

The Ecosystem Pattern

Systemic abstraction of open digital network architecture

The Ecosystem Pattern is a description of open digital network architecture designed to capture the essence of open business ecosystem axioms in a digital network adaptation. It is a description of a constantly changing business environment that requires flexibility of value creation to meet diverse consumption demands based on individual ideals.

The Ecosystem Pattern suggests that the same qualities that create flexibility are, in fact, those of resilience against crises. This paper is part of Hybrida's ongoing investigation into the open business ecosystem. The report was written as a part of Sitra's fair data economy project.

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1. Introduction

This paper is a part of an ongoing investigation into an open business network – the open business ecosystem. Previously introduced as the conceptual model (Laine & Uusitalo 2017) and further investigated through business network simulations (Uusitalo & Laine 2020).

For this paper, a leading paradigm is that within a business environment, the change is constant. Simple – in a situation of relative stability, markets evolve in somewhat predictable cycles of continuous improvement driven by industry trends and past developments. As predictive algorithms become more sophisticated and the scenarios more extensive, they allow more detailed forecasts into the future. However, as significant changes disrupt predicted trends and the surrounding reality goes to the left field, scenario premises dissolve. As markets struggle to meet diverging and evolving customer needs, we observe the underlying vulnerabilities and fragilities of whole supply systems. The business networks must recompose flexibly and muster resilience in response to novel and unexpected settings – complexity.

At the time of writing, most enterprises face disruption and experience challenges responding to unexpected consumer demand shifts brought forth by a global crisis. Supply chain activities have been affected significantly due to outbreaks (ICAO 2020). The pandemic has revealed the vulnerabilities and fragilities in global supply chains across most industry sectors. The effects on economies have been extreme in scale but not dissimilar to previous disasters such as the SARS epidemic, volcanic ash clouds, etc. Most (94%) of Fortune 1000 companies are experiencing disruptions as a result of COVID-19, with 75% negatively affected (Accenture 2020). Out of pandemic also emerges a novel K-shaped economic recovery trend where some parts of economies recover while just about everyone else gets left behind, with small and mid-cap enterprises affected most drastically (Insider 2020)

Crises pass, yet even in stable conditions, the perpetual reshaping of the business environment continues. Indeed, according to system thinking approaches, change is inherent to the definition of business ecosystems (Vargo & Lusch 2016). Fluctuation and disruptions of demand arise as consumers, we the people, want more meaningful products and services to support our ideals that create meanings into our realities. Ideal-based decisions made by consumers, for example, from an environmental perspective, alter demand and can deviate it significantly from predicted, quite similar to a crisis. In stable situations, divergent market needs might not have sufficient scale to impact global supply processes designed to the principles of lean cost-efficiency. However, in crises, the inflexibility of supply systems is illuminated in stark contrast against overpowering demands.

While novel demands represent emergent opportunities for enterprises, effectively answering them requires high capability and flexibility to react. Future scenarios and trend analysis strive to predict how changes might affect markets and implicate how

enterprises might prepare for them in advance. However, as organizations must be able to handle all manifestations of the unexpected (Duchek 2020), there is a call for new qualities of enterprises: flexibility, an ability to rapidly adjust to environmental changes (Golden & Powell 2000); resilience, a capacity that enables enterprises to adequately react to unexpected events (Lengnick-Hall et al. 2011); agility, as the ability quickly to recognize opportunities, change direction, and avoid collisions (McCann 2004); and integration of strategic planning with continuous and emergent adjustment (Mintzberg and Waters 1985, Siren & Kohtamäki 2016).

Market orientation suggests that customer values and subsequent needs eventually drive the markets and must be fulfilled. However, inflexible supply systems are unable to serve diverse customers effectively. This paper suggests that the qualities for creating a resilient business operation against crisis also enable the creation of a flexible market offering to diverse customer demands.

Building on prior research, we introduce an open digital network architecture and a business development model to support a resilient and flexible evolution of business networks and emergent strategic capabilities of actors within the paradigm of the open business ecosystem. We introduce – The Ecosystem Pattern®.

2. The Certainty of Uncertainty

Change is an inherent quality of a business environment, and though observed clearly in crises, it exists continuously on every level of economic interaction. Economic crisis illuminates several fragilities of existing supply chains; Rigid organizations within business networks, unidimensional emphasis on cost-efficiency, prescriptive strategic orientations, and distorting market control points. These same attributes create inflexibility in stable market conditions depriving marketplaces of supply diversity.

COVID-19 crisis has brought forth uncertainties and risks to businesses whose supply chains are reliant on external factors, and the urgency to transform to withstand disruptions of the future (Zhu et al. 2020), suggesting a shift towards the flexibility of the business network. The challenge for companies will be to make their supply chains more resilient without weakening their competitiveness (Harvard Business Review 2020) through similar qualities that enable a flexible response to diverse customer demand of a post-modern era.

Risk management perspective to global supply chains under crisis acts as a reflection. For example, diversification of supply as companies must seek alternative sources to safeguard against supply and demand shocks and free themselves from over-reliance on a single actor. Such was the case with special shiny pigment produced for the automotive industry by a single source and made unavailable by the Fukushima disaster (Wall Street Journal 2011). Organizational learning trends suggest the realignment of supply chains closer to demand and diversifying them to mitigate potential risks

(Oxford Business Group 2020). Integration of supply chains between companies and decentralization of manufacturing capacity both are efforts to secure supply. Supply chain visibility has been identified as crucial risk management action increasing resilience to shocks. More and more companies consider localization of supply chains and bringing manufacturing closer to home (Zhu et al. 2020). Interestingly, local suppliers can effectively complement extensive business processes (SGSME 2020), supporting ideas of local business-networking value generation capability over global.

From the logistics perspective, localization of supply chains enables flexibility, increased through merging of B2B and B2C supply chains. By adapting to both B2B and B2C markets and other modes of channels, supply chain networks may thrive in uncertain and volatile environments and outperform their capabilities while also discovering new sales and growth opportunities (Source Today 2020), displaying holistic business thinking. Related risk management measure is, for example, a transformation to digital supply networks that offer free flow of information and end-to-end visibility, dexterity, and optimization (Deloitte 2020). With implications to open data sharing, digital solutions are a key to resilient supply chains as visibility is key to resilience (Medium 2020a). Digital networking can support a company's road to a flexible and adaptable supply chain (Zhu et al. 2020). To predict, prepare, and gain awareness of the entire supply chain requires a comprehensive mapping of the whole supply chain (Medium 2020b). Challenges of implementing sophisticated long-term solutions are a need for high data quality and skilled labor to drive these AI-related processes forward (Wuest et al. 2020). Managing all aspects of the supply chain digitally, securely, and transparently allows companies to handle any supply chain adversities effectively and quickly (Wuest et al. 2020). However, smaller companies lack the resources to proceed with comprehensive digital solutions. (WEF 2020)

The inflexibility of supply systems and market channels, from a different perspective, is understood as the supply monotony of goods and services at the consumer boundary. For a business to adapt to constant changes and indeed to discover and exploit emergent opportunities, it must evolve in networked business thinking and network flexibility. Diverse customers create systematically complex business challenges for value creation and profitability, to which current planning and positioning dominant strategic thinking, business models, and business logic cannot effectively respond. At the same time, the opportunities, the potential, and the pitfalls of digitalization in an ecosystem sense are not fully comprehended and not widely utilized. Rather human tendency of enterprises towards stability and security prefers to resist the development of business thinking towards sustainable instability, emergence, as it makes strategic design via system simplification harder, requires more work, and eventually breaks the illusion of stability.

2.1. Memores Acti, Prudentes Futuri (Future Trends)

“No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be.” – Isaac Asimov

Trends help us to understand possible futures and anticipate evolving situations based on observed phenomena and historical developments. Trends give us some insight into scenarios that seem inevitable in some form or another. Trends predict changes in the world that imply transformation in the customer values and hence the market demands. When discussing trends, it is essential to acknowledge that they only give us an estimated perspective of the future and do not by any means eliminate the one true certainty, a trend in itself – the increasing uncertainty (Sitra 2020a).

Current trends suggest diversification of population age structure, backgrounds, and values (Sitra 2020a), implicating that the populace can no longer be considered homogeneous even at the local market level. Instead, the population in any given area is likely a part of multiple heterogeneous groups of diverse values and customer demands. Supply directed to one group is not necessarily interesting for others, limiting the potential customers for local business operations. Enterprises might mitigate the effects of this trend through diversification of products and services build on their unique core competency extended with ecosystem resources opening new avenues of value generation through flexible inter-enterprise product-service combinations.

Interestingly another trend that describes the increase of business network power (Sitra 2020a) supports this thinking. It would suggest that business networks offer better opportunities, especially for small and midcap enterprises (SMEs), to jointly service market demand and compete. As the open business ecosystem suggests, horizontal networking creates innovative value generation opportunities for business actors through novel network compositions of market-based resources (Uusitalo & Laine 2020).

Market-established enterprises have an incentive to build their market position vertically as they extend some control over the network, making it more predictable. Yet another trend, to re-evaluate whole business systems (Sitra 2020a), in respect of, for example, sustainable industry, stakeholder capitalism, or resilience, make flexible network model relevant. Combining established resources with new innovative services and differentiating market resources allows for a logical approach to increased flexibility over service-product compositions relating cost-efficiency with value-creating qualities (Laine & Uusitalo 2017).

Finally, the trend of embedding technology into everything raises concerns about the data economy, regulatory uncertainties and incoherence, privacy, ethics, the loss of control of data, and the ownership of data and related rights. There are some concerns about internet company platforms controlling the data flow and using it to gain power. (Sitra 2020a).

2.2. Deus ex machina (Contemporary Strategy)

“You can’t connect the dots looking forward; you can only connect them looking backwards. So, you have to trust that the dots will somehow connect in your future. You have to trust in something...” – Steve Jobs

To combat uncertainty, advancements in AI and data analytics thrive for more accurate predictions, capturing trends and other external factors to a higher degree up to the point of anticipating them.

In this strategic mindset, it is logical for enterprises to gain and control as much information about their operating environment as possible. With a premise, fully understanding the market, customers, and saliences of supply and demand, it is possible to predict future market developments to some extent. Thus, knowledge is power for more informed and extensive strategic planning.

However, Clausewitz (1968) already argued that while calculations are essential for attaining superiority, he also acknowledged that infinite petty circumstances produce unexpected incidents upon which it is impossible to calculate. We agree this is also the core dilemma of prescriptive strategic orientation in general (Mintzberg et al. 1998). While the power of advanced data analytics and AI is undisputed, scenarios are based on some preset conditions and some limiting factors. Some assumptions about stability and immutability must be made, even in the most futuristic visions of predictable markets with AI-driven scenario analytics, perhaps with programmed creativity (IBM 2020).

Further, the paradox of predictability demonstrates that, even in a deterministic universe, there are fundamental, non-epistemic (devoid of any positive belief content) limitations on the ability of one subsystem embedded in the universe to predict future behavior of other subsystems embedded in that same universe. (Rummens & Cuypers 2009)

While some repetitive patterns may be predictable, forecasting discontinuities, such as technological breakthroughs or price increases, is practically impossible. Very little, or nothing, can be done other than to prepared in a general way and to react quickly once discontinuity has occurred. (Makridakis 1990)

The only hope for planning is to extrapolate the present trends and hope for the best. (Mintzberg et al. 1998) Even then, the question arises: What do you do with the scenarios: bet on the most probable, or the most beneficial, hedge, remain flexible, make on happen (Porter 1985)?

We conclude, belief precedes assumptions.

2.3. Chao Vincit Omnia (Emergent Strategy)

Chaos is found in greatest abundance wherever order is being sought. It always defeats order, because it is better organized. – Terry Pratchett

The traditional approach to business management has led to an emphasis on control, order, and predictability. Chaos and disorder are considered destructive forces to be constrained inimical to the very notion of organization. Even the learning process, which may seem initially disorderly, is ultimately expected to be institutionalized in the routines of the organization. (Mintzberg et al. 1998)

Belief precedes assumptions. An unexpected change in a marketplace renders prior assumptions invalid, and the strategic plans must adapt to novel situations. Introduce a crisis, and whole supply chains are incapacitated as they cannot adapt to new demand, reflecting the underlying belief system of continuity and stability. Introduce any form of chaos and see how lean supply chains plunge into disarray and how flexibly networked actors seize the opportunities exploiting emergent strategy capabilities.

Chaos theory undermines assumptions of conventional management that the long-term futures are knowable, that the environment is a given to which the successful business adapts by understanding the cause and effect relationships. In contrast, chaos theory suggests that almost anything can happen, that irregularity is a fundamental property of an organization, where change disturbances can have significant implications, e.g., the butterfly effect. Stacey (1992)

Therefore, managers cannot genuinely rely on existing structures, systems, or rules and procedures but must instead be prepared to adapt continually in novel ways. The deliberate strategy focuses on control, making sure that managerial intentions are realized in action, while emergent strategy emphasizes learning, coming to understand through the taking of action what those intentions should have to be in the first place (Mintzberg et al. 1998).

Thus, the evident logic is to simplify the system, limit variables, and for actors to seek more control over markets. After all, the more controlled the system, the more accurate the predictions of future scenarios will be. In this sense, chaos can be a destructive force to the established structure. Market disruption is a chaotic eventuality that creates opportunity. Diversification of supply creates a more fulfilling market offering and services for diverging consumer demand. In this sense, chaos is a source for emergent opportunities and the very essence of creative advancement of markets towards sustainable instability.

3. Business as Usual – or is it?

Enterprises have a different approach to business networks as a system. Value chains are extensions of internal processes designed to increase the competitive advantage through control of essential supportive operations. The platform business model approaches business networks from a business support role controlling both sides of the market through data. In Finland, 63% of enterprises still maintain traditional value chain-driven logic. In contrast, some 50% of European enterprises see them as platform actors (Sitra 2019). The open business ecosystem is a specific systemic view decoupling the support service of a digital business environment from the vibrant ecosystem of value-creating resources.

3.1. Extension of internal processes (Value Chains)

Enterprises in a value chain have organized as causal relationships of actors interacting individually in a series of necessary processes to produce value for customers. A value chain is a network between a company and its suppliers to produce and distribute a specific product or service as a supply chain. The main benefits of supply chains are better management of costs and process efficiency. The term value chain refers to a process where businesses receive raw materials, add value to them through production, manufacturing, and other functions to create a finished product, and then sell the finished product to consumers. A supply chain represents the steps it takes to get the product or service to the customer. The stated objective of supply chain management (SCM) is to create the highest possible degree of value, not simply for some companies, but the whole supply network, including the end customer. However, as a contractual business entity, a value chain is a composition of fixed processes, activities, and actors with particular purposes and goals. Defined functions and structures are ill-adapted for rapid changes that the complexity and volatility of a marketplace reality exhibit, especially during a crisis.

Genuinely integrated supply chain management requires a massive commitment by all members of the value chain. Overhauling purchasing process and integrate a supplier's engineering teams and product designers directly into its decision-making process. Since the cost of changing a partner can be huge, the purchasing firm can become a captive of its suppliers. Poor supplier performance is not the only risk; the purchaser needs to worry about the possibility of a supplier passing trade secrets to competitors or, with its newfound abilities, venturing out on its own. (Keah 2000)

Pitfalls of supply chain management are conflicting objectives and mission, the inadequate definition of customer service, and the separation of supply chain design from operational decisions (Lee & Billington 1992). To further exploit the competitive advantage associated with integrated processes, some leading organizations adopt a strategic approach to managing the value chain, such as forming strategic alliances with

suppliers and distributors; inter-company competition elevated to inter-supply chain competition (Keah 2000).

In some sense, supply chains are vertical extensions of an internal enterprise process that creates a more powerful entity to a competitive setting. However, global crises illuminate that rigid process chains are somewhat fragile.

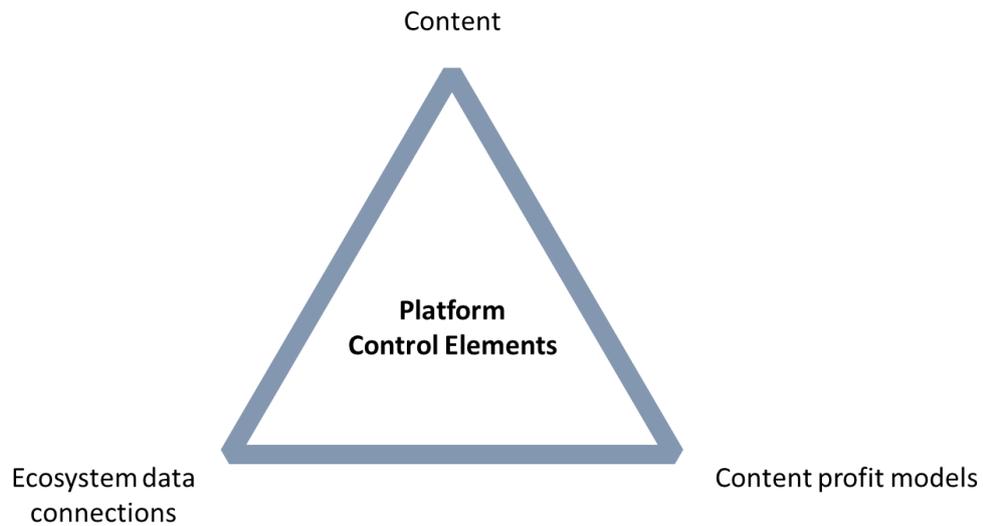
3.2. Market Control Point (Platforms)

Digital platforms offer flexibility in business processes and networking allowing actors to develop innovative solutions at the customer boundary. Whereas traditional firms create value within the confines of a company or a supply chain, digital platforms utilize an ecosystem of autonomous agents to co-create value (Hein et al. 2020). After all, reaching full potential depends on how well platforms enable partners, providing them with the tools they need to accelerate growth and exceed customer expectations in an increasingly complex world (SAP 2017). Platforms have been highly successful business entities as they offer asset-light and usually multi-sided combinatory role of supply and demand, and network effect with the number of users, customer, suppliers, etc.

In a platform-centric view of markets, core firms assume a central platform position, connecting two sides of a market (Dhanaraj & Parkhe 2006; Parker et al. 2016). A core firm is critical in connecting stakeholders, such as suppliers, partners, and consumers in the ecosystem (Basole 2019). The central position is valuable as the provider quickly learns what is of value to both the user and the content providers and sees what is valued, which creates the traffic and where the trends are (Parker & Alsyne 2012).

While platforms provide connections between market actors and usually capture sector-specific functions that offer a wide range of benefits for market actors, platforms as a business model tend to pronounce the issues of market control. Control point refers to influence over essential business assets, relationships, and especially data flows in a value network. In contemporary discussion, data and its usage are the central issues with the ensuing abuse of market power (FT 2020). Where wide usage of shared (as in a resource offered for multiple applications and users) and open (freely available for anyone to use) data could benefit the markets, control over data implicates power over the business environment.

Figure 1 presents systemic control elements of a platform-centric digital business network comprising: *ecosystem data connections*, *content* (applications, data sources, expanding to products and services), and *content profit models*. The purpose of this simplification is to distinct between platform-centric ecosystem and open business ecosystem models in a strategic sense and to introduce an ecosystem view that suggests platform networks as an intermediate step towards a distributed network of modular, composable, and yet fully autonomous agents.

Figure 1. Abstraction of digital business platform control elements.

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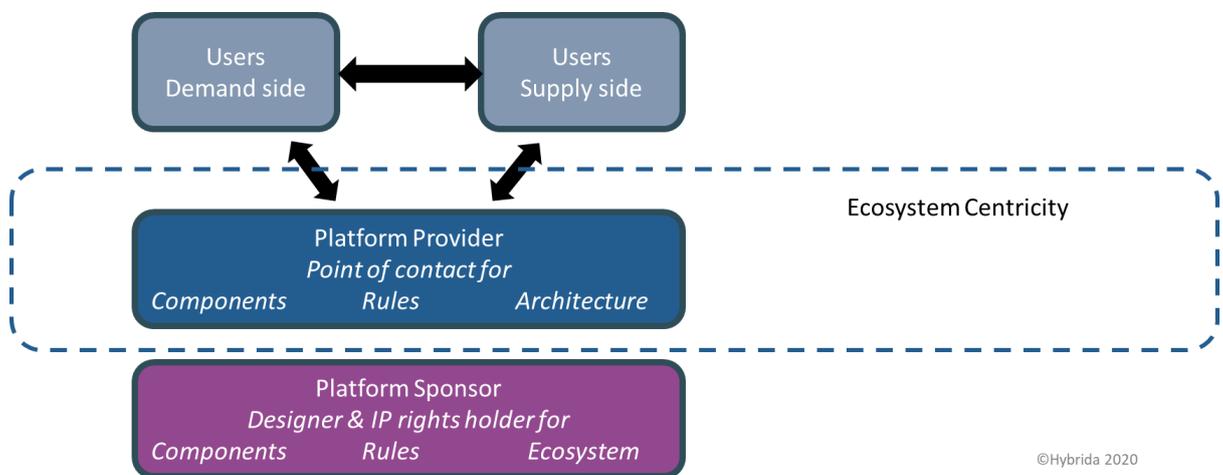
One category of platforms, implementing all suggested control elements, creates a closed network and strong market control point, influencing competition within and across ecosystems (Gawer 2014; Thomas et al. 2014). Examples of closed platforms are Amazon Kindle, Apple IOS, Video game consoles, etc. Generally, the carrier or service provider controls applications, content, and media, restricting convenient access to non-approved applicants or content. Connected agents have access to asserted *content* captured by the platform, platform-specific *ecosystem data connections*, and margin-based and value-related *content profit models*. Options to include alternative content is situated solely with the platform owner. While promoting cost-efficiency and system simplification, closed platforms limit both network diversity and open competition, leading to lower value-creation potential.

Closed platforms create value but tend to be limited in both scope and market penetration. Openness at the demand and supply side is critical to building a diverse ecosystem. If a platform sponsor tries to capture all applications, it fails to create an innovating ecosystem. (Parker & Alstyne 2012)

In contrast, open platforms host *content* from third-party developers and services that are more market-orientated. There remains an option for the platform owner to control who can offer and what, with soft influence terms of service (PcGamer 2021). *Content profit models* of an open-platform environment usually asserted by the platform as a margin of each transaction based on third-party value creation but can take other forms. An open platform promotes the unification of *ecosystem data connections* between actors and across platforms. However, the platform remains a concrete central element of the business network even though it offers only a supportive technical function to supply-demand functions and data-based applications.

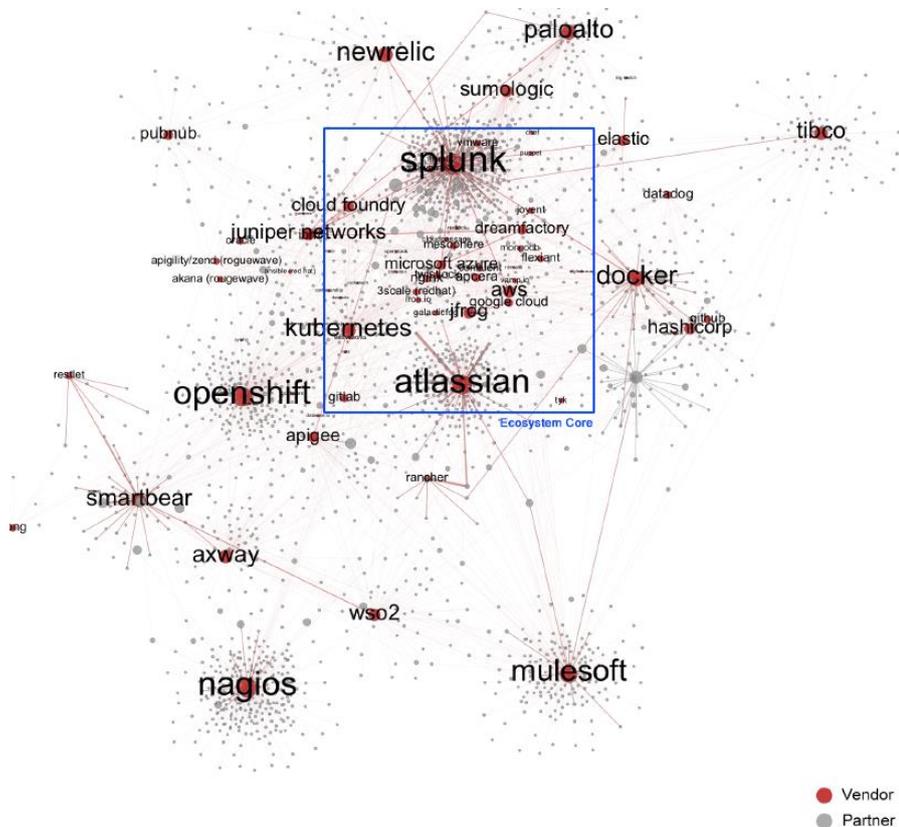
The rationale of an open platform is that if a platform sponsor tries to capture all applications, it fails to create an innovating ecosystem. If a platform captures none of the applications, it risks being disintermediated and pushed down the value stack. (Parker & Alsyne 2012) Platform-mediated networks encompass several distinct roles. For a given platform, each of these roles may be open or closed. Characterizing a platform as open without referencing relevant roles confuses (Eisenmann et al. 2008). Figure 2 shows the relationship between platform roles and ecosystem centrality. In reflection, figure 3 presents a visualization of a related platform-centric ecosystem.

Figure 2. Platform mediated network roles and centrality (adapted from Eisenmann et al. 2008).



The platform-centric business model promotes the growth of the platform control point through the expansion of the connected business network. This model enables a platform to develop and offer more efficient support services for network business operations. Increasing market influence of the central actor can create a situation where the competitive aspect of these support functions becomes non-existent, and marketplaces assume distorted form. Vertical development allows the platform to grow in scale and integrate more into internal enterprise control systems. Efficiently spreading to multiple industrial sectors and related markets as a potential network orchestrator of market resources.

Figure 3. Platform centric software ecosystem (Basole 2019)



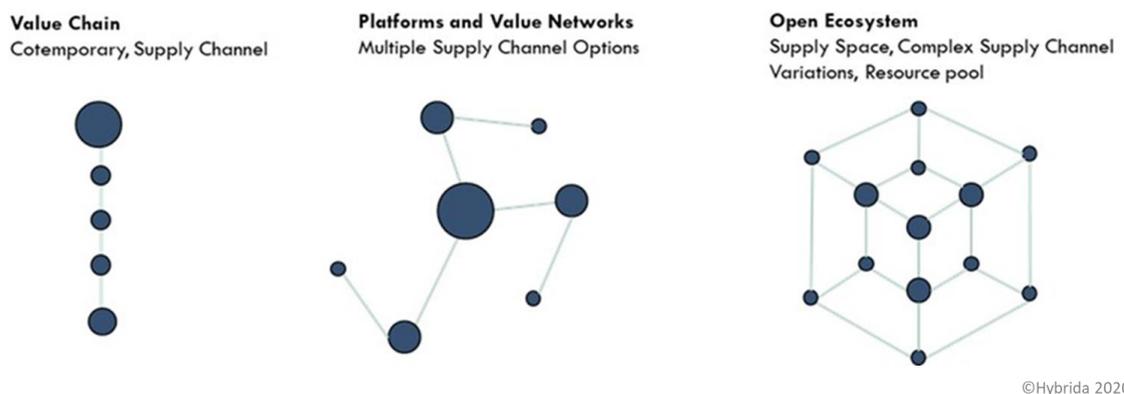
3.3. Open Business Ecosystem

"Data sharing and core competency-driven organizational networking between enterprises maximize customer-conscious value generation more holistically than what is accessible for a single enterprise." – Kari Uusitalo

The open business ecosystem perspective suggests that meeting future objectives of sustainability, resource efficiency, and resiliency requires an alternative systemic approach to the business environment (Uusitalo & Laine 2020). Open business ecosystem thinking emphasizes distributed model of business networks of autonomous actors with *virtual centrality* through value offering created by customer interest to supply. Advocating the systemic capabilities of a business network that is more flexible, innovative, disruptive, diverse, and understands the deeper meaning of customer demand. The same qualities creating resilience against shocks, success in a post-shock environment, increased management over value chain disruptions, novel business models, and new opportunities. An ecosystem perspective is neither necessary nor sufficient, but increasingly critical due to the fundamentally changing nature of economic activities (Adner 2017).

In the open business ecosystem paradigm, digital platforms and closed business networks developing multilateral business relations are seen only as an intermediate phase before the emergence of the ecosystem economy. Brought forth by the availability of technology and a novel consumer-created revolution of ideals, as post-modern consumer demands more conscious services that not only create value but contain intrinsic meanings. (Uusitalo & Laine 2017). Open business ecosystem thinking approaches business networks from strategic and organizational perspectives. Loosely analogous to ideas of *a composable company* (Gartner 2020) and *everything-as-a-service* (e.g., ZDNet 2017) paradigms, both containing implications of business capabilities, products, and processes not as discreet vertical offerings operating individually in silos but as a collection of horizontal services that can be accessed and leveraged across organizational boundaries.

Figure 4. Evolution of business networks.



Open Business Ecosystem is a conceptual model described through ecosystem axioms (Laine & Uusitalo 2017), adapted from (Moore 1993).

- Ecosystem has no owner
- Ecosystem has no defined organization
- Ecosystem is open to all actors
- Ecosystem is fully market-based
- Ecosystem is driven by open and shared data

One of the fundamentals of ecosystem economy is that of open and shared data between actors. Data creates transparency and visibility, enabling horizontal cooperation opportunities between actors over business sector boundaries, without artificial market control points and market distortion. Research on digital platforms suggests that platforms act as bottlenecks to control and limit interactions in an ecosystem (Boudreau 2010).

In contrast, open data fundamentals and implied distributed nature of the network, can provide new business opportunities for actors that provide data, for actors that consume data, and for actors that develop innovative services and applications around the data, that requires business models and a collaborative environment, called an ecosystem, to support businesses based on open data, services, and applications. (Immonen et al. 2014)

Expanding thinking to include product-service focus shared data drives fast-paced digitalization and disruptive business opportunities for flexible actors ready to challenges contemporary business thinking and strategy. Eventually, customers receive the most advantage as diverse service-product combinations interlinked to the significance that reflects consumer ideals.

Open business ecosystem suggests networked business of autonomous actors as modular enterprises, more specifically modular resources and capabilities, formulating conceptual network structures of various compositions and value-propositions. The open business ecosystem characterizes in a holistic sense as a resource pool of multiple resources connected through a distributed digital network of shared data. A market-based business environment creates equal competitive grounds for every ecosystem actor without distorting the effects of artificial control mechanisms aligned with central actor goals. Actors cooperate in situations where it is profitable and compete in others lucidly without definite roles imposed from the network. Unlocked flexibility of business network and open participation of consumers implicate deeper connection to customer value and competitively efficient supply structures.

To fully exploit the advances implicated by the open business ecosystem, the actors must adapt to a more flexible strategic orientation. In a constantly changing business environment, strategic planning extends only to enterprise core competency and the resources offered as a service for the ecosystem. The ebbs and the flows of the business ecosystem are inherently emergent and unstable in the realm of emergent orientation. During periods of uncertainty, the danger is not the lack of explicit strategy but the opposite premature closure of strategy (Mintzberg et al. 1998).

"Emergent strategy performed close to market can be understood flexibly exploiting the imperfections between two or more distinct systems."

– Jyrki Suokas, Sitra

The capability to exploit change disturbances in real-time is a very relevant representation of flexibility. Thus, actors should develop emergent strategic capabilities with deliberate internal strategies, allowing external actions to formulate close to the market application. Building upon the selected vision and destination set by the top management internally, the actual operations must be allowed the freedom of movement with the market situations and opportunities it presents. Open business ecosystem represents a paradigm shift in business and service production that encourages a re-evaluation of dynamics of competition and cooperation. Data sharing and core competency-driven organizational networking between enterprises maximize

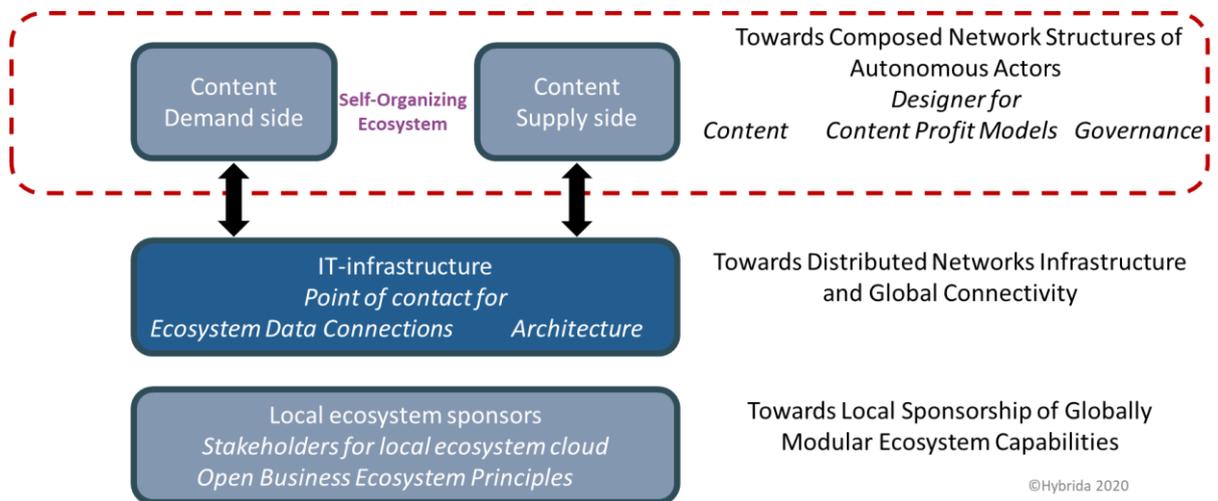
customer-conscious value generation more holistically than what is accessible for a single enterprise. It also enables flexibility and transmutability of networked value proposition than what is accessible for a rigid value network. Any core competency could potentially be a part of several network structures servicing very diverse customer groups.

The construction of an open business ecosystem builds on a vision of strategically flexible networked business models for the post-modern era. Prescriptive strategic orientations tend to view the market as a battlefield of market shares and power (i.e. *porterism*). Ecosystem economy strives for holistic network-level value generation from a socio-economic perspective contributing equal importance to added value generation with cost-efficiency, e.g. *value-efficiency*.

As an approach, and means of distinction, the three elements of *data connections*, *content*, and *profit models* describing the platform economic model in this paper, are rearranged to align with the open business ecosystem principles formulating an explicit form of a digital network of connected nodes. Rearrangement describes IT infrastructure as an operator of a digital network facilitating *ecosystem data connections* and other supportive resources. Technical means for open business data sharing between actors creates a loose binding between individual enterprises. The infrastructure provides technical solutions best suited for harmonized and authorized data communication, developing distributed nature of the open business ecosystem supporting the composition of capabilities and resources as network structures. *Content* is created by market-based actors themselves with a fully actor-controlled *content profit model* as modular resources-as-a-service.

Reflecting on platform control elements the open business ecosystem suggests that the ecosystem designer is the *content*. An ecosystem organizer facilitates essential data communication, authorization, harmonization, traceability, communication, and trust. IT infrastructure creates data communication between actors and expedites self-compositing value-creation mechanisms in a digital ecosystem between actors and consumers of content. A systemic description of the Open Business Ecosystem, adapted from Eisenmann et al. (2008), is presented in figure 5.

Figure 5. Systemic description of the Open Business Ecosystem.



To further elaborate, the open business ecosystem suggests a concept of *virtual centrality* within an ecosystem network structures created by high consumer interest and demand towards supply. The compositions include resources offered by individuals, businesses, organizations, platforms, service and application developers, and consumers. Composed network structures are virtual organizations with stochastic properties formulated through market demand-based business relations and evolving flexibly.

Supply-side *content* composes network structures in response to *the content* of demand-side (e.g., demand, values, meanings, ideals), with *content profit models* that are directly related to the *content* and data ownership. Facilitating IT infrastructure is a point of contact for shared components and supporting architecture to lower barriers for networked business models, especially relevant for SMEs. Several open-sourced technical solutions already exist and could be leveraged in open business ecosystem construction to advance transformation within a physical business dimension. The IT infrastructure enables *ecosystem data connections* for the *content* in a harmonized way. It includes technical elements such as API-management (see Kong), user interfaces, authorization engine (see Findy, Cloudfinity), API-marketplace (see Nexen, Ideabiz), Governance elements (see Sitra Rulebook), etc. Infrastructure role can be assumed by one firm or many firms uniformly to support global connectivity of *content*. Overall, IT infrastructure shares qualities of cloud computing (see Opestacks) by providing ecosystem actors with a virtual pool of on-demand shared *resources-as-a-service* offering capabilities deployed rapidly at scale.

3.3.1. Ecosystem data connections

Data communication for digitally networked businesses is as fundamental as inorganic matter in a natural ecosystem. Similarly, harmonized ecosystem data connections are a denominating element of the open business ecosystem from a technical perspective enabling open and flexible networking of actors in digital space. Here ecosystem data connections are an abstraction of technical means to interconnect actors and to create marketplace visibility. An important note, however, that the facilitating IT infrastructure remains technically undefined in this paper. We assume that multiple solutions exist that emphasize actor autonomy over facilitation centrality.

Technical consideration of *ecosystem data connections* presents options. Generally, API services represent a solution to create actor autonomy within an ecosystem. An API is described as bits of code that act as digital control points which set the terms with which digital data and services can be efficiently shared or called over the Internet (Tilson et al. 2010). It is critical to note that simply deploying APIs is not sufficient to succeed in today's digital services economy, as firms must also carefully craft an appropriate API management strategy that considers the plethora of issues involved in designing, exposing, contracting, servicing, metering, and billing based on API usage (Basole 2019). Additional consideration must be given to data harmonization through standardization (see OpenApi) with suitable access control schemes such as dynamic attribute-based approaches.

3.3.2. Content

Continuing in an allegory of a natural ecosystem where inorganic matter is absent of all life, the open business ecosystem facilitating IT infrastructure is absent of all value propositions towards customers without connected actors. Similar to biological systems with a variety of different species with symbiotic relationships, business ecosystems can be characterized as a complex set of multilateral ties between a wide range of stakeholders (Iansiti & Levien 2004). Thus, the content is the actual life of the marketplace that provides value and fulfillment for the customers and a focal point of customer interest.

Ecosystem marketplace does not naturally have store space scarcity or restricted content. Instead, everything is available within local confines and curated by customers, exposing content to market-based competition. Content generating high value and resonating customer value expectations thrives but must evolve to changing conditions to stay that way. As novel product and service innovations entering the marketplace, they challenge any stable position if left stagnant.

As content is not linked to the ecosystem data connections, to reverse logic of control point through them, any given content gains virtual centrality through successfully capturing consumer interest. Effectively, in a post-modern era, supporting the

fulfillment of ideals that human minds subject to surrounding reality in market-orientated fashion. Desirable content attracts commerce and consumer interest in the local marketplace, but as centrality is virtual within an ecosystem, unable to influence the competitiveness of the environment through growth. Open business ecosystem considers content to include both supply and demand sides of the market uniformly as it promotes interaction between any actors willing to participate in value creation in any role, such as crowdsourcing, where the demand-side participates in value creation.

3.3.3. Content profit models

The description of the open business ecosystem associates the *content* with *content profit models* related to it but disconnecting it from the *ecosystem data connections*, that is, from the facilitating IT infrastructure. In effect, this ensures that the IT infrastructure does not distort the market by artificially growing in a platform position of power. Pressure on a *content profit model* control-mechanism is a present topic with leading tech cutting costs significantly in the aftermath of public discussion (TC 2021)

Horizontal organization of value elements and free reigning competition in value networks create more shallow cost structures and diverse value at customer boundary, increasing competitiveness of small products. As *the content profit model* is not related to the digital infrastructure, the cost of value services is not artificially increased by the digital environment. Thus, any profit received by the originator of the value strengthens the actors providing the service. Separation of *content profit models* from the IT infrastructure (i.e. *ecosystem data connections*) diminishes the centrality of that infrastructure and is contrary to the logic of the platform economy. In some sense, this distinction situates the IT infrastructure as a service, temporary, and an intermediate stage in the journey towards an open digital ecosystem.

4. Case: Dissemination of Ecosystem Economy

Finnish Innovation Fund (Sitra) invited Hybrida to participate in a human-centric and fair data-economy (IHAN) initiative. The mission of Hybrida was to disseminate open business ecosystem principles and networked business thinking, based on Hybridas research (Laine & Uusitalo 2017, Uusitalo & Laine 2020), to Sitra and companies operating at markets. This case describes the observations made during the dissemination process about enterprise disposition towards open and cooperative networking and value creation.

Open business ecosystem shares in IHAN ideals to create a more transparent and equal marketplace that supports a fair data economy, sustainable real business from data, and capacity for renewal (Sitra 2020b). The disseminating process offered an opportunity to learn from companies concerning the strategic capability of market actors. Points of

interest were actor capability to implement open business ecosystem thinking, technical capabilities to share and use data in a business network, and aptitude to assume the role of virtual centrality to champion networked business initiatives locally. Hybrida presented Unet.Space infrastructure concept as a potential research environment to pilot networked business approach of The Ecosystem Pattern, removing the initial barrier for adaptation of ecosystem economy and composing network value propositions in a digital space. The challenge for the case enterprises, together with Hybrida, was to champion ecosystem transformation to local business networks through initial business settings composition. Hybrida presented this setting to 21 enterprises from different industrial sectors and observed the development of the ideas.

4.1. Case observations

The case describes a general sentiment of enterprises towards open business ecosystem thinking. Observations of individual actors of similar turnover are combined and reflected as a representative class of enterprises.

Small enterprises had the most interest in the open business ecosystem thinking, identifying lots of opportunity value operating as a part of a larger business entity in an asymmetrical model (Sitra 2020c) with large actors or a symmetric group of smaller actors. Small enterprises were generally keen to challenge markets with fresh network-based approaches exhibiting diverse consumer-centricity. Small enterprises were also most at ease with the idea of constant change and volatility in the marketplace that they saw as the normal state of affairs. In other words, small enterprises exhibited natural flexibility and attunement to emergent strategic orientation.

After growing to some state of internal stability, medium enterprises have solved most barriers of the ecosystem approach. Medium enterprises have well-established networks, sufficient resources, and the capability to compose business networks. At this stage of development, the strategic orientations of business actors seem to assume cautiousness with a tendency towards safeguarding achieved positions. Emergent qualities of smaller enterprises seem to be increasingly accompanied by those of control as the business grows. Most medium-sized enterprises preferred a business development path focusing more on vertical growth centered around the initial success than in horizontal expansion of capabilities into networked cooperation. This behavior is rationalized with the instinctual need to secure the market shares, safeguard against the competition, and ensure the continuity of the business.

Large enterprises were considered an ideal candidate for championing network structures in an asymmetrical network of small and medium-sized actors to diversify strong core competencies that can create network structures through sheer economic gravity. Large enterprises identified the importance of flexible networking and control point problems of markets. Nevertheless, the tendency to fortify market positions observed among medium enterprises has well matured in large organizations. Strategic

orientations observed leaned heavily towards planning, leaving little room for flexible emergent actions. The organizational depth of large actors is often vast and limits fast-paced emergent implementation. However, it is logical for a large actor to facilitate business networks capturing external resources as an extension of internal processes. They also possess the capability and resources to implement API management schemes on existing enterprise resource planning solutions.

The synthesis of a small enterprise's disposition towards an open business ecosystem includes general favor. It is logical for small enterprises to work in conjugation with other actors by providing added value to already established supply schemes. Small enterprises considered the open business ecosystem as a disruptive opportunity to formulate new business initiatives. The barriers for implementation arose from practical issues, such as lack of time to focus on strategy, lack of capability to champion networks, and lack of dedicated personnel. The observations of medium enterprises indicate a tendency towards vertical business development instead of horizontal. All though most understood the potential of composable network structures of an open business ecosystem.

Medium-sized enterprises are in a unique strategic divide to decide whether to pursue stability through rigid vertical positions or flexibility through volatile horizontal networking. Medium-sized actors have the resources to disrupt the market in a meaningful sense challenging or creating networked cooperation with larger competitors while remaining flexible enough to implement new thinking efficiently. Intriguing observation from a strategic perspective was that equal opportunity for competitors was perceived as an increased risk rather than identified as a prevailing condition.

Large enterprises hold propitious initial ingredients for open business ecosystem transformation. As they have high capabilities and resources, large actors are adept composers of business network structures and influential champions of ecosystem growth. Open business ecosystem implicates availability of market resources that could expand large actor operations with increased flexibility. However, observations reveal, albeit from a limited case material, large enterprises rather orchestrate closed environments that allow for more control instead of actor autonomy. Based on a rather conventional business paradigm of the platform business model.

Overall, there exists a great interest in open networking among enterprises. However, there seems to be rather a low capability, or rather incentive, to assume the composing role of networked business entities. It seems companies do not have the necessary framework, perspective, or tools to champion an ecosystemic change. This paper describes a suitable framework for ecosystem business development and the creation of open networks as The Ecosystem Pattern.

5. The Ecosystem Pattern®

The Ecosystem Pattern – is a description of a networked business development framework, constructed upon a holistic view of networked business based on the open business ecosystem paradigm (Laine & Uusitalo 2017). The Ecosystem Pattern describes a digital business network where actors re-evaluate the balance and emphasis of cooperation and competition, signifying a shift from a unidimensional focus on competition and control over the business network.

The concept of centrality refers to the relative importance or prominence of a firm in the ecosystem, where firms with higher levels of centrality are found to have more power and control over peripheral firms (Basole 2019). The Ecosystem Pattern supports the construction of open digital networks of autonomous actors composed as network structures containing evolving and mutable value-proposition combinations. Instead of a central platform owner, any actor capturing customer interest can act as a network structure composer and act upon the two-sided market, virtually in the capacity of a central entity of a platform-centric ecosystem. Actors are capable of participating in any network structures of interest as composable elements. In this sense, the open business ecosystem characterizes as *a virtually omni-central* environment of networked value propositions, captivating brands, resonating with consumer ideals, introducing an idea of *virtual platform entities*.

In an open business ecosystem logic, enterprise-level business models no longer have as much intrinsic value. The internal strategic focus becomes increasingly irrelevant, subsided by modular capabilities and resources with an external focus of composability. In contrast to the concept of a business model, the ecosystem pattern suggests a consistent mode of resource flexibility to leverage multiple networking opportunities in response to volatile customer interests and demands. Where contemporary business logic based on models creates *constant value* with internal focus, open business ecosystem logic allows the creation of *changing value* as a network with the same resources. Perpetually differentiating customer demand created value-efficiency equations generating potentially *superabundant* value as a business system. The Ecosystem Pattern conceptualizes an open business ecosystem as a blueprint for a digital business network that emphasizes actor autonomy over control points but at the same time lowers actor barriers of entry into a globally shared service system environment of digital and physical dimensions.

The Ecosystem Pattern provides a principle for creating unique open business structures as systemic parts of the whole ecosystem network, interconnected through a high level of modularity and retaining global flexibility even though aspiring from independent origins and local business network needs.

The Ecosystem Pattern suggests an emergent strategic orientation emphasizing real-time agility, resilience, and flexibility of the business networks aligned with the agile manifesto (Hohl et al. 2018). The best architectures, requirements, and designs emerge

from self-organizing teams (modular enterprises). The sponsors (local stakeholders), developers, and users (content) should maintain a constant pace indefinitely, delivering working solutions frequently with a preference for a shorter timescale.

5.1. Local Ecosystem – Global Space

Technical considerations suggest a concept of locally sponsored ecosystem cloud infrastructure that, contrary to a platform-based business model, emphasizes the significance of a value-generating ecosystem over a central actor. Matured cloud technology with a well-adopted service system paradigm creates many options for technical implementation and application to real-world business flows. However, to support the strategic dimension of open business ecosystem thinking, technical consideration must be given to ensure infrastructure relationships with actor autonomy and open business ecosystem principles.

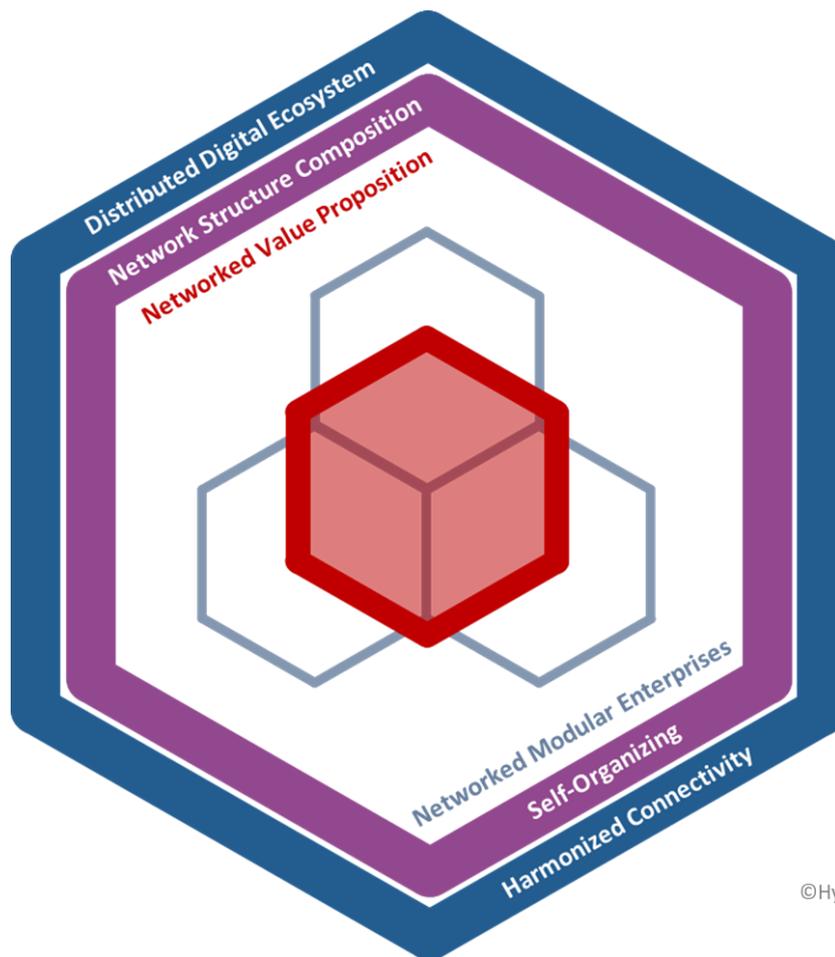
The Ecosystem Pattern suggests a formulation of a distributed digital environment creating a locally sponsored open business ecosystem under a local socio-economic organizing principle. Inter-connected local ecosystem clouds connected to other ecosystem clouds form an organizational entity considered a representation of a conceptual Space (Uusitalo & Laine 2020).

5.2. Systemic Description

The Ecosystem Pattern is a presentation of the systemic elements that form the basis for a resilient business network of an open business ecosystem. Elements are an abstraction of digital connectivity on a network level and modularity of resources as a service on an enterprise-level, the future business development focuses.

An important implication of The Ecosystem Pattern is the increased visibility, availability, and modularity of business capabilities and resources throughout the ecosystem, creating novel value compositions through increased networking of business processes. Exploiting emergent opportunities requires operational and strategic flexibility from the actors that The Ecosystem Pattern seeks to facilitate through a transformation in a systemic sense. Thus, the Ecosystem Pattern presents a strategic orientation for an individual actor to operate in an open business ecosystem and a shared conceptual vision to create a novel business environment.

Systemic elements of The Ecosystem Pattern include distributed digital ecosystem, network structure composition mechanism, networked value proposition, and networked modular enterprises, visualized in figure 6.

Figure 6. Conceptual description of The Ecosystem Pattern.

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5.2.1. Distributed Digital Ecosystem

Distributed digital ecosystem refers to IT infrastructure presented as a provider of *ecosystem data connections* that makes communication possible between all the *content* within the open business ecosystem. Open and shared data facilitated by IT infrastructure allows any actor to offer competency to a shared resource pool and use resources from other actors to create flexible value composition in multiple instances. IT infrastructure itself organizes in compliance with ecosystem axioms to support ecosystem growth and not as a control point within the local market. Instead, IT infrastructure exists solely as a supportive function for the business capabilities and resources of the open business ecosystem.

5.2.2. Network structure compositions

Composition is a design of network structures from an individual enterprise perspective of resources and capabilities to include capabilities and resources from other connected actors as aggregated ecosystem offering in response to customer demand. The

composition process augmented with a business simulation approach employed to conceptualize network structure and business goals in a holistic system sense opens avenues for AI-based real-time composition options (Uusitalo & Laine 2020). The value generation potential of the network structures captured utilizing soft systems methodology allows low-risk evaluation of composition ideas. Secondly, simulation of hard-systems aspects of the composition, including process charts and relevant cost efficiency data, allow for operative simulation of whole network structures. Synthesis of simulation provides a conceptual model of networked business processes and related value-efficiency benchmarked against alternative options.

With open business ecosystem infrastructure, local resources of ecosystem become visible as cooperation opportunities externally with sensitive competitive elements remaining internal and protected from competitors. Organizational learning, developing digital network resources, and actor modularity formulate an open business ecosystem of autonomous actors that can self-organize according to consumer demand in real-time. This self-organizing business network situates the customers as the eventual composer of network structures a shift towards a novel business system.

5.2.3. Networked value proposition

Networked value propositions extract varying value from modular ecosystem capabilities and resources of constant value. A shared resource is potentially a part of several distinct ecosystem structures and value propositions through the continuous composition of ecosystem resources. Resources as a service increase the resource revenue opportunity while reinforcing the resilience of individual actors and the local business system in general.

Strategic orientation of open business ecosystem is increasingly emergent, necessitating increased flexibility of enterprise resources and rapid business innovation by the actors. Rapidly exploited emergent opportunities create new growth to enterprises and more supply diversity for consumers and possibly supporting ideal-based consumption behavior. The open business ecosystem is a shift away from a process-centric economic model of lean-optimized processes and perpetual growth of scale towards a customer-centric and resource-based model of value-efficiency governed by emergent strategic thinking, an era of ecosystem economy (Uusitalo & Laine 2020).

5.3. Networked Modular Enterprises

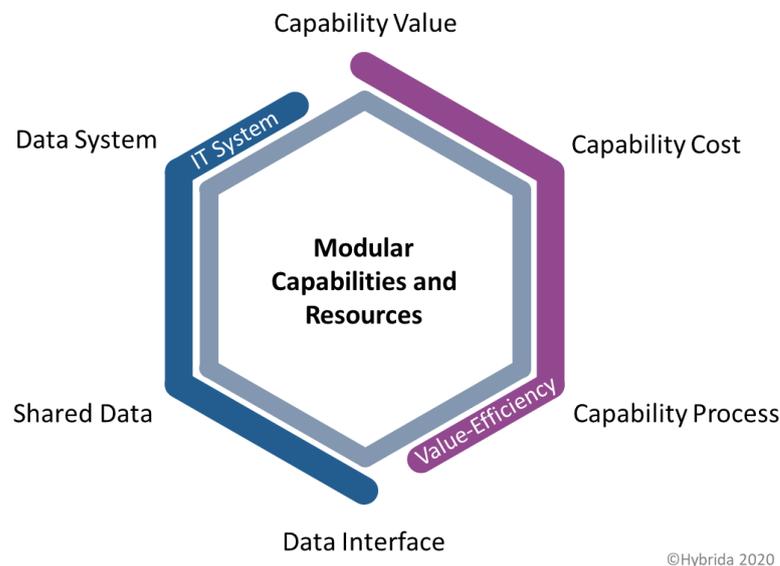
Reusability is only relevant when it is rapid and complete. – Elon Musk

The Ecosystem Pattern network structures represent a composition of modular resources as a value proposition to customers, increasing the opportunities for flexible

and resilient value creation. In turn, flexibility and the resilience of the system also increase.

A prerequisite for network structure composition is modular connected capabilities and resources. Ecosystem data connections with resource value and cost dimensions represent the most rudimentary level of modularity, expanding the reusable process elements in any business network structure imagined. Figure 7 describes the first iteration of modular qualities of enterprise capabilities and resources within The Ecosystem Pattern development path.

Figure 7. Conceptual description of modular enterprise properties, first iteration.



The concept of modular capabilities and resources within The Ecosystem Pattern describes modularity through themes concerning IT-system components (i.e. *Distributed Digital Environment* and value-efficiency components (i.e. *Network structure composition*)).

5.3.1. IT-System components

Data system: Refers to tools, technologies, and processes a company manages its modular capabilities and resources internally. A data system is the source of information communicated to the digital environment as a modular element for composition. Information received from value-efficiency components describing and defining the capability or resource.

Shared data: Describes the actual data fields and formats shared through data interfaces that form a basis for business connections with other actors.

Data Interface: Describes the means of digitally communicating the data to other ecosystem actors through interfaces and tools within the digital space.

5.3.2. Value-efficiency components

Resource value: Refers to the qualitative value proposition data associated with the modular resource. Resource value refers to an initial condition of the composition process of networked value. In composition, the value proposition receives synergic properties from other resources.

Resource cost: Refers to the quantitative cost data of value associated with a modular resource. These are the entry costs of the resources that shift according to the composition synergies.

Resource process: Describes the process required to apply modular resources with others in a composed networked value proposition.

6. The Ecosystem Pattern and Sitra's Rulebook for a Fair Data Economy

“Referring the Open Business Ecosystem axioms, the ecosystem has no legal form – yet.” – Jyrki Suokas, Sitra

There is a likely confluence of The Ecosystem Pattern and Sitra Rulebook for a Fair Data Economy as a flexible governance model for individual ecosystem network structures. Rulebook allows implementation of contracting to networked value propositions by introducing a layer of governance integrated into the ecosystem architecture as a service, increasing trust between ecosystem actors.

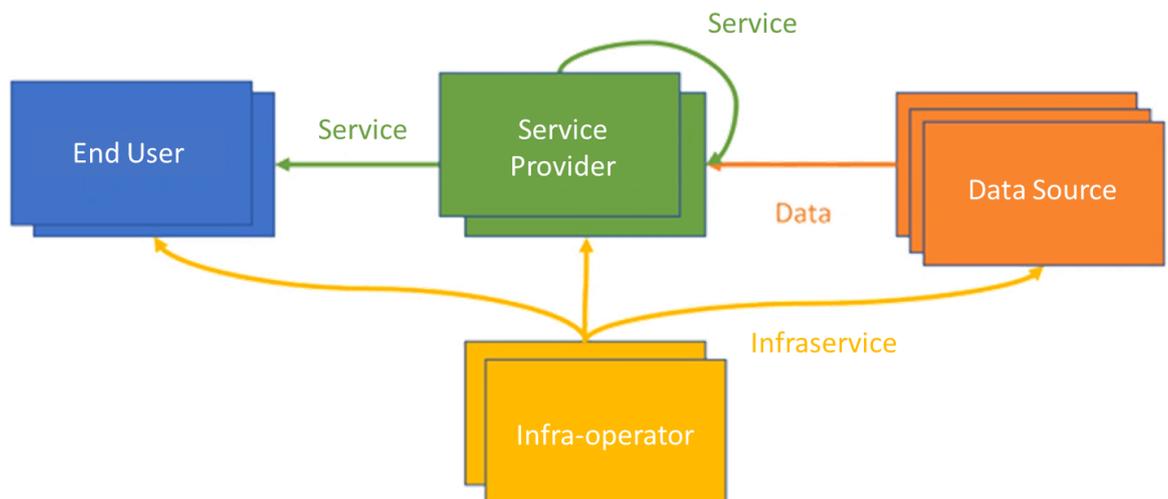
Adoption of a novel *legal entity type* with specific *articles of association* could also support a transition towards an open business ecosystem model. Contrary to voluntary articles of association in existing legal entity types, specific variation develops trust and novel accountability further through immutability of purpose. The IT infrastructure commitment to the open business ecosystem axioms, for example, could be expressed through specific legal entity form of an ‘Ecosystem-company’ (“Ekosysteemyhtiö, Ey”).

The Ecosystem Pattern implicates a system of innovative network structures. It is perhaps imperative for the composers and content of providers, users, and complementors of the ensuing network structure to include formal governance models to data exchange, resource quality, processes, and revenue sharing. Sitras Rulebook for a Fair Data Economy provides a viable framework for network structure governance.

There are four distinct roles within a data network presented in Rulebook for a Fair Data Economy (Figure 7): infrastructure operator, data source, service provider, and

end-user (Sitra 2020b). Facilitating IT infrastructure creating ecosystem data connections is the role of *infrastructure operator* presented in the Rulebook as “one or several actors that provide identity management, consent management, logging, or service management services for the data network.” The Rulebook defines the role of *a service provider* as “one or several data refiners that combine data streams, refine data, and provide them further. Provides services to end-users or as a subcontractor to other service providers.” In the perspective of The Ecosystem Pattern, the service provider is part of the ecosystem content. The last two roles of the Rulebook are *data source*, defined as “one or several sources that provide the network with data,” and *end-user* defined as “one or several individuals or organizations for which a *service provider* has developed its services. End-users consume, utilize, and access the value created in the data ecosystem.” Within The Ecosystem Pattern, both of these roles are also considered ecosystem content.

Figure 8. Adaption of roles of Rulebook for a Fair Data Economy.



Network structures can implement The Rulebook for a Fair Data Economy as a governance layer. However, The Ecosystem Pattern does not distinguish between the roles apart from the infrastructure operator. An actor could assume any role dependent on the situation. An actor can have every Rulebook for a Fair Data Economy role simultaneously.

Local ecosystem clouds can implement The Rulebook for a Fair Data Economy to create an implicit contractual framework for network structures implemented explicitly for every data source interface. The creation of a new contract over *Rulebook API* for every new data exchange implies a concept of parameters-based contract automation, further augmenting holistic value-efficiency simulation of network structure compositions (Uusitalo & Laine 2020).

7. Hybrida's Future Research

Future research expands the concept of an open business ecosystem from various perspectives.

The investigation of open business ecosystem phenomena continues with research into themes of emergent strategic capability and network structure compositions, discussed in future research on transformation supporting self-organizing composing of modular autonomous agents.

Another research path explores the open business ecosystem as a business network organizational model. Research also exploring the theme of ideals as a novel element in the customer value-efficiency equation in a socio-economic model as a larger business entity.

Review of IT infrastructure technology possibilities in creating a fully distributed system of connected yet autonomous nodes. An overview of the technical aspects of an open business ecosystem. Similarly, technical investigation to the concept of virtual centrality and virtual platform entities is a relevant consideration, as is an integration of deep learning to augment networked business capability and network structure compositions.

Finally, strategic considerations on the theme of transformation, a shift from enterprise-centric constant value model to a network-centric modular resource-driven changing value model. A development path founded within The Ecosystem Pattern.

Executive Summary

Crises reveal challenges embedded in contemporary rigid business models especially vividly. However, the change in consumer behavior is perpetual even in stable conditions. For example, demand for accountability of products and services is constantly increasing.

Efficiently meeting the evolving consumer demand is challenging for enterprises within a market perceived solely as a battlefield for market shares. For enterprises, it is necessary to find novel means to adapt operations. In an open business ecosystem, enterprises form a digital value network and formulate value-generating compositions shared by multiple organizations. This novel networked model is The Ecosystem Pattern.

This report reflects the open business ecosystem to supply chains and business platform models. In a platform business model, actors create value together under a central organization. In a conventional supply chain, customer value is created individually per se. The vulnerability of a supply chain is in its rigidity and specialization. For platforms, the greatest challenge is a distortion of market-based competition by a strong central control point.

A transition from supply chains to platform business is a mandatory intermediate phase before the eventuality of the consumer-centric value revolution. Open business ecosystem emphasizes holistic networked value generation over the emphasis on individual actors, of which The Ecosystem Pattern is the first systemic description.

The open business ecosystem does not have an owner or definite organization. It is open for any actor, completely market-based, and actualized through business data that is open and shared. Value generating networks within the open business ecosystem are flexible and temporal compositions. Flexible networks and enterprises operating as a part of them can react to consumer demand more efficiently than defined networks. The open business ecosystem contains diverse resources-as-a-service, utilized to compose networked value propositions.

The Ecosystem Pattern is a systemic abstraction of a digital open business ecosystem architecture. The Ecosystem Pattern describes a novel strategic framework developing both the individual organizations and the entire business system. In The Ecosystem Pattern, business operations formulate locally and scale from small interactions into global phenomena through repeating and reapplying The Ecosystem Pattern.

Tiivistelmä

Markkinoiden kriisit paljastavat nykyisissä jäykissä toimintamalleissa piilleet haasteet erityisen läpinäkyvästi. Kuluttajatottumusten jatkuva muutos voidaan kuitenkin tunnistaa myös kriisiaikojen ulkopuolella. Esimerkiksi vastuullisuuden vaatimukset tuotteita ja palveluita kohtaan ovat kasvaneet jatkuvasti.

Kuluttajakysynnän muutoksiin tehokkaasti vastaaminen on yrityksille haastavaa toimintaympäristössä, jossa markkinaosuustaistelu korostuu. Yritysten on välttämätöntä löytää uusia keinoja toimintaansa mukauttamiseen. Avoimessa liiketoimintaekosysteemissä yritykset muodostavat digitalisen arvonluontiverkoston, mistä syntyy useiden toimijoiden jakamia kokonaisuuksia. Tästä uudeltaisesta verkostoliiketoimintamallista on muodostettu ekosysteemikaava.

Tässä raportissa vertaillaan arvoketju- ja alustaliiketoimintamalleja avoimeen liiketoimintaekosysteemiin. Alustapohjaisissa liiketoimintamalleissa yritykset jakavat arvoa yhdessä keskeisen toimijan johdolla. Perinteisessä toimitusketjussa arvoa tuotetaan asiakkaille lähtökohtaisesti yrityskohtaisesti. Perinteisen toimitusketjun haavoittuvuus on sen heikko muutoskyky. Alustojen suurimpana haasteena taas nähdään erityisesti markkinaehtoisen kilpailun yksipuolinen vääristyminen.

Siirtymä perinteisistä arvoketjuista alustatalouteen on vain pakollinen välivaihe ennen kuluttajakeskeiseen liiketoimintaan vahvasti kytkeytyvää arvovallankumousta. Avoin ekosysteemi painottaa kokonaisvaltaista verkostotasoista ja asiakaskeskeistä arvonluontia yksittäisten toimijoiden etujen painottamisen sijasta. Ekosysteemikaava on ensimmäinen avoimen liiketoimintaekosysteemin kuvaus.

Avoimella ekosysteemillä ei ole omistajaa tai määriteltyä organisaatiota. Se on avoin kaikille toimijoille, se toimii täysin markkinaehtoisesti ja sen toimintaa ohjaa avoin ja jaettu data. Arvonluontikokonaisuudet ovat avoimessa ekosysteemissä muotoutuvia joustavia ja lähtökohtaisesti hetkellisiä verkostokokonaisuuksia. Joustavat verkostot ja niissä toimivat yritykset kykenevät vastaamaan asiakastarpeeseen määrämuotoisia rakenteita ketterämmin. Avoimen ekosysteemin voidaankin kuvata sisältävän monimuotoisia *resursseja palveluna*, joita hyödyntämällä arvolupaus määritellään.

Ekosysteemikaava on yksinkertaistettu systeeminen malli avoimesta digitaalisesta ekosysteemiarkkitehtuurista. Ekosysteemikaavaa esittelee uuden strategisen kehyksen, joka nojautuu yrityksen oman kyvykkyyden lisäksi verkoston kehitykseen kokonaisuutena. Avoimessa ekosysteemissä liiketoiminta jäsennetään paikallisesti ja skaalataan pienistä kokonaisuuksista globaaleiksi ilmiöiksi ekosysteemikaavaa toistamalla ja uudelleen soveltamalla.

Keywords

Open business ecosystem, emergent strategy, distributed digital network, business network development, Hybrida, The Ecosystem Pattern

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