

# VALUE CO-CREATION PROCESS IN BUSINESS ECOSYSTEM

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**Abstract**— this paper aims to present the most important features of value co – creation process inside the business ecosystem. The research was conducted by analyzing the value creation structures such as: supply chain, value chain, and value network, business ecosystem. The main outcome of this research is to reveal the most important key features of value co-creation based on the analysis of each level of business ecosystem architecture.

**Keywords**— value co-creation, business ecosystem, cooperation, competition, business ecosystem architecture

## I. INTRODUCTION

NOWADAYS business means more than just to produce goods or/and services, to satisfy the clients and consumer’s needs. The producers, manufacturers and service providers became well known as value creators. As technological and other significant changes occurred, the organizational processes evolved. The supply chain became and was defined as value chain and ultimately evolved to value network. The clients and individual customers were perceived as dynamic elements, an engine for value generation. From this point of view this paper will provide a significant contribution to understanding what value creation means and how it is approached in business ecosystems.

## II. HISTORICAL BACKGROUND ON VALUE CREATION CONCEPT

The roots of the value creation concept have been traced since the early works about what supply chain means. From this point of view this paper shall reveal the evolution of value creation process concept through three distinct historical stages: from supply chain to value chain, from value chain to value network and from value network to business ecosystems.

### A. From supply chain (SC) to value chain

Emerged in early ‘80s, supply chain became a well-known and widely used concept. At first glance SC was concretized through planning and control activities of main resource flows, especially material flows [1], and

the logistics inside and outside the company [2]. Besides them SC comprises also the product delivering and distribution activities [3]. However it was shown that a supply chain is a multisided concept by including supply, production and client’s point of views [4].

Although SC described the main activities inside the organizations, it was still limited and linked more to the suppliers’ characteristics. From this point of view, Porter introduced in 1985 the concept of value chain (VC) [5]. The author considered that, along with the main activities from supply chain, a firm should perform also support’ activities. Porter pointed that primary activities are linked to the creation and delivery of the goods or services and support activities are important for “efficiency and effectiveness increasing of primary activities” [5], [6, p.136].

From this point of view VC extended the means of supply chain, so that it brought in front the importance of customers in product development [6]. In Table I it is presented the most important key aspects of supply chain and value chain.

TABLE I  
SUPPLY CHAIN VERSUS VALUE CHAIN [7]

Key Aspect	Supply Chain	Value Chain
<i>Focus</i>	Costs and efficiency of the supply	Creating value for the customer
<i>Objective</i>	Interact to develop goods or/and services	
<i>Flow direction</i>	From the supplier to the customer	From the customer to the supplier Value provided by the customer
<i>Sources</i>	Mainly material resources	Metaphysical perceived quality

### B. From value chains to value networks

The value chain extended the means of product development by including the customers and the clients as value generator engine. As it was mentioned before, VC comprises two type of activities: primary (inbound and outbound logistics, marketing and sales, operations and service) and support (procurement, technology development, human resource management and

infrastructure) activities. Both provide the insights about the linkage between the main objective or the mission of the firm and the strategy used to fulfill it [6].

New technology development and the clients' needs for novelty increased, the concept of value chain was extended to value network. Christensen and Rosenbloom identified that a value network means a system composed from partial combined and collaborative companies focused on the development of new products or / and services [8]. Their approach went further from supply chain and value chain through considering the most valuable the common effort of the companies in product development process. From this point of view the value network is defined as a configuration of various value chains [9]. According to this approach each value determinant represents a distinct set or network composed from communities of interconnected clients or customers [9]. The key aspect is the modularity of the value network, the mediation of existing resources [10] and interconnectivity between different compound networks and in which the value is provided by interrelated clients and the value creation activities are realized simultaneously [9].

Opposite to this approach is Iansiti and Levien theory, who considered that the value creation is realized in the nodes of the network and not through the processes [11].

### C. From value networks to business ecosystems (BE)

Defined as a community of interrelated elements, a value network can be seen as self-organized structure whose main purpose is to:

- 1) Generate new offers
- 2) Exchange the existing offers
- 3) Generate new value [12].

Thus a value network does not replace a value chain; opposite a VC is an integrated part of VN [12].

The evolution of structures, such as supply chain, value chain and value network, revealed the importance of customers and clients as dynamic elements of business networks. From this point of view, as Moore stated, a various number of the value networks compose a specific business ecosystem [13]. The main priority for BE is to highlight the engagement of the most valuable stakeholders into specific bilateral and mutually beneficial relations (Table II) in order to co-evolve and to develop new products or / and services [14], [15]. As the concept of BE evolved, actors, individuals and other specific elements became of the major importance for value creation process inside the business ecosystem. Basically the scientific communities pointed the importance of the elements more than of the relations [16], [17].

Additionally to a value network, a business ecosystem marked out the competition as a value co – creator [13], [14], [18], which implied the analysis of two key aspects: the control and dominance in collaborative relations and the duality of collaboration / cooperation relations

between the business ecosystem's elements [20].

TABLE II  
 VALUE NETWORK VERSUS BUSINESS ECOSYSTEM [14], [19]

Key Aspect	Value Network	Business Ecosystem
<i>Geography</i>	Local or global	Rejects the importance of physical concentration
<i>Relations</i>	Cooperation	Simultaneous cooperation and coepetition
<i>Domain</i>	Limited by complemented industries	Rejects the boundaries of the industry
<i>Control</i>	Network leader	Shared and decentralized decision process

As it can be seen in the table below, business ecosystem concept extended the means of value networks, thus this concept granted to VN the features of complexity and flexibility.

### III. VALUE CO-PRODUCTION VERSUS VALUE CO-CREATION

The roots of the value creation concept were traced since the emergence of supply chains as the main organizational process. Previously in this paper it was stated that the main concern of supply chains is concentrated on key features and functions of the suppliers and not on the clients or / and consumers. As this type of structure was designed mainly for products producers or manufacturers, it was stated that the value was produced and not created [21]. Ramirez identified that value co – production was characteristic to those actors or economic entities that produce goods and the consumers were seen as disruptive factor of value creation [21]. The use of this concept is limited, as value creation process is concentrated on single type of organizations and more specific for industrial domain. At this point, the value was created so that it could separate the manufacturers from their customers [21].

Although value co – production represents an alternative view to value creation (Table III), it was more valuable for early stage of value creation development. Opposite to this view is situated the value co – creation. It seems that the necessity to co – evolve is more appreciated nowadays. Starting with the emergence of value chains, the engagement of clients and customers is a must for the organizations. In value co – creation those elements contribute to the designing process of goods and services [22]. This process was seen as dynamic one, based on the engagement of both parties: the organization and its own clients [23]. The technology evolvment became an encouragement factor for collaboration between the markets' actors, thus giving to the value co – creation the meaning of co – innovation [23]

TABLE III  
 VALUE CO – PRODUCTION VERSUS VALUE CO – CREATION [21], [24], [26]

Key Aspect	Value co – production	Value co - creation
<i>Focus</i>	Supply chain	Value chain, network; business ecosystem Collaboration and Coopetition
<i>Relations</i>	Production process	Aggregation, motivation, interrelatedness and interaction [25] All network actors; consumers and clients; competition
<i>Value sources</i>	Mainly manufacturers	Providers and beneficiaries [26] Heterogeneous experiences Derived from clients and customers experience
<i>Type of value</i>	Co – produced and added value; Positive return Reconciled and combined	Subjective, emergent, contextual and interactional value [25] Value in exchange, value in use [26]
<i>Framework features</i>	Based mainly on production, as a process of combination and transformation Synchronic and interactive and not sequential Engagement in co – productive relations Exchange as value creation process Customers seen as assets	Four dimensions of co – creation: value channels, diversity of options, transitions and relations Alternative view to co – innovation and actors engagement Builds the competitive advantage Systemic and dynamic approach to co – creation value Co – creation is always a joint and mutual process [26].

#### IV. VALUE CO-CREATION: A BUSINESS ECOSYSTEM PERSPECTIVE

Previously it was defined and explained the importance and evolvement of value creation in different structures (SC, VC, VN, BE) from theory evolvement point of view. Still, it is necessary to understand what value co – creation means precisely for business ecosystem. From this point of view, the research will be conducted based on previously developed architecture [15] of BE (fig.1).

Based on adopted complexity theory, a complex system should be composed from various sub-systems, the BE’s architecture was divided in three distinct levels: local, intermediate and global level (fig. 2). Each level represents an important sub – system which comprises distinct elements [27]. Thus the business ecosystem’s architecture is composed from following elements:

- 1) Local Level: core organization, direct and indirect clients, suppliers, standardization

- 2) Intermediate level: competition, stakeholders, governmental agencies, other contributors
- 3) Global level: international markets, partners and competition

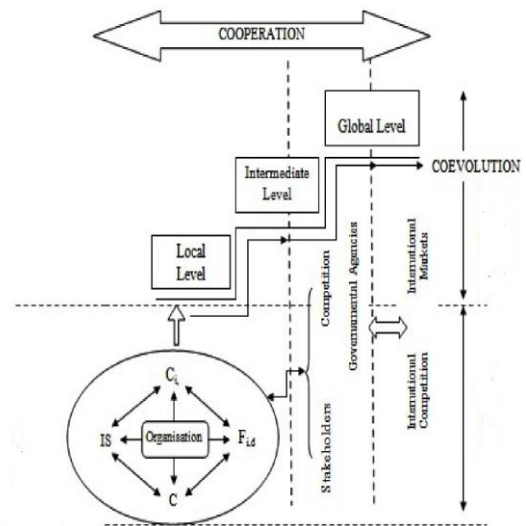


Fig. 1. Business Ecosystem Architecture [15]

The main purpose of this research is to illustrate how value co – creation is realized in business ecosystem at each compound level. From this point of view it will be applied a modular approach by analyzing the BE’s architecture levels separately. For a better understanding of value co-creation process there will be provided examples from IT domain.

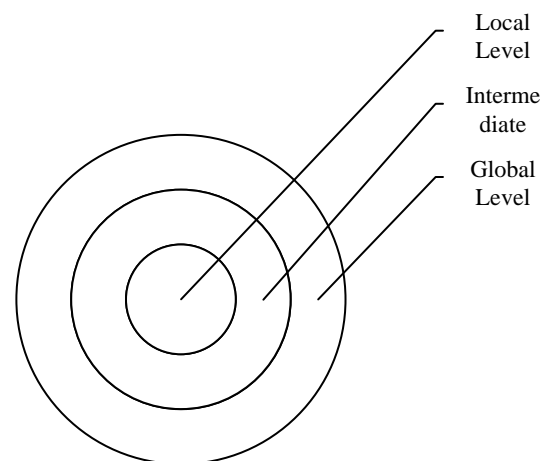


Fig. 2. Business Ecosystem Levels [15]

##### A. Value co-creation at local level

The key element, generator of value, is represented by direct and indirect clients. The local level (fig. 3) of

business ecosystem comprises dynamic elements whose influence have a major impact on value creation.

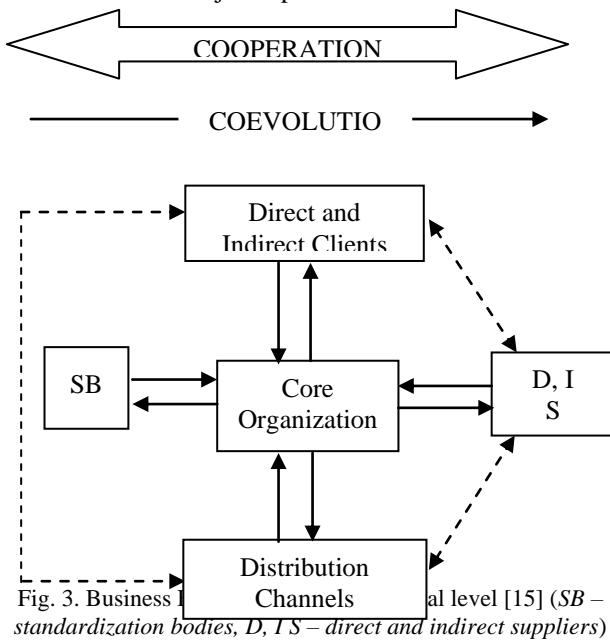


Fig. 3. Business Ecosystem at Local level [15] (SB – standardization bodies, D, I S – direct and indirect suppliers)

Between the core organization and its clients the value co – creation can be illustrated by the demand and supply. As the technological changes occurs the major impact on organizational activities and evolvement has the use of the platform. In information technology (IT) domain the use of the platform as an interactive instrument permitted a better visualization of clients’ requests. Thinking of software developing companies there can be found various aspects which reflect value co-creation (Table IV).

The key aspects at this level are linked to the use of virtual monitoring, product testing and distribution. Such organizations as Microsoft (operating systems developer) can provide own certification for OEM’s.

TABLE IV  
 VALUE CO-CREATION KEY ASPECTS IN IT BUSINESS ECOSYSTEM AT LOCAL LEVEL

	<i>Software Developers</i>	<i>Individual and Corporate Clients</i>	<i>Original Equipment Manufacturers (OEM)</i>	<i>Distribution Channels</i>	<i>Standardization Bodies</i>
<i>Software Developers</i>	Knowledge and capabilities sharing Real time Monitoring	On-line Platform Electronic offers Product design and image	Cloud Computing Instruments Electronic transactions Partnerships Adding value to OEM’s product Agreements and licensing	On-line distribution Real time monitoring of distribution	Compliance with the standards Implementation of specific ISO
<i>Individual and Corporate Clients</i>	Demand On-line Platform Social community engagement	Knowledge sharing	Quality requests and expectations	Experience sharing Specific dispatch requests	Obtaining certification (corporate clients)
<i>Original Equipment Manufacturers</i>	Partnership Use of specific developed software	Image improving and trust Reliable packages of products	New technologies use for product development Producing of high quality products Innovation implementation	Possibility of on-line distribution Reducing costs for software transportation	Compliance with the standards Implementation of specific ISO
<i>Distribution Channels</i>	On-line communications Direct channels	Precise and fast software distribution	Possibility of on-line distribution Reducing costs for software transportation	Improve visibility Widely used opportunity	-
<i>Standardization Bodies</i>	Developing of specific standards	Major importance for Corporate clients	Developing specific standards	-	Mechanisms and procedures for standards development

The use of virtual instruments can decrease the costs for transportation. Hence the new technology development, virtual instruments, mechanisms, procedures and knowledge sharing are the most important value co-creation aspects. Standardization bodies ensure the compliance of the core organization and OEM’s with

specific developed standards. As result those gain trust and improve their image for direct and indirect clients and partners as well. Value co-creation inside the core organization, in this case software developer, depends mainly on internal procedures and symbiotic relations established. From this point of view knowledge sharing

gained a major importance, as software development imply monitoring and performance of working teams, software developers [28].

*B. Value co-creation at intermediate level*

At this level the most valuable aspects are linked to the competition engagement, cooperation (fig. 4).

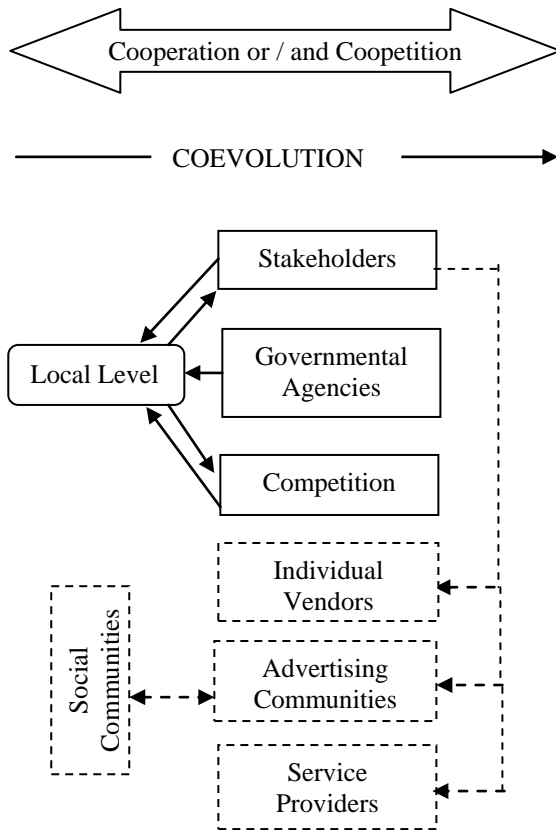


Fig. 4. Business Ecosystem conceptual Intermediate level [15]

Thus the business ecosystem confronts the two types of relations. As the main objective of BE is to maintain the coevolution of its elements, at intermediate level occurs the differentiation criteria of relations.

Between the core organization (local level) and its competitors, the value co - creation is realized through cooperation. A representative example of cooperation is illustrated by the Android business ecosystem.

Competitors contribute to value creation through their novelty features. Especially it can be observed in case of Research and Development (R&D) directions. As new technology and innovation emerges, the competitors tend to share the risks, knowledge and other intangible resources. Basically they share dynamic capabilities.

Service providers are the keystones in the IT business ecosystems. They ensure the communications between the elements. So value creation between this types of stakeholders is ensured by the internet providers. Basically these are the elements that establish virtual environment for value co-creators – the platforms.

The legal and political background is covered by governmental agencies.

Social communities are seen as value enablers, as they share with business ecosystem the most valuable experience, feedback, informations, knowledge. Going further each competitor gains its own social communities. From this point of view, the value co-creation is based on crossing and confronting those different social communities. As result the business ecosystem can gain different knowledge from competitors 'clients. Relevant example is Bit Defender versus Microsoft antivirus software. The common point for their activities is provided by OEM's from local level. From this point of view, the value creation between OEM and Competition, at intermediate level, is presented by the main features demanded by the clients.

In IT domain those communities can be found in virtual environment. A reliable example of the communities with dual function is Facebook. This virtual environment responds to the socializing needs of community, but also there can be found advertising elements.

*C. Value co-creation at global level*

The last level assures the business ecosystem openness (fig. 5). Giving the Microsoft as successful business ecosystem, the value creation is represented by established partnerships with other external stakeholders.

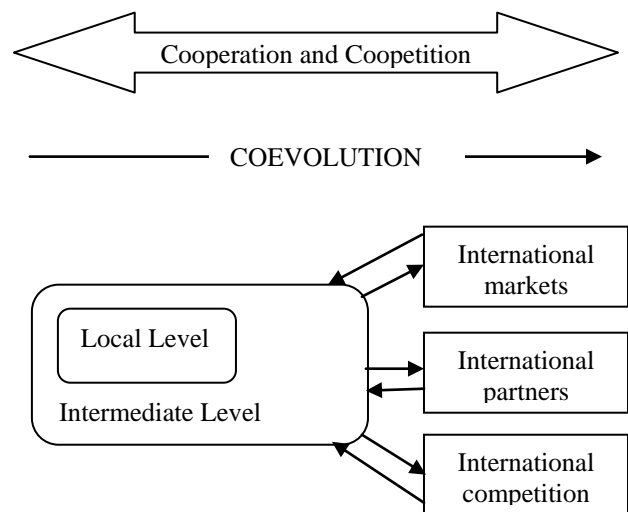


Fig. 5. Business Ecosystem conceptual Global Level [15]

As well as at intermediate level, the value creation with competitors is realized through establishing the relations of cooperation. At this level, the grade of involvement of the internal stakeholders (intermediate level) of business ecosystems depends upon external challenges, conditions and legal background. Referring to Microsoft business ecosystem, the links between the core organization and other stakeholders, including



OEMs, is realized through specific agreements and Licensing 6.0 [29].

At this level it is ensured the global openness and global growth, by extending business ecosystem boundaries.

#### V. CONCLUSION

The evolution of value creation process provided important insights for present research. It could be observed that in business ecosystem the value co-creation can be realized by establishing different types of relations. Technological changes have a major impact on value creation, as the necessity for novelty in social communities is increasing.

As a further research direction it is proposed to realize a comparative analysis between cooperation and cooptation from value creation perspective and to identify how different R&D competitors' directions are crossed in the context of successful business ecosystem. This analysis could provide important findings for BEs' research.

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