

Embracing agile ecosystem through digital transformation

Firms are currently facing highly turbulent environments, with strong doses of dynamism, complexity, and uncertainty. Work has become knowledge intensive and geographically dispersed. In such a context, knowing the mechanisms that allow organizations to detect environmental changes and being able to adapt and offer the proper response to them becomes especially relevant. Therefore, we suggest the concept of *agile ecosystem*- a spontaneous sensing and responding network- as a key issue concerning organizational survival and success. Also, in order to boost agility in the ecosystem, we present a framework that depicts how companies reap the benefits of digital transformation, that knock down all walls between members and make the ecosystem fully transparent. The outcomes are velocity and visibility and thus more agility in the ecosystem.

Over a number of years, we have been witnessing a steady growth of dominating the concept of “business ecosystem” that spans many firms whatever far they are and has become a hot topic now. Business ecosystem is a business strategy of resource integrating actors connected by mutual value creation. Executives realise that many of the best skills and ideas in their industry do not reside within a single firm. Thus more collaboration is seen to have a fundamentally different level of success. Although partnering with multiple players is more challenging and complex, agile ecosystem allows firms to be far more tailored, especially amid the recent Covid-19.

Associated with two main pillars: proactiveness and reactivity, agile ecosystem senses the threats/opportunities and responds accordingly and thus minimises the disruptions caused by all players. Leaders must associate the speed characteristic with both proactive and reactive modes. The agile ecosystem detects opportunities and threats, creating alertness mechanisms through market sensing and predictive technologies that eventually shape the proactive nature of the agile ecosystem. The sensing feature of the agile ecosystem makes the relationship with customers very close, which eventually leads to detecting demand changes very swiftly and extends customers’ value. Similarly, for an ecosystem to be agile, it should act as a defensive mechanism in responding to unplanned events. The reactive nature of the ecosystem is an

adaptive capability to create rapid adjustments. As may seem quite intuitive, agile ecosystem incorporates speed as the crux of agility that is envisaged through considering information lead time that must continuously be slashed among members to cope with the rate of the current change.

For business leaders to embrace the agile ecosystem, they need to undergo a profound change into their business processes and operations. In particular, adopting innovative advances in technology allow for rapid expansion and enormous flexibility. There is less need to invest in new assets because the real investment is in being attractive to a broad base of customers and suppliers. Innovation-oriented firms actively absorb knowledge and technology amongst all members, creating a rapid learning ability and thus, they anticipate and react to customers faster than their competitors. From Amazon drone delivery to Uber's self-driving trucks, technological advancement can be seen to boost agility in the ecosystem. After decades of refinement, technological revolution, although progressing, seems to have settled down in literature and practice under digital transformation.

Digital transformation is a term associated with cross-sector technological change with a focus on industry by the label "Industry 4.0" that has adopted by states and large firms to refer to the development of "smart factories", involving greater flexibility, large-scale customization, speed and autonomy in production and collection of large amounts of data, and a significant reduction in costs by increasing efficiency and reducing the duration of innovation cycles. Industry 4.0 refers to the the fourth industrial revolution, where the three previous industrial revolutions refer to the changes brought about by hydropower and steam power, electricity, and automation, respectively. It brings new level of organisation and control with a new ranges of technologies, processes and materials.

While digital transformation is critical for embracing agile ecosystem, possessing the needed transformative capabilities is essential to unlocking the full potential of digital technologies. That is, an agile ecosystem is not about adopting new systems; it is a collaborative endeavour and a change of mindset that resembles the value co-creation of sense and response networks. Figure 1 depicts these capabilities.

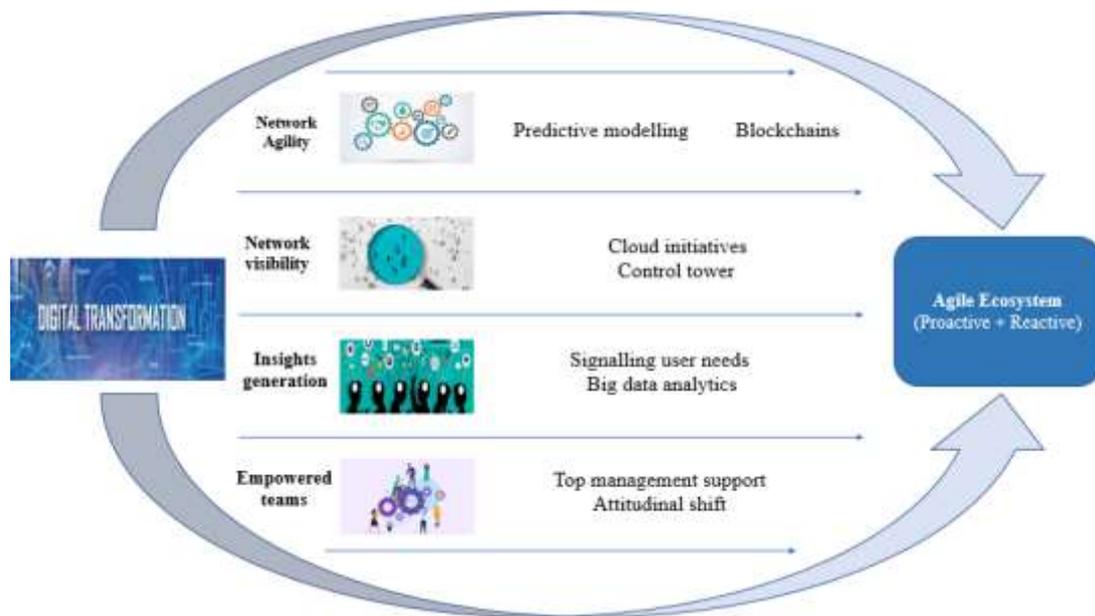


Figure 1 Capabilities needed for agile ecosystem

1- Network agility

The agile ecosystem means creating networks everywhere, digitising the supply chain and adopting industry 4.0 latest tools. Digital transformation is crucial to maintain trust amongst the network. This means continuously modernising the supply chain that involves more technologies than ever that integrate better methods of collaboration and trust. From AI-guided picking and packing wearables to blockchain-designed customer order ledgers and machines on the floor connected to the internet of things, organisations have a list of the dynamic yet complex infrastructure to integrate into their ecosystem and maintain agility. Such technological innovation can predict or notify stakeholders of any changes or possible disruptions. Blockchain enables firms to store information on an online decentralised ledger where terms and conditions cannot be changed that provides better transparency in transactions among members, bringing a much higher degree of trust. It enables trading partners to share documents, design, quality documents and transaction data with faster speed, accuracy and reliability and thus reducing hundreds of communications required to ship a single container from Africa to Europe. As a result, blockchain will contribute in making the ecosystem agile by reducing manufacturing lead times, improving frequency of new product development,

providing reliable and resilient tracking of information and as well as increasing delivery capabilities.

Moreover, predictive analytics is at the forefront of making sense of large data sets. It provides a set of techniques that deal with extreme complexity at speed, extracting meaningful information from present as well as historical data sets. This means we can now automate analytical thinking and self-learning through machine learning. Learnings are fed back into the analytics ecosystem to be applied in future situations, to answer new or related questions. Every time the mechanism becomes smarter. Learning algorithms are increasingly anticipating what we want, delivering recommendations and offers to the consumer based on what they're about to do, and not what they've previously done, and thus enhancing the detecting and responding models of the ecosystem. Such networking will let Amazon ship the product before even the customer makes an order through anticipatory shipping.

2- Network Visibility:

In the light of Covid-19, pressure on product supply has never been higher and knowing where your product is at all times is one of the first steps in improving flexibility and network resilience. There is no room in today's market for decision-makers to be only reactive. Proactive thinking can often be the difference in success or failure which can be maintained through cloud computing. Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale . It enables organizations to respond quickly to changing business conditions, use data more effectively, and achieve exponential productivity gains across the ecosystem. Embracing cloud today will be key to remaining competitive tomorrow. The concept of resource sharing for getting unity and coherence, avoiding creation and maintenance of IT infrastructure is very convenient for a variety of users across the ecosystem with its variety and diversity of services and functions. Such network visibility and traceability provides managers with alerts and insights on potential setbacks. As a result, they can quickly deploy their contingency plan and minimise any negative effects. The results will be enhancing the visibility of demand requirement and amplifying agility. Because the agile ecosystem is virtually oriented and its processes are integrated, sharing information is smooth and nimble between its members. Such exchange of information about new services, procedures and capabilities, enhances the visibility of the network, helps providers respond on time, and consequently allows firms to achieve a high

level of customer service. Adopting network-based supply chain control tower strategies that encompass the entire business network of suppliers, customers and other partners can achieve the seemingly elusive end-to-end visibility.

3- Insights generation:

Rapid generation of insights is another needed capability for business leaders to build an agile ecosystem that can be boosted by digital transformation. Continuous changes in technology, markets and customer preferences may render existing products and services obsolete, thus requiring changes in a firm's offerings. Signalling user needs by intensively interacting with clients is the most critical capability of innovation that will help in continually providing new offerings and experience, especially in highly unpredictable and heterogeneous sectors. Innovative products that are dynamic and highly profitable with high demand unpredictability and short life cycles work well with an agile ecosystem. High-performing firms across industries are creating dedicated data groups, under senior executive leadership, to consolidate and analyse data and distribute it throughout the organisation and other members in the ecosystem. Artificial Intelligence AI is seen a proper investment for rapid insights generation. AI is concerned with building smart machines capable of performing tasks that typically require human intelligence and thus mimics the cognitive functions of humans and their interaction with the environment. Learning and problem solving are major functions of AI. This technology has huge potential in the multiple tiers of suppliers– it can reshape business processes and ecosystems, creating new areas of production and new types of clients. The decision making prospective of AI will allow planning in the entire chain of the supply management, where by now, all decisions on different scenarios and big data are taken by human. The rise of efficiency will be huge. From Smart assistants to proactive healthcare management, automated financial investing and virtual travel booking agent, AI allows systems to go further: by automatically optimizing them, by predicting machine failures and by simulating new production and product innovations.

4- Empowered teams:

Finally, and more importantly, needless to say, that top executive support is vital to drive the agility philosophy and the digital transformation. It is strongly related to all efforts of renewing the organisational routines, procedures, mechanisms, systems, models and the like to promote decentralised teamwork, information sharing, coordination, collaboration, learning which are

key strategic enablers of for an agile ecosystem. Even adopting the required technology in processes requires a changing mindset; a holistic and integrated approach to adaptation by top executives and most importantly having a vision of how digital applications can streamline cross-functional processes and services. So learning about digital transformation should not be limited to people with a technical background. This kind of shift requires a real culture change, where innovation and continuous learning are actively embraced by all.

A great example here is the case of Emirates airlines that set the benchmark for for digital strategy and the ecosystem it is operating at that seems to be more agile than its counterparts. Although young, Emirates airlines has become a moden digital landscape and one of the most respected brands in the world. Embarking on an enterprise-wide transformation strategy and supported with partnerhsips with leading global technological firms such as GE and IBM, Emirates airlines was pironeering in detecting market changes and responding to the megatrends in markets staking its position at the forefront of digital readiness. Their main mission was to place data at the core of the organisation. In order to do that, the airline was going to examine new technologies and ideas, everything from big data and predictive analytics to artificial intelligence, machine learning, robotics, crowd sourcing and collaboration. For example, it has introduced 3D seat models becoming the first airline to introduce web virtual reality (VR) technology on its digital platform allowing 360 visualisation view of their airoplanes. Also, cabin crew now use a handheld Meal Ordering Device (MOD) in business class that allows them to take the passenger's drink and beverages orders with any dietary requirements on the go via an app. The MOD aims to boost order delivery time and eliminate mistakes. Using data gathered from many sensors fitted on each plane to monitor engine health, the Analytical Based Maintenance software real-time allows engineers to spot problems early and send engines for servicing before they fail resulting in reducing unscheduled engine maintenance by 50% and increased engine "time on wing" by 20%. Crews and pilots can use such generated data to operate the engines in the most advantageous way, optimising fuel burn, which is good for the environment while also reducing jet fuel costs. Leveraging artificial intelligence and machine learning, Emirates airlines has developed advanced food waste management system to optimise operations and minimise environmental footprint resulting in 500 kilogrammes of food items saved each day to be used in small goods, or were reused for different purposes in retail operations. Emirates airlines has been succesful in sensing market

changes and adjusting its operations accordingly. The result is more operational and sustainable gains while satisfying customers.

Without a doubt, uncertainty and unpredictability will continue to increase. The relentless competitive pressure, ever-more volatile markets, geo-political uncertainty, and the megatrends and customer expectations, all change the game and have triggered the need to find a smart strategy that emphasises speedy delivery and accelerated response times, which can only be done if ecosystem is visible, and updates are current. We presented the concept of agile ecosystem that has become a necessity as a response to the ever-increasing global market requirements. Associated with rapid sense and respond pillars, agile ecosystem helps business leaders handle complex market changes and deliver customised products because it allows them to think from a system perspective where all actors contribute to the value propositions. We also indicated that managers who seek to adopt agile ecosystem are informed to invest more in building relational assets through digitised capabilities. Digitization can improve the operations of companies, strengthen distant links of their SC and can very well interconnect companies and their customers that can significantly improve the agility of the ecosystem. In short, market pressures to modernize agile ecosystem through digitization come with a big payoff.

Authors: Eias Ai Humdan, Yangyan Shi and Masud Behnia

Affiliations: Macquarie Business School, Macquarie University