of relationships matters. In simpler words, this knowledge comes into being via an evolving process by the experience of those who actually create or build this knowledge through practice.

Coming toward external and internal knowledge, there are three alternatives for knowledge transfer and integration as per Grant (1996): internalization within the firm, market contracts, and relational contracts. Market contracts are considered to be inefficient means for knowledge transfer having uncertainties over valuation (Demsetz 1991). These market contracts are useful and are in fact efficient in the process of transferring knowledge when knowledge is layered within a product.

In the case of individual strategic alliances or broader networks, relational contracts are considered to be an immediate solution. If explicit knowledge could not be transferred efficiently through market contracts, then diffusion of its uncertainty over its applicability would not satisfy the internalization of this procedure within a firm. In such a scenario, networks (either individuals or firms) will be more suitable toward transfer and integration of such a form of knowledge (Grant 1996).

While discussing the role of knowledge integration within firms, it is important to notice the speed with which such capabilities can be built and then extended. There is a danger that those relational contracts are not sufficiently efficient and knowledge is not embodied within the product; those contracts might permit knowledge transfer within a relatively short time. Hence, taking competitive advantage within the dynamic market setting, it is worth noticing that critical merit of networks would lie in giving speed of access to new knowledge.

It has been established that knowledge integration is one of the most essential and yet challenging aspects within a firm or a coordinating network. In recent times, most companies have relied on technology as it could be useful to transfer knowledge among participating actors through information systems (Schau et al. 2005). It is convenient to codify, communicate, assimilate, store and retrieve knowledge in

modern organizational setups. At a collaborative firm level, the main emphasis is on common interest, training, and the background that participants of a network would use to facilitate the transfer and integration of knowledge (Weber and Khademian 2008).

When actors within an ecosystem have a common focus, which is normal, they would share a common framework for understanding and utilizing the given information. However, Weber and Khademian (2008) argue that in highly diverse setting, this is not the case. Knowledge integration is not that simple as information flowing through the network may have different uses, different meaning, and even different values for groups or teams on the receiving end. This is why, it is important to distinguish between the external and internal factors of a network. There are certain aspects that are overlapping, and they may lie in both the internal and external states of an ecosystem.

Given the challenges we discussed regarding knowledge integration between firms, this plays a significant role in business ecosystems. Knowledge itself is considered as an internal asset for any organization. All of its resources are connected and communicated through a well-organized knowledge management system. Then, there is the external knowledge that comes from customers, suppliers, or even partners. It is of great value as this is the information that creates a high degree of innovation in the collaboration process. As different organizations have their own goals, they cannot share all the given knowledge. Firms, therefore, need to agree what type of knowledge can and should be shared, processed, and utilized for knowledge integration.

2.3 Conceptual Framework

We have discussed the significance of ecosystems and interaction of networks that may contain challenges and benefits of knowledge integration and resulting phenomena of innovation. We, therefore, propose a framework where ecosystems are composed of three components: business networks, knowledge integration, and innovation management.

Value networks simply focus on the phenomena of creating value for customers. This revolves around the context of solving customer's problems (Christensen and Rosenbloom 1995). A strategic management view suggests such networks as sources of competitive advantage for individual companies (Kapoor and Adner 2012). Standard business practices suggest that companies are rivals to each other. They compete with each other for a market share and try to gain a competitive edge over others. At the same time, it is important to realize that competition can have different meanings in the contemporary business settings. Firms tend to integrate competition and cooperation so that they could produce more diverse values for the end customer. This practice is important for competitors as they are able to rely on other firms in order to survive.

To understand the role and dimension of value networks in our framework, we should consider companies as diverse in terms of their capabilities. However, they have come closer due to business collaborations. At an individual level, a firm has to go through infrastructure development to stay competitive in the market. This phase includes key activities in finance, accounting, sales, and maintenance of relations with key partners. This process of infrastructure is both challenging and unique as there is an ample opportunity for the firm to build up links with its partners and inside its own organization. Considering this same scenario at macro level, the organizational structure phenomenon play its role in more dynamic environment. In terms of collective sense, they all act as an organizational structure. At this level, collaborative activities help organizations to create a diverse network.

Knowledge integration deals with the creation of new knowledge that could be shaped by signifying out the network nodes where this set of information is retained. The knowledge-based view focuses on generating new knowledge and technologies. One clear example of such knowledge associated networks is open source communities. As far as an organization is concerned, irrespective of its size and market shares, every individual associated with the firm has a unique set of skills. These skills are like an asset for a company and every firm wishes to translate

these skills into knowledge. For high-tech personnel, these skills could be knowledge of information technology and certain tools, methods, or protocols. On the other hand, the personnel from human resource management might be experts in the team-building process. Some of these skills are not in written form, and they cannot be learnt by documented set of information. So, the problem is that one cannot codify these skills as they come along via a hard way of individual's focus, training, and experience. Hence, these skills remain an open secret in an organization. Others could learn them through a process of keen observation. For companies working in business ecosystems, each individual organization possesses a unique set of competences, and once unlocked, it can be a positive contribution to value networks.

Finally, innovation management approach emphasizes on knowledge integration (exploration) and fostering business ecosystems (exploitation) around knowledge hubs. Management of knowledge within an organization leads directly to innovation (Du Plessis 2007). Knowledge management within an organization consists of three main stages (Kogut and Zander 1996): acquiring knowledge, organizing and storing knowledge, and using and applying given set of knowledge. Tushman and Nadler (1978) define them as knowledge gathering, knowledge interpretation, and knowledge synthesis. Silicon Valley could be an example for such networks. For such systems, financial networks that tend to support main actors (companies, research centers, universities, and tech developer) are considered the key to success.

It is interesting to view the role of actors involved with each of these components within a business ecosystem. The concept of ecosystem could be view here as a whole. There is a different logic of action among all these categories. Each individual actor has a different interaction area between given component types and their relationships. Such actors are considered as dominant players (platform owners, cf. Gawer and Cusumano 2002), and they play a key role in highlighting this interaction between ecosystems. These actors do overlap and interact between business, knowledge, and innovation elements, and hence, their activities play an essential part for

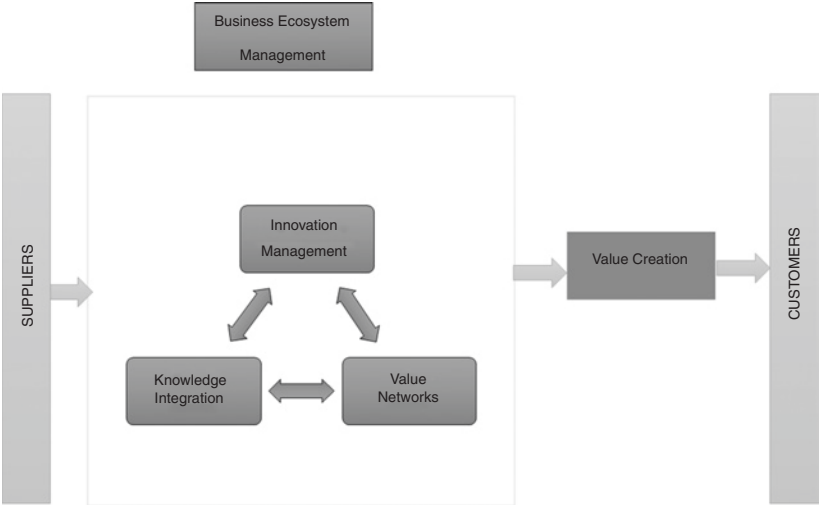


Fig. 2.1 Proposed model

value creation. In actual fact, value creation is the outcome of these interactions among given networks in an ecosystem. Platforms, on the other hand, might be interconnecting factors among these components as well.

Platform can be an organization having complementary assets or technologies. Having these interconnecting actors and platforms, components within an ecosystem interact with each other, and hence, evolve and emerge next to each other to provide value as a whole system (Fig. 2.1).

The main benefit for collaboration of these networks and interconnections is that it is established around the process of value creation. Sometimes this value creation is linked to an immediate customer need. Consider, for example, the energy industry. There are smart grid devices through which even customers become part of value creation. They can give direct feedback to energy distributors, and hence, the whole ecosystem builds around value creation. There are some cases where this value creation does not come in use right at that time. Such value creation could be a form of innovation which may not directly be useful in one

project but it could be compatible for another future project. For example, Apple's R&D teams were initially exploring tablets but ended up entering the phone market using the same multi-touch technology prior to launching tablet computing products.

Traditionally, actors within a network operate in dimensions of organization or the platform that is being used. If, however, there is a shared platform (e.g., information system) in operation, then such technological aspects and features will have a great impact on overall ecosystem and evolution of a given network (Thomas et al. 2014). Consider the examples of platform formed around dominant market players (Samsung, Apple, or even Nokia) though they are in a competitive environment.

For the knowledge integration process, the variety of complementary knowledge resources creates dependencies (Thompson 1967). This phenomenon could have both negative and positive aspects. In Sect. 2.2, we discussed how knowledge integration could be challenging in a complex network of firms competing for greater customer value. There could be positive aspects for the organization as well. The firms within this network understand the significance of other firms and their capabilities. In fact, sharing knowledge and collaborating through this phenomenon are the basis of knowledge integration process. All these organizations have their own motivation, and yet, they share certain degree of knowledge in order to strengthen this bond.

An ecosystem consists of both providers and customers, and hence, benefits are for both parties from this collaboration. In innovation management, the middle-level player or facilitators play the role of bridging actors of particular competence. This actually forms a platform within innovation ecosystems that is extremely helpful in interaction and building dependencies between organizations.

2.4 Concluding Remarks

To summarize, the business ecosystems can be considered as global organizations that are not limited to specific geographic boundaries. This global dimension in ecosystems is interesting as it can improve

the values of a product/service for the customers. On the other hand, there are certain challenges when it comes to knowledge management. Knowledge is no more an internal asset of the organization; rather, it is an essential ingredient for networked organizational systems.

Mostly, knowledge management is viewed at the local level of ecosystem, i.e., first an organization develops knowledge integration within its units, and once benefits start showing up, they tend to share and expand that information. These meta-organizations play a vital role in developing the business ecosystem and in developing innovation among main actors of the ecosystem. It is beneficial though challenging at the same time to develop mutually organized ecosystems with a win-win attitude. Within the wave of globalization and information technology, the start-ups and SMEs (Small and Medium Enterprises) play a significant part in the modern business ecosystems. They also expect to get equal benefits as established corporates. Hence, the ideal ecosystems provide equal opportunity for all actors within the given network to excel. A network of firms where market leaders would not play a tough game as a dominant player by setting all terms of collaboration and turning competition in their favor is considered to be an ideal ecosystem.

Overall, this chapter suggests that interactions and collaboration among networks are highly beneficial for suppliers and customers. However, these aspects can also create complex situations, and hence, these ecosystems must be analyzed at multiple levels. These levels could be in the form of a hierarchy so as to understand the connection and information flow between distinct networks' components in contemporary business.

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