DX Strategy Consulting Service Develops Strategies and Roadmap for Enterprise Digital Transformation

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Abstract

New technologies that enable content to be personalized through the use of social media, mobile devices, and analytics are transforming every aspect of the customers' experiences. As the value of these new technologies becomes increasingly important to the outcome of service use and the overall experience or using services, it is imperative that companies leverage new technologies such as AI, IoT, VR, AR, and drones to build a sustainable competitive advantage. This paper introduces NEC's DX concept and strategy consulting services, which is a digital transformation (DX) offering that enables companies to identify issues in DX promotion, plan strategies to effectively implement DX, and develop a roadmap for the realization of DX.

Keywords

DX promotion, DX concept, DX strategy, innovation, new business, roadmap, business transformation

1. Introduction

In recent years, not only have social media and devices using mobile technologies become ubiquitous, companies are also using big data and AI to deepen their understanding of their customers and provide personalized content to match their preferences. These changes are transforming the relationship between consumers and companies. In the past, value was placed on owning the best products and the customer journey was a linear process from companies delivering information about their products to customers ultimately making purchases. With the advent of new technologies in recent years, however, customer-perceived value has evolved, prompting a need to rethink the customer journey. Now that services are available anytime anywhere, customers are more concerned with the results of using the services than with owning the products. Also, as communication between customers and companies has become two-way, a need exists to create a map for the customer journey that does not end with the final purchase but extends to post-sale services and an ongoing relationship with the customer.

Emerging technologies that are key to building the customer journey are not limited to social media, mobile devices, and analytics but also include technologies that can transform the customer experience such as artificial reality (AR) and extended reality (XR); technologies that can change the nature of distribution such as automatic driving, drones, and 3D printing; and technologies that can change business processes such as IoT and AI.

Fig. 1 Changes in industry.

These technologies have ushered in the fifth industrial revolution, otherwise known as the digital transformation (DX) (**Fig. 1**).

In Section 2, we explain the key questions that companies need to answer when starting the DX journey as well as the targets and expected effects of promoting DX. Section 3 provides an overview of the current state of DX, Section 4 introduces NEC's offerings for promoting DX, and we conclude with a summary of this paper.

2. Answering Key Questions in DX Promotion and the Expected Results

The DX concept was first proposed for academic development in 2004 by Professor Erik Stolterman of Umeå University in Sweden. In Japan, since the formulation of the Guidelines for Promotion of Digital Transformations (DX Promotion Guidelines) by the Ministry of Economy, Trade and Industry (METI), the objective of DX promotion has been focused on leveraging digital technologies to bolster the competitive edge of Japanese industry (**Table 1**). To promote DX and establish a competitive edge, companies will need to find solutions to address the key questions and produce results.

2.1 Key questions companies need to answer

To promote DX, companies need to answer several questions related to overall corporate management, such as those related to transforming the business itself, providing value to customers, building DX promotion capability, creating an organization that enables repeated verification as well as flexible and timely adaptation, and developing new business performance indicators for the DX era (**Table 2**).

2.2 DX promotion targets and expected effects

DX targets can be broadly divided into business, customer experience, and operations (**Table 3**). In business, the objective of DX is to transform existing businesses through the use of digital technology and to build and develop new businesses by using digital technology to enhance core business competencies. In the area of customer experience, the objective is to utilize big data, AI, and other digi-

Table 1 Changes in the definition of DX.

2004	Erik Stolterman Umeå University (Sweden)	**Defined to develop academic research** on how the penetration of IT is changing people's lives for the better
2016	DX Promotion Guidelines IDC Japan (Research Company)	Companies are **responding to disruptive changes** in their external ecosystems (customers, markets) while driving change in their internal ecosystems (organizations, culture, and employees) by **using the third platform (cloud, mobility, big data/analytics, and social technologies)** to transform the customers' online and real world experiences through new products and services as well as new business models to thereby create value and **establish competitive advantage.**
2018	DX Promotion Guidelines Ministry of Economy, Trade and Industry	Companies respond to **rapid changes** in the business environment and **use data and digital technology** to transform their products, services, and business models based on the needs of customers and society. At the same, they are transforming the companies themselves, organizations, processes, as well as corporate culture and climate **to establish a competitive advantage.**

Table 2 Key questions companies need to answer before starting the DX journey.

(1)	Business Strategy Specification	• What business opportunities are created by DX? • Is it possible to use emerging technologies to achieve sustainable growth in core businesses?
(2)	Definition and provision of value Design and development of customer experience	• How can we interact with customers at all touchpoints to strengthen relationships with customers and achieve business growth?
(3)	Building capability and managing an organization that can adapt to change (Process/Technology/Information/People/Organization)	• What processes and organizations should be built to quickly develop and verify new digital products and services in the market? • What kind of knowledge sharing and collaboration can be achieved between companies and partner companies to increase productivity? • What technology architectures and platforms are needed to transform into secure and agile businesses?
(4)	Organizational structure	• What kind of organizational structure should we adopt to realize agile operations?
(5)	Performance management in DX process itself	• What indicators and targets will enable us to appropriately measure and manage the performance of DX-era businesses?

Table 3 DX promotion target areas and expected effects.

| Target area		Expected effect (assumed value)
Business	Digitalization in the current business	• **Transform current businesses using digital technology.** Transform processes, people, and organizations to achieve sales growth and improved profits
	New businesses	• Develop, launch, and scale new businesses to **foster new business pillars**
Customer experience	Customer analytics	• **Use IoT, AI, and other technologies** to gain a deeper understanding of customers and to **uncover customer insights and to create opportunities for business and business improvement that have not et been pursued**
	Sales growth	• Transform customer experience to **strengthen customer engagement** and **achieve sales growth**
	Touchpoints	• Respond to customer needs from touchpoint transformations beyond those of direct competitors, because **customer touchpoint experiences at othe companies can raise the level of consumer experience needs**
Operations	Digitalization of business processes	• Improve profit **margins by making current operations more labor-saving, efficient, and smarter, and invest human resources in higher value-added operations.**
	Transformation in work style	• Improve employee engagement and performance by transforming **work styles to adapt to changes in human traits and characteristics, technological advancements, demographics, and legal systems**
	Performance Management	• Adapt to change by setting **KGI/KPI that is appropriate to the experience economy era and implementing a high-speed PDCA cycle** that effectively enhances customer engagement, business contribution, efficiency and profit
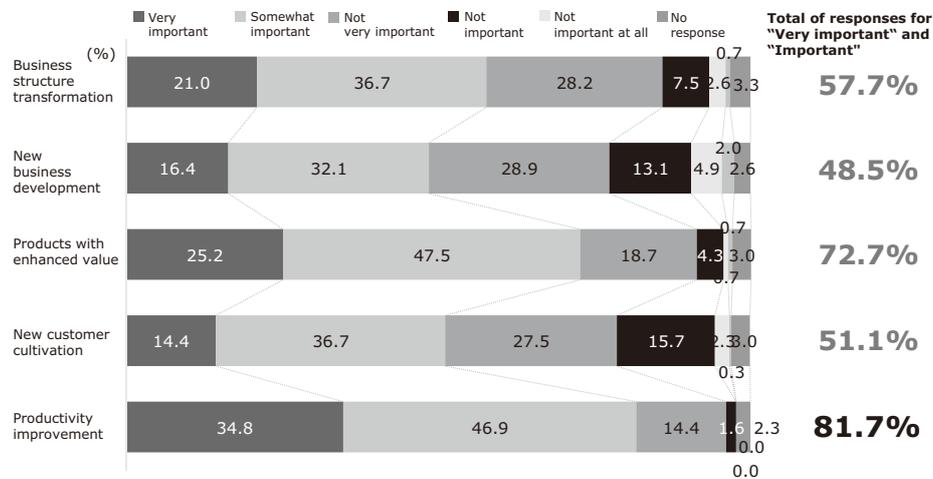
Fig. 2 Future corporate management issues.

tal technologies to reveal new customer insights that have not been pursued before and then use these insights to provide positive customer experiences and to strengthen relationships with customers to increase sales and revenue. Lastly, in operations, the objective includes enabling employees to shift to higher value-added work through smarter operations and work-style transformation using digital technology as well as formulating new employee performance metrics that take into account the new skills required to enable the shift to higher value-added work[1].

2.3 DX initiatives in Japan

As shown in **Fig. 2**, many companies in Japan consider improving business productivity and adding value to products as important management issues. The development of new customers and new businesses are also viewed as important management issues by nearly half of the companies in the survey. In view of this trend, we can expect companies to continue adopting tools and applications to make their existing businesses smarter while, at the same time, cultivating new customers and developing new businesses in parallel. With the advancement of digital technology causing the boundaries of traditional industry to become ambiguous and potentially causing the replacement of businesses that have been serving as pillars of growth, the move by enterprises to improve operational efficiency is expected to bring management issues such as the development of new customers and new businesses further into the spotlight[2].

3.　Current state of DX

We are currently in the midst of the fifth industrial

revolution known as the digital transformation (DX), and many companies are working to promote DX. As stated in the interim summary of the Ministry of Economy, Trade and Industry's DX Report 2, however, approximately 90% of DX projects are said to have failed to achieve their intended results. As shown in **Fig. 3**, there are a wide variety of reasons why DX projects do not achieve the results originally envisioned.

3.1 Challenges in project management

Although DX is inherently about continuous business transformation, many cases exist where DX is organized as a one-shot project. In addition, project management might have many issues, such as projects being carried out without leadership or projects being carried out with an implicit bias against the dazzle of new and emerging technologies.

3.2 Issues in the steps to promote DX

DX projects are usually conducted by examining ideas based on insights that were derived from understanding the surrounding environment from various perspectives, updating the concept through small-scale verification of the examined ideas, and proceeding with the establishment and scaling of the concept. In each of these steps, a variety of issues can arise, such as failing to notice the seeds of new ideas in the ideation stage or conversely, not playing a central enough role in the organization's ecosystem to follow through on what are regarded as good concepts or not having the capability to turn them into a reality.
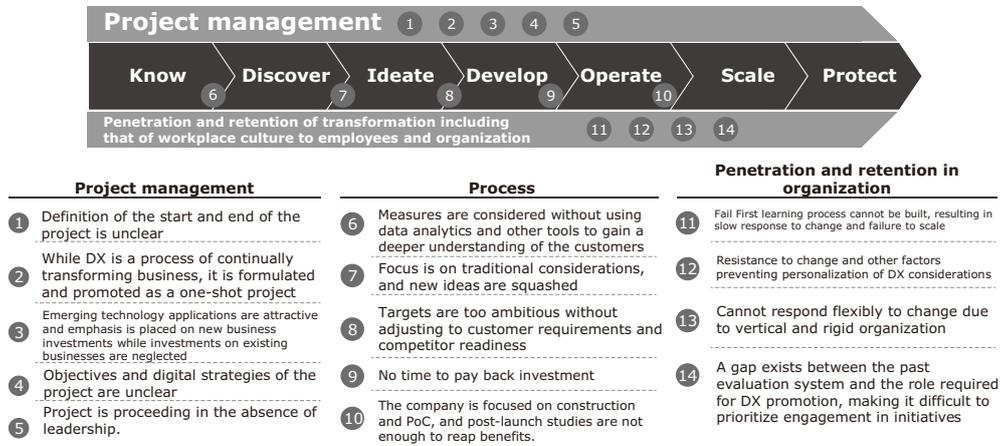
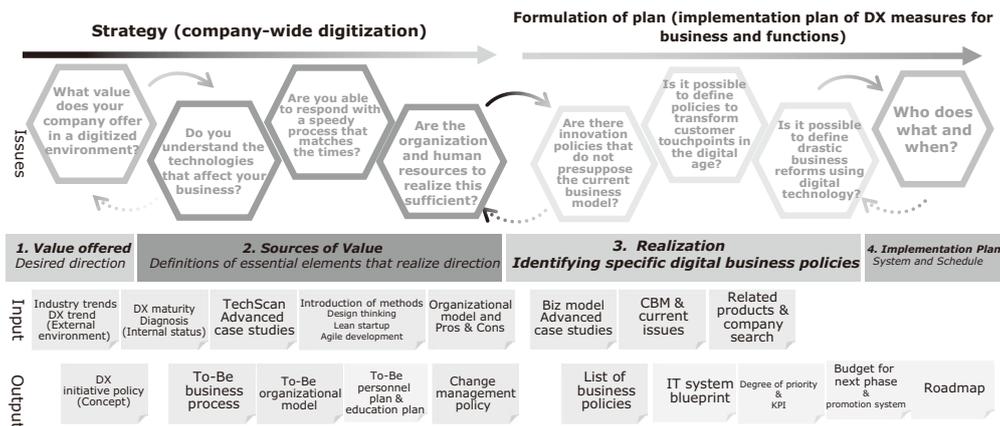**Fig. 3 Challenges in Promoting the DX Project.**

Fig. 4 Outline of consulting services to formulate DX concepts and strategies.

3.3 Challenges in organizational penetration and retention

Challenges can also arise when organizations are vertically divided, show reluctance in promoting new ideas, or attempt to drive transformation across the entire organization. In DX, it is desirable to continuously update the system while conducting small-scale verifications, but if such activities have not been conducted until now, integrating these steps into the organization will be a challenge. While a variety of issues can be observed, it is important to consider a balance of core capabilities, including technology, ideas, and strengths. If this balance is lacking, the project is expected to stagnate or not achieve the initially expected results[3][4].

4. Approach to DX promotion

NEC's DX Strategy Consulting Division, in collabo-ration with other NEC organizations, can provide total NEC support not only for market research and ideation but also for the study of various DX strategies and the development of technologies, system construction, and operations to achieve DX. In accordance with the recent trend toward digitalization, NEC itself is promoting reforms to create value in the DX era and can provide support for the formulation of more concrete and feasible measures based on our own experiences.

4.1 Two approaches to DX promotion

NEC recommends two major approaches to DX promotion. One is the traditional waterfall approach in which a DX agenda and roadmap for the entire company and each functional area is established; followed by conceptual planning, solution planning, and a transformation preparation phase; and then finally the execution and

establishment of that transformation. The other approach is to promote agile change through a series of verifications and updates, similar to the lean startup approach used in new business development after the DX agenda is finalized. Depending on the nature of the DX theme, either a waterfall approach or a lean startup approach will be necessary. For example, for customer experience transformation or new business development, a lean startup approach is used because it is necessary to proceed while verifying value, but a waterfall approach is used for mission-critical areas such as system construction.

4.2 NEC's consulting service for developing DX concepts

As part of our DX offerings, NEC provides consulting services to support the formulation of DX concepts and strategies for each business, customer experience, and area of operations. We offer DX strategy planning services, DX business organization services, and other services targeting current and future businesses as well as services that promote DX for enhancing customer experiences and operations (**Fig. 4**).

5. Conclusion

This paper describes the targets and expected effects of DX promotion as well as the actual situation and challenges in DX promotion. In order for a company to achieve sustainable growth, it is important to build a competitive advantage through DX.

By leveraging our own DX experiences, NEC will support the realization of DX for companies by providing DX strategy consulting services.

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