

MGMT

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AI-based offerings — a value process framework



AI-based offerings

— a value process framework

As a technology entrepreneur and a practitioner in the industrial manufacturing industry in various technology roles over the last two decades, I have seen various technology phases such as the dot com, Internet, e-commerce, IoT, cloud, Industry 4.0, and AI phases. I recall that adopting every major new technology has been far from easy for industrial manufacturers, with AI being no exception. The adoption of AI in offerings from industrial manufacturing organizations remains low. While the impact of AI on the world economy is well under discussion, with potential contributions as high as USD 15.7 trillion by 2030, AI arguably brings about substantial opportunities and challenges for many industrial manufacturing companies.

By Girish Agarwal

In my recently defended doctoral thesis “Revising Business Model Innovation: Towards a value process framework for AI-based Offerings” I have explored AI technology’s influence on the value processes within BMs, thereby fostering insights into the impact of AI on both efficiency and more fundamental value changes in BMs. The desired effect is to help industries successfully incorporate AI technology into BMI activities and the resulting offerings. This is achieved by proposing a tentative framework for value within AI-driven BMs. The scope is industrial manufacturing companies aspiring to increase digital servitization in the business-to-business (B2B) and business-to-consumer (B2C) segments. The research approach was to theoretically and empirically investigate how the phenomenon of digitalization, with a particular emphasis on AI technology, impacts value creation, delivery, and capture within a company’s BMs and BMI efforts.

AI technology and Business Model Innovation

AI technology is typically thought to allow new production methods with a more limited or changed role for human workers. Such technologies do not replace today’s production systems but are implemented in existing systems to reduce cost, limit risk, or take over work processes that are dull or dangerous for people. In this way, implementing new technologies is associated with process innovation carried out by the workers, which means doing the same thing but in a much better way and thereby increasing efficiency through data-driven automation and other techniques. There is a significant risk that this production view is far too narrow and should be complemented with technologies utilized for innovation, with the resulting consequences representing value for all stakeholders within the ecosystem. The thesis highlights that AI is commonly treated like any other technology, enabling new functionality or performance today. In this view, AI technology would not be-

nefit adopting customers and users unless it can be used purposefully to create new value that is distributed to stakeholders with accepted or new business models (BMs).

In current theories of BMI and value together with the impact of AI on BMI and value, there has been a lack of process aspects in the discussion of value in digital BMs. Furthermore, it is also observed that AI is improving efficiency, helping implement servitization-based BMs, and enabling new ways of creating and sharing value for customers around the existing BM value processes. On the other hand, AI is creating new value processes within BMs. Therefore, we need to reconceive or modify our current conception of value processes in BMI to understand these new value processes. Hence, to accelerate the incorporation of AI within industrial manufacturers through a better understanding of the value in digital BMI, a process-driven

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ven value theory of AI-driven BMs has been developed by proposing a framework for value dynamics within digital BMs.

A process perspective on AI value

The research resulted in a proposed AI value process framework for business modeling. It is a practical tool that managers can use when designing and evaluating BMI. The framework is simple, practical, and valuable for clustering, managing, and monitoring value in AI-technology-driven business offerings. The framework can be applied in agile development, iterating the fundamental process of value identification, manifestation, and capture as we explore, introduce, and enhance AI-driven data services and offerings. The proposed value dimensions not only optimize the service offering as such over time but do so at a reasonable level of risk for each project and offering in terms of its value. Also, it drives organizational learning in each iteration, thereby supporting the overall BM value. The proposed framework also helps practitioners with their BMI activities by applying AI technology to realize different value processes in action. For example, AI technology can enable new value-capture strategies such as the dynamic pricing of offerings by helping quantify value, and the exact value quantification can help resolve value dissonance between stakeholders. The framework can be applied to various value process dimensions themselves, such as linking value identification to business strategy, capturing data for indications of value adaptation during value manifestation, and hypothesizing the next iteration during value capture, but also to the interface between dimensions, such as creating data touchpoints and making objective decisions based on data predictions.

During this research, various case studies revealed multiple AI-enabled capabilities, and concepts such as hyper-personalization surfaced, which could prove useful in producing competitive advantage. For practitioners, this research stresses that to be relevant as service suppliers, companies would benefit from increased use of big data and AI in customer solutions and from the use of tools for understanding customer value such as VoC and design thinking. Findings of this thesis substantiate the

need to consider the phenomenon of value changes in customer perception within BM design for better continuous value creation, delivery, and capture and better adoption of servitization.

Value Dissonance

Another observation from the research studies is that companies are still relatively early in their journey towards adopting complex digital offerings. They face value dissonance and see values differing completely from those anticipated from the offering, when compared from the initial exploration to final industrialization phases of the concept. It is therefore crucial to emphasize value identification within BMI. The relationships and roles of an ecosystem's channel partners are evolving and need to be defined by incumbents to make them more inclusive within the value-identification process by involving them early in the firm's innovation process. If we can understand the impact and role of AI technology regarding perceived customer value obtained through the digital offering and other transformed value components, organizations would gain better insights when creating such digital service offerings. This would further help firms appropriate value to their customers and partners within the ecosystem of which the digital offering is part. The findings show that the perceived value of services varies significantly at the level of the individual customer throughout the service lifecycle due to conditional, social, emotional, and epistemic aspects. The observations also indicate end customers' overall perceptions of the value of these offerings. Customers should be segmented and targeted using the innovation and risk-taking traits in their characters rather than other functional traits of the offerings, as has traditionally been the case in product-based offerings.

The importance of individual risk-taking and innovativeness

The results from the research highlights that an individual's risk-taking ability and innovativeness are vital for his or her value perceptions. It has important organizational implications for AI technology adoption, that usage of AI offerings is

based on how innovative and risk-taking individuals are, and this fact can be applied when companies design their offerings. This is an essential insight from both an internal organizational perspective and an external offering design perspective. The internal organizational implication is that the design and offering of AI-technology-enabled services should combine the currently uncoordinated functions within firms taking care of products, services, and contracts. It also highlights that the success of AI-based offerings depends not only on combining the operational and strategic approaches within a single department, but also on interdepartmental cooperation, which calls for new organizational structures. The implication for external offering design is that packaging and branding messages for AI-based offerings should target risk-taking and innovative customer groups for better stickiness.

What companies should do

Overall, the lessons learned from this research can bring clarity to top management within Swedish companies about what to do and how to drive the digital transformation agendas of companies into the area of new digital technologies, AI, and BMs. The collective findings can engender additional insights into setting the strategic course of Swedish companies on a global scale and help us understand the needed magnitude of change, future investment levels, and risk-taking to successfully navigate this industrial revolution. This will help the Swedish companies sustain their competitive advantage in digital business models and AI. Companies should use AI technology within the business model to impact value rather than just creating functionalities and features. They can use AI technology within the business model as a "ladder of innovation" with three steps.

STEP 1: "AI FOR EFFICIENCY": This is primarily the current business view of AI technology as a resource with implications for business productivity and efficiency gains. This step of AI innovation is very relevant to various industries, and it employs various use cases of AI-driven functionalities and features; for example, intelligence and intelligent products and services are created using advanced analytics and pattern recognition—i.e., better quality through prediction and anomaly detection. Regarding automation using vision-based solutions rather than static programmed robotic solutions, applying AI in such use cases highlights a good use of technology to increase efficiency in different parts of a BM, such as manufacturing, operations, supply chain, and marketing.

STEP 2: "AI FOR CUSTOMER VALUE" In this view, AI technology can be used not only as a resource for improved efficiency but also as a capability for building competitive advantage within

BMs. More emphasis can be placed on customer and stakeholder values rather than just on the functionalities and features of products and services. This can create new value through AI technology, value that was not previously possible in the BM offerings of organizations. To illustrate a few, AI enables capabilities such as self-learning, optimizing solutions based on individual customer interactions with the offering, and dynamic pricing that can be adjusted based on actual value perceptions over the contract period. Creating hyper-personalization and mass-customization opportunities in offerings to create value in different parts of the BM is enabled by AI technology.

STEP 3: "AI FOR INNOVATION" In Step 3, AI technology enables constant change in new value creation and value relationships that were not previously possible by taking a dynamic capability view of AI technology within BMI. This dynamic capability can even create new options within BMs through the insights generated by advanced analytics and AI technology. For example, AI technology utilizes a continuous data stream from customer touchpoints and offerings to understand today's customer experience. It then outlines possible future enhancements of the offerings that can take the current customer experience to the next level. Step 3 can also enable new relationship value generation by including other BM stakeholders, combining their experience and datasets to create new value offerings and BMI relationships with the business stakeholders.

RECOMMENDED READING:

> Agarwal, G. (2022). Revising Business Model Innovation: Towards a value process framework for AI-based Offerings (Doctoral dissertation, KTH Royal Institute of Technology).



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Completed bachelors in information technology and masters (MBA) in marketing and systems before starting to work as a consultant with IT setup and management within areas like supply chain, manufacturing, finance, sourcing, sales and marketing, human resources, product life-cycle management, etc. Have been responsible for solution and enterprise architecture across organizations with emphasis on IT strategy and business processes. Have held various technology positions during the last few years for digital transformation and new business model adoption within the company concentrating upon platforms, data driven services and AI. Have had experience to start and scale Technology and Business Innovation Lab units, I am currently responsible for Digital and IT within Piab and also a researcher at KTH researching around how AI Technology is transforming value perception with customers and disrupting existing business models.