

AGILE TRANSFORMATIONS IN THE DIGITAL BUSINESS ECOSYSTEM, AND INCREASED IT ALIGNMENT IN THIS CONTEXT

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Abstract

We are witnessing significant and transformative shifts in digital business ecosystem, actors' connection, the importance of valorizing digital technologies and strategic partnerships, as well of encouraging software developers' ability and motivation to use Gen AI that need to be treated as a broad business priority. There is no doubt about today's agile transformations and increased IT alignment, as well about remarkable movements like from improving IT projects' results to going beyond improvements to IT, based on business and IT together working. It is more and more challenging for companies to investigate digital capabilities' assessment in the context of proceeding along the growth path, and to accelerate cloud efforts being more focused on return on investment. Also, there is an impressive continuity of the debates regarding the significant potential of Gen AI technologies, where the need of discovering the right answer to where you sit in the value chain, better understanding the importance of focusing on the user, learning from your entire surrounding environment.

Keywords: Digital Business Ecosystem, Agile Transformations, Increased IT Alignment, Gen AI Technologies, Cloud Challenge, Digital Capabilities

JEL Classification: D83, L81, M31, O31, O33

1. Introduction

There is a real challenge today for businesses to become smarter benefiting from valorizing continuously advancing disruptive technologies, by integrating both disruptive technology use and digital thinking across a whole business, including at the level of the strategic alliance in its supply chain, while promoting a customer-centric culture, improving not only its services and experiences delivery, and its effectiveness, but also its long-term relationships, ensuring customer satisfaction, loyalty, renewed enthusiasm and advocacy. Recent research findings highlighted that business and IT must work together based on an agile program, the implemented culture change stimulating value creation supported by IT integration and improved IT projects' results depending directly on what technology leadership is creating for aligned teams. It was also recently revealed that in their effort to advance on the paths to growth and productivity businesses are required to even go beyond

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improvements to IT towards higher-value cloud, being known why a successful business must be cloud based.

Recent research by Greu [1], underlined the great expectations from the complexity science, as well as the fine linkage between ICT and Information Society, suggesting to expand and refine knowledge. Also, Chen et al. [2] invited researchers to a more in-depth analysis of platformization, our economic and social life being reshaped, for instance, by digital platforms. On the other hand, the President of the Romanian Academy Section of Science and Information Technology made recently reference to the convergence between man and computer in the elaboration of co-decisions [3].

And as there is always more to learn and to research, let us recall the words of Diamandis and Kotler [4], who focused on the impact of converging technologies not only on business and industries, but also on our lives: “New business models are no longer forces for stability and security. To compete in today’s accelerated climate, these models are designed for speed and agility. Most importantly, none of this is in any danger of slowing down... No one really understands the impact AI will have on retail... AI makes retail cheaper, faster, and more efficient, touching everything from customer service to product delivery. It also redefines the shopping experience, making it frictionless and – once we allow AI to make purchases for us – ultimately invisible.”

2. Digital business ecosystem, actors’ connection, the importance of valorizing digital technologies and strategic partnerships, as well of encouraging software developers’ ability and motivation to use Gen AI that need to be treated as a broad business priority

2.1 Digital business ecosystems’ strategic functions and reinvention of customer engagement and experience within the resilient supply chains’

After methodically reviewing studies published in top information systems and management literature, Heim et al. [5] identified sharing information (like data or data analyses) between the connected actors as one of the digital business ecosystems’ strategic functions (a capability, role, or task to achieve the desired change) taken by intermediaries and needing to be better understood for effective interactions management within multilateral sourcing relationships. They gave a typical example of the digital platforms’ (such as e-commerce platforms Amazon, eBay, and Shopify) partnerships, highlighting how important is in today’s quickly-advancing digital business ecosystems to anticipate and mitigate (through strategic planning and operational resilience) the specific risks (associated with the simultaneity of some actors’ relevant status of gate opener and gatekeeper) in customer relationship management (CRM). And within the context in which actors’ connection is the intermediaries’ primary function (all other functions, including sharing information, building on the primary function), the intermediaries’ gained control

(depending on the strategic functions fulfilled by each one) may be the initiator for encouraging needed innovation.

On the other hand, there are rigorous research papers signaling the imperative of better understanding the rising digital platforms (seen as multi-sided markets transforming nearly every industry) and ecosystems, the impact of digital platform innovation being considered significant [6]. It was highlighted, among other aspects, how new and adaptable means for inter-organizational relations can be encouraged by these digital platforms, being necessary to deepen the analysis of how to architect these above-mentioned interrelationships. We see here a fine linkage with some research approaches regarding the circumstances surrounding digital transformation considering the identified stages of digital transformation (digitization, digitalization, and digital transformation) and the suggested growth strategies to successfully transform digitally, as well as digital transformation context-specific manifestations [7]; [8].

Resilience is considered by Boston Consulting Group (BCG) experts today's new priority in rethinking supply chains, the needed improved visibility, agility, operational efficiency, and customer engagement coming from valorizing digital technologies and strategic partnerships ensuring shared innovation efforts and actionable insights while accessing target markets [9]. In the same time, it is essential to promote sustainability and ethics, adapting proactively to the dynamic global landscape.

Real-time integration with supply chain management (SCM) and e-commerce are important retailers' technology requirements, and consequently CRM software systems (like Salesforce, Oracle CX, Microsoft Dynamics 365, SAP CRM) need to fit in with retail companies' imperatives such as consumer insights and segmentation, customer experience management (CXM), retail marketing (considering precision campaigns) and selling (considering clienteling as customer service technique), ensuring including social listening and engagement tools across channels [10]. According to that approach, retail companies can benefit of an improved process of collecting customer data (pulling insights from it, accordingly), as well as of an increased customer lifetime value (CLV), moving consumers' loyalty from products to their brands.

2.2 Artificial intelligence, human cognition, collective intelligence, and customers perceptions of AI-enabled interactions

Focusing on key differences between artificial intelligence (AI) and human cognition, Felin and Holweg [11] drew attention to asymmetric beliefs' importance, and theory-based causal logic, by going beyond AI's data and prediction-orientation view. According to Taylor [12], when designing AI applications it is good to start by being aware of the need to enhance collective intelligence (CI) through AI.

With regard to the way in which software development is transformed by the generative artificial intelligence AI (Gen AI), BCG experts [13] brought to our attention software companies' need to treat Gen AI introduction within their organizational transformation so as to exploit it. What presupposes to overcome difficulties standing in the way of its adoption, and not only to choose the right descriptions of users' interaction with systems in order to reach their goals, but also to encourage developers' ability and motivation to use Gen AI, and being continuously value focused.

Analyzing how e-commerce future is gaining speed, retail industry experts [14] underlined retailers' pressure to ensure more profound customers relationships and e-commerce platforms' profitability based on adequate experiments (with logistics and value chains, as well as right price points). A retailers' competitive advantage will be created by experimenting with real-time deal comparison and overall search results' improvements with the help of Gen AI, where the impact on e-commerce given by Google's zero-click searches on (without clicking on a website, just answering directly the query on the search engine results page) will be significant. It is also predicted that the secondhand marketplaces (together with the rental platforms and resale) are going to become increasingly important within the context of rising customers' living expenses and sustainable purchasing habits. Recently, for instance, May 21 was declared by eBay (based in San Jose, California) as the first annual Recommerce Day, being already supported by first legislative steps to possibly preserve this new idea so as to be protected and respected, promoting re-commerce shopping behavior [15]. It is also worth mentioning that on the basis of people search Google changed in May 2024 the way of displaying its content type filters [16].

According to a SEO expert presented very recently by MarketingSherpa as having a worldwide experience [17], performance in SEO (within digital content creation) can become greater by strategically applying Gen AI expertise. It is considered crucial for SEO experts to become very skilled and experienced at using safe Gen AI, productivity being intensified with the help of AI (used in compliance with data protection laws, ethical considerations etc.), improving both content quality (including for preliminary research and idea generation), and quality control.

In general, as shown by McKinsey experts [18], the scope of the transformational value possible to be generated by Gen AI can be caught by exploiting it at scale, consequently companies' chief information officers (CIOs being in close relationships with business unit leaders) needing to act on facts to ensure business guidance, based on effective end-to-end automation. Companies must treat Gen AI as a broad business priority, embedding it into their business with the help of the built teams (having roles and skills like: DataOps, Site reliability engineer, DevOps engineer, Cloud architect, Solution/data architect, Platform owner, Full-stack developer, Data scientist, Data engineer) progressing beyond the information technology (IT) function. In the same time, as demonstrated by Singla et al. [19], in the repetitive and collaborative process of working with Gen AI providers it is

important to take into account not only to continuously share updates and discuss challenges, but also to align on priorities across technology providers, both building trust and fostering collaboration so as to open the maximum potential of Gen AI Singla et al. gave an interesting example of a partnership between a luxury retail company (that shared its product information catalog and details concerning customer preferences and behaviors' nuances) and a Gen AI provider (ensuring relevant prompts' engineering and necessary domain-specific data interpretation etc.), from this strategic partnership resulting personalized product recommendation system being remarkable (99% accuracy). These McKinsey experts also brought to our attention how essential for a scalable Gen AI ecosystem creation it is to ensure interoperability between models and components.

As in today's shifting business management landscape AI is increasingly utilized in the digital content by technology brands, Mushtaq and Kethuda [20] investigated how AI integration (as cutting-edge technology) into brands' marketing activities is perceived by customers (considering convenience, value, risk of AI adoption, and product/service quality as key indicators) so as to influence their purchase intentions, changing their behaviors. The insights provided by this research findings were seen as leading to changing business practices, ensuring technology brand differentiation and credibility.

Prior research of Purcărea et al. [21] has shown the need of improving consumers' information and education concerning AI interactions' benefits, within the context in which consumers' perceptions of AI was the input construct in the employed quantitative research using SEM (see figure 1 below). It was also revealed, among other aspects, retailers' need of becoming increasingly aware of the whole range of AI benefits for digital marketing to successful use AI-enabled interactions with consumers.

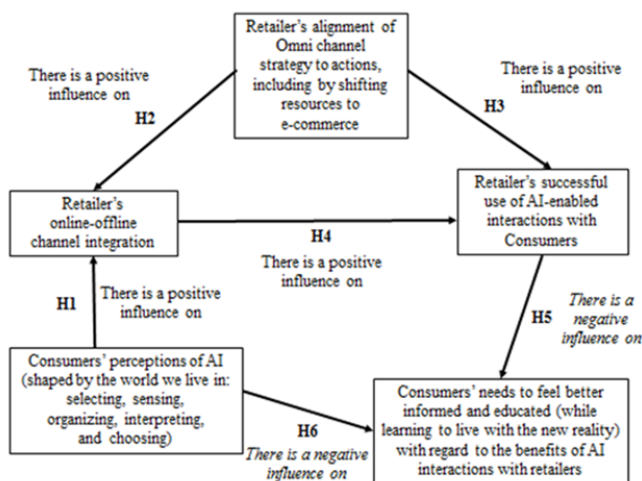


Figure 1. The theoretical research model²

² Source: Theodor PURCĂREA, Valeriu IOAN-FRANC, Ștefan-Alexandru IONESCU and Ioan Matei PURCĂREA - The Profound Nature of Linkage Between the Impact of the Use of Artificial Intelligence in Retail on Buying and Consumer Behavior and Consumers' Perceptions of Artificial Intelligence on the Path to
Pag. 210 / 290

Since the middle of the past decade, we emphasized marketers' need to master the new rules of digitization and to think proactively about their tasks regarding potential disruptors [22]. As Jim Lecinski said, "In our experience at Google, marketers who move with speed, make their messages highly relevant, and use data (it beats opinion!) are best-positioned for success with today's buyers and modern media vehicles" [23]. More recently [24], we signaled marketers' challenge to successfully drive consumers' engagement, including by considering the metaverse-related activities. On the other hand, let's remember what Neil Perkin said, "With data, technology and machine learning changing marketing practice in such fundamental ways it is essential for agile marketers to remain focused on how they can bring technology and human capabilities together in ways that compound benefit and impact" [25].

3. Agile transformations, increased IT alignment, digital capabilities' assessment and cloud efforts' acceleration

3.1 Making agile principles work, improving leadership as a whole

According to BCG experts [26], to make agile principles work technology leaders must implement a culture change in which, for instance, value creation is supported immediately by the driven IT programs, and IT designer and developer teams can focus on results of notable significance, multiplying program, and processing a great number of units of information in a given amount of time. Their recent research findings revealed significant aspects, such as: chief information officers (CIO)s, chief technology officers (CTOs), and IT departments' heads have not been included in their companies' process of general decision-making when a technology implementation is initiated or were not successful in communicating in a direct way what they can expect from an initiated tech implementation; at most companies, improving IT projects' results will depend directly on what technology leadership is creating for teams; IT projects' success rates improve when proper valid tracking mechanisms are in place for them; deep coordination between technology and business counterparts (the party that a company is contracting with or a third party) will be required to implement GenAI. It is worth mentioning that BCG experts' investigation was focused on in-house software development, mainly custom programs and applications tailored specifically (for example, targeting marketing automation).

After the Agile Manifesto introduction 23 years ago, when radical changes were introduced in the new software development process [27], we were witnessing an increasing adoption of agile approaches while trying to comprehend the role of agile – both as-a-tool (in the contingency perspective), and as-a-culture (in the configuration perspective) – a not only in

driving innovation and digital transformation, but also in improving leadership as a whole [28]. Within the last-mentioned framework, it was launched finally an invitation to continuous research so as to better light on connections of agile with management and organization theories. And as in agile transformations tensions are rising, it is very important to not forget the tensions identified by Strode et al. [29], considering, of course, each organizations' chosen transformation focus (operational change, strategical change or cultural change).

Research findings by Al Jabri et al. [30] revealed how enterprise agility is improved by increased IT alignment (the last one being achieved by company's transforming and seizing), while enterprise agility is intensified by company's transforming, sensing and seizing capabilities. On the other hand, the link between enterprise agility and transforming was found as being moderated by digital transformation (DT).

3.2 Investigating digital capabilities' assessment in the context of proceeding along the growth path, and accelerating cloud efforts being more focused on ROI

Based on prior literature and focused on assessing digital capabilities (in connection with their desired DT goals) in the DT process, Baiyere et al. [31] presented a so-called MIND (Management, Infrastructure, Networking/Sourcing, and Development) framework as a result of a several years lasting design science research project, this framework including both a MIND Canvas, and a MIND Process. A balanced scorecard (as the adapted BSC and providing strategic utility), a Status Map (giving a brief idea of what the positioning of an organization's digital capability is like) and a Capability Matrix (incorporating the digital capability concepts into the above-mentioned framework) were the instruments forming a MIND toolkit. Research authors invited for future research going beyond DT, for instance to consider investigating digital capabilities' assessment in the context of proceeding along the growth path.

As explained recently by McKinsey Global Institute [32], only from the growth of productivity (as a measure of economic performance considering output per unit of input) in time can come a higher standard of living, if we think, for instance, about the in the nineties seen dot-com boom created by the ascending digitization and other forces, supply chains' modernization of supply chains by the very large stores like Walmart (the U.S. biggest retail store chain) etc. According to this approach, productivity will be impacted by the advances in AI, being expected significant progress.

Recent research by Betley et al. [33] revealed that in their effort to advance on the paths to growth and productivity (being behind North American and Asian companies) European companies are required finally to capture overall value from cloud, going beyond improvements to IT towards higher-value cloud use cases in their business operations, avoiding that the obtained value remains of limited use and smaller than other similar results. Consequently, European companies are seen as needing to accelerate their cloud

efforts being more focused on return on investment (ROI), investing in the necessary capabilities to capture the above-mentioned overall value from cloud based on a clear view compared to the current situation (the last one being characterized as follows: the variance by sector of the thresholds to determine cloud adoption scale, retailers, for example, requiring comparatively more workloads on cloud; a notable portion of the technology estate of the European companies adopting cloud are continuing to keep over 20 percent of their activity on-premises).

Let us recall how priorly Arora et al. [34] brought to our attention that the cloud investment-and-return equation could be transformed by Gen AI. They made their comments on the basis of the findings in McKinsey report, showing, for example, various aspects, such as: where cloud's total value lies etc.; how many percentage points of incremental ROI can be added by Gen AI to cloud programs and through which key benefits.

In an interview given to McKinsey Digital [35], the senior vice president and divisional CIO for life, annuities, and distribution at Lincoln Financial Group (an insurance company), Rob Klaczak, talked about their decision to transition to a cloud-based system, revealing significant aspects from their journey, such as: how not only effective communication and information flow, but also collective engagement was ensured on the basis of the hub-and-spoke model, according to this model, the hub (company's core team) being connected to the spokes (company's various parts of the business and IT); essential for navigating their security complexities were two things: first, to ensure early engagement with their chief information security officer (CISO), and second to promote a strong relationship with the above-mentioned CISO's team; one of their focus was on optimizing for cost efficiency in a cloud-based consumption-driven structure (to ensure both valorization of necessary technologies for storage, security, analytics, and AI, as well as their customers' charging only based on their resource usage).

4. A great frustration and a great challenge for IT departments. Forging business links to IT treated as a strategic capability

Trust among companies can be increased with the help of technology, and that on the basis of reliable data sharing systems, transparency for all involved parties being provided by modern software [36]. That is very important at the level of a supply chain, for instance, taking into account companies' executives concern about their suppliers and customers' way of using shared data. To avoid data sharing risks can be brought into play AI joint model trained by a joint venture or a third party (benefitting this way from the value of sharing data), an emerging alternative being federated learning (the training being initialized independently by each participant).

According to McKinsey experts [37], IT departments has been frustrated for years because of all the time question regarding why some technology transformations achieve the desired result while others fail, but here was also identified an easy-to-understand opportunity for growth. Their research findings demonstrate that technology transformation initiatives (such as: a) data capabilities, sharing a tech-backed business strategy, and modernizing infrastructure; b) data capabilities, redesigning tech-organization, and transforming talent management and sourcing partnerships; c) shaping a tech-backed business strategy, and delivery model and core engineering principles) had a significant effect (as follows): a) on enhanced IT infrastructure; b) shaped a tech-backed business strategy; c) redesigned tech-organization and operating model. To valorize their technology foundations as much as possible companies need to be based (beyond investment in foundational improvements and ensuring alignment between technology and business stakeholders with regard to building products) on strategic alignment and have a strong business case, being aware of the followings: the difficulty of encouraging others (employees, shareholders etc.) to support their vision of modernizing legacy technology; only IT organization and operating model transformation (despite being essential for companies to benefit as much as possible from modernized technology) it is not sufficient enough to achieve better performance, being recommendable to lean on product- and platform centric operating models focused on the end-user experience.

There is no doubt that in the face of continuous increasing competition and adaptation under pressure it is essential to have that technology capability to achieve strategic goals, forging business links to IT treated as a strategic capability making the business to exploit the technology so as to deliver the expected value [38]. Consequently, business and IT must work together based on an agile program, the alignment being ensured across all levels (top management/board level, business process implementation, IT governance, and technology platform).

5. Conclusions

At the end of March this year, President of the Romanian Academy Section of Science and Information Technology, Academician Florin Gheorghe Filip, spoke in an interview about the history of the term digital humanism, the DIGHUM initiative and the Vienna Manifesto launched at the Technical University of Vienna in 2019 and other similar ideas, as well as about important contributions to the definition of the concept [3]. He also mentioned, among other aspects (such as ChatGPT), the more recent trend called dataism (as opposite to the one mentioned before), documenting and emphasizing the continuity of the debates, including in relation to “a great turning point” in human evolution, and the convergence between man and computer in the elaboration of co-decisions etc. In the end he referred to young people as the ones who will live in the world that they think and prepare.

Coming back to the Digital Humanism Initiative [39] it should be signalized that on the occasion of an online-only event (also live-streamed) taking place on June 11, 2024, Gordon Burtch (from Questrom School of Business, Boston University, USA) will explain the large language models' (LLMs) impact on online knowledge communities, starting from the significant potential of Gen AI technologies (mainly LLMs like ChatGPT) to impact both participation and content production in the above-mentioned communities. He will provide significant aspects based on their comparative data analysis at Stack Overflow and Reddit developer communities [40].

It is worth adding within this context that also in March this year took place an interesting podcast episode of McKinsey on Building Products [41] on software product management and engineering exploration, in which the chief product officer (CPO) of Reddit, Pali Bhat (known for being the very first to do product innovation for various large tech platforms, including Google), highlighted, among other aspects, the followings: only the highest-quality authentic conversations move towards the Reddit top; discovering the right answer to where you sit in the value chain is the next step after understanding how an AI and ML pipeline would work; how important is to focus on the user, learning from your entire surrounding environment, but avoiding to be distracted with insignificant details, learning from mistakes' magnitude and treating them as learning opportunities.

Also, it is useful to remember within this context that at the end of last year McKinsey experts [42], explained why a successful business must be cloud based according to their new research (paraphrasing American psychologist William Schutz), ensuring the foundation (enabling a lot of automation – by thinking about infrastructure as code, and entire systems as code – the cloud being built for), then everything else becoming more efficient, and cloud benefits coming from both enabling the business use cases, and allowing to work a lot faster to company's application developers and engineers based on updating skills (without forgetting how expensive are skill sets). Of course, if a company establish multiple foundations (compared to the above-mentioned one foundation), it is the situation (resulting from failing to effectively ensuring control) so-called cloud sprawl (known from many sources as the uncontrolled proliferation of an organization's cloud instances, services or providers etc.).

There is no doubt, we have great expectations from the complexity science, from the optimized working together of business and integrated and aligned IT, better understanding and leveraging platformization, disruptive technologies, and digital innovation, and last but not least better living in our world that we think and prepare.

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