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**PROBLEMS OF EFFECTIVE BUSINESS DIGITAL  
TRANSFORMATION MANAGEMENT**

A. S. Budagov (a)\*, N. A. Sukhova (b)

\*Corresponding author

(a) St. Petersburg State University of Aerospace Instrumentation, Bolshaya Morskaya Street 67, St. Petersburg,  
Russia, dean8@aanet.ru

(b) St. Petersburg State University of Aerospace Instrumentation, Bolshaya Morskaya Street 67, St. Petersburg,  
Russia, nina@sukhoff.ru

***Abstract***

Digital transformation, as the current key phenomenon of the modern development of many companies, is in process of formation and development. Besides the highest growth rates and wide coverage, the uniqueness of digital transformation lies in integration of large number of disciplines related to strategic and organizational management, digital technology, risk management, etc. Moreover, given the innovative nature of digital transformation key drivers, traditional methods of business management do not always give the necessary result for the successful implementation of digital agenda. The study of cases about passing through the various stages of digital transformation is necessary to understand the success factors and common mistakes towards introducing new digital approaches. This article discusses the practical issues of business digital transformation management using the case of digital transformation of General Electrics (GE) as an example. The material is based on analysis of key problems of digital transformation process management, which led to inefficient development and reduction of planned digital agenda of this company. This article presents the results of studying the causal mechanisms of GE digital transformation as a large-scale innovation project, including the identification of key ineffective and successful management methods.

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**Keywords:** Digital transformation, digitalization, strategic management, organizational management, innovation.



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## 1. Introduction

Over the past decade, digital transformation (DT) has become an integral part of the strategic development of many commercial organizations. According to the World Economic Forum, digitalization has great potential for society and business as a whole. According to the International Institute for Management Development (IMD) studies, in the next five years, 40% of the companies that now occupy a leading position in the industry may lose their positions if they do not undergo digital transformation (Chakalova & Vdovina, 2019). At the same time, the nature of ongoing changes is so fundamental that world history has not yet known such an era - the time of both great opportunities and potential dangers (Schwab, 2018).

There are various definitions of the concept of "digital transformation" by experts and leading global consulting companies: Forrester - achieving operational efficiency and flexibility using digital technology; Gartner - business model that allows to create value to generate income; Deloitte - exponential bond growth. Most foreign researchers and analysts consider digital transformation as a change in the company's business model and business processes using digital technologies (Prokhorov & Konik, 2019). This is primarily due to the fact that the implementing of technologies exclusively without changing the company's business model cannot give a significant result and a long-term competitive advantage.

Many large foreign commercial organizations initiated their digital transformation programs in 2013-2014, setting the task of developing changes in the business model as a result of implementation of new digital technologies. The practical experience of these companies will allow us to draw some conclusions and highlight key mistakes that impeded the implementation of these programs or even led to failures in their implementation.

## 2. Problem Statement

The specifics of studying digital transformation are distinguished by the comparative novelty of research topic. There are practically no completed cases of the full implementation of digital agenda in the world, since the topic is at development stage. Thus, one of the key problems in studying the issues of business digital transformation is the need to analyse and systematize various ways of forming and implementing the digital transformation strategy of various commercial organizations. Most companies are on the way to develop a digital transformation agenda, changing priorities, development vectors, and digital transformation management methods, depending on changes in their external and internal contexts. Accordingly, there are no well-established systematic methodologies and recommendations regarding the use of successful digital transformation management strategies; companies often develop by trial and error. Thus, the study of success and failure of digital transformation, the study of causes of negative and positive scenarios is part of the systematization of scientific and practical recommendations for digital transformation management.

Moreover, as additional limiting factor in the study of this material is incomplete information in public sources, as the internal organizational issues of companies are often undisclosed, related to personal data and sensitive content for management and shareholders.

### **3. Research Questions**

This article discusses the General Electrics digital transformation development case, which is a large-scale and indicative phenomenon for the study of specifics of strategic and organizational methods of digital transformation management.

One of the main questions of the GE case is what strategic and organizational decisions and management methods led to the success and / or failure of development and implementation of digital transformation tasks.

It is also necessary to answer the question whether the causes of failure are specific to one company or they can be summarized as recommendations and warnings for other companies, thereby enriching the scientific and practical base and systematizing the methodological approach to the DT topic.

### **4. Purpose of the Study**

The purpose of this article is development of theoretical principles and methodological tools for digital business transformation management. Particularly, the purpose of considering the GE case is to identify the key causes of inefficient digital transformation in terms of strategic and organizational decisions. Besides that, based on analysis of causal mechanisms, this article offers scientific and practical recommendations on effective methods for business digital transformation management.

### **5. Research Methods**

The key research method is the analysis of GE case in public sources, comparative and causal analysis of management decisions and steps for preparation and implementation of GE's digital transformation.

### **6. Findings**

GE is diversified industrial giant with headquarters in Boston (USA), which dates back to the 70s of the XIX century and has diversified business in various directions - energy, aviation, oil and gas, medicine, transport and others. GE is manufacturer of various equipment, including locomotives, aircraft engines, gas turbines, power plants, various kinds of household appliances, military products, etc. At the end of 2018, the company total revenue amounted to 121.6 billion US dollars, assets - 309.1 billion US dollars, the number of employees - 283 thousand people (Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act for the fiscal year ended December 31, 2018, 2019).

In 2013, the company drew attention to the field of digital information technology as promising in terms of developing competitive positions in the global market and diversifying its business. Key ambitious goals were turning GE into one of the world's leading digital IT companies, becoming one of the ten largest IT leaders, including digital transformation of current business lines. In 2015, new separate division of GE Digital was created to achieve new goals, which in 2016 already had more than 1,500 employees (Moazed, 2018). This division`s role was to centralize all digital initiatives and IT operations in the company, consolidating the IT divisions of various industrial business areas. The main work of GE Digital was based

on development of Predix innovative industrial platform as basis for creating of the company's breakthrough competitive advantage. The Predix platform had to provide full-blown digital services for GE's core business areas. By 2016, GE expected 15 billion US dollars in revenue from the sale of IT solutions, expecting that the Predix platform earn at least half. However, despite significant large-scale investments in the amount of more than 4 billion US dollars, the development rate of this platform has fallen short of expectations. GE Digital was not able to provide the creation of platform at estimated scale; the proposed digital services were not in demand by the business. In 2018, due to increasing requests for investment in the platform, the lack of significant digital results and against the background of gradual decrease in capitalization, GE put up for sale its digital assets, and also announced the reduction and reorientation of digital initiatives. GE Digital underwent restructuring with change of the division's management, and also changed priorities from the production platform to solutions for the industrial Internet of things, having annual revenue of the new division - 1.2 billion US dollars (TAdviser, 2019). Scientific researchers and business analysts differently assess the causes of this phenomenon. The analysis results show that the key problems and mistakes made during development of digital transformation at GE are in the field of strategic management and organizational approaches and practices. The study shows that the main reasons for failures that led to the sale of GE's digital assets in 2018 are related to three key groups of reasons:

- Strategic management
- Organizational management
- Corporate culture development.

Let's consider the above groups separately.

### **6.1. Strategic Management**

At the very beginning of the digital transformation agenda development, GE chose to create a large-scale universal platform for industrial companies as key strategic focus. Thus, the company focused on almost the only solution, which was also the first experience of this company in the new field of development of IT platforms at such scale. Experts note that the level of labour costs and investment was clearly underestimated (Chemitiganti, 2018).

The implementation of such major technology task in the modern world is impossible without participation and support of partners and creation of the partner ecosystem. GE is developing affiliate network that includes partners who do not have strong interest in the platform and who have low incentives to invest in the platform (Kumar, 2018).

The affiliate network includes large technology giants that, in addition to the Predix platform, continue to invest in competing solutions from IBM, Intel and other companies (Parthasarathi, 2017).

Moreover, the company management made a number of other strategic decisions, which required additional substantial investment and effort. For example, GE planned to develop its own cloud data center. Subsequently, this strategic decision was revised when it became obvious that competing with Amazon, Google, and Microsoft services is unreasonable (Kumar, 2018). However, key strategic decisions do not change throughout implementation of the entire digital program. Particularly, the vector to create a single

large-scale solution, as well as the choice of disinterested partners who do not share the GE investment ambitions and the like remains.

However, beside the goal to develop technology platform, the innovative GE Digital division received revenue generating goals. One of the key performance indicators set to assess the performance of the new company was level indicator of quarterly income (Moazed, 2018). In this regard, the division focused primarily on the short-term revenue generating goals and ensuring efficiency, rather than on developing the company's long-term value. For example, GE Digital has organized consulting services to support the digital transformation of other industrial companies, organizationally restructuring into the company's traditional operating division. Thus, the initial focus of development of innovative competitive advantages due to breakthrough innovations was diluted. According to experts, the digital transformation is indeed critical for the organization, but its implementation requires a special approach, including a feasible flexible implementation plan and special progress metrics in accordance with this plan. Special approach shall enable companies to measure progress according to plan, evaluate applicability and value of interim results, and not focus on the division financial results. Such approach shall enable, if necessary, early recognition of error and termination of investment if the evaluation of intermediate results is low or change in context occurs (Chemitiganti, 2018). Thus, the set goals to achieve the quick financial result were the driver of innovation agenda reduction and transition to relatively standard operating activities familiar to the company.

## **6.2. Organizational Management**

### **6.2.1 Organizational Form**

Various researchers of digital transformation topic point out that one of the most effective organizational forms for implementing the digital agenda is allocation of autonomous independent division. This practice is caused by the fact that digital transformation is usually associated with the business model restructuring, processes, development of fundamentally different skills and competencies, and generation of innovations. These types of tasks require a high concentration of efforts and the need to have digital transformation of the main or even the only key responsibility. Many researchers believe that true digital transformation cannot be carried out from within the organization, it will fail, because the changes are usually so disruptive that traditional business rejects them. GE, based on its subsidiary GE Software, which has traditionally been engaged in IT support, has set up a separate digital-innovative division, making a significant step forward for implementation of digital transformation (Moazed, 2018).

### **6.2.2 Organizational Structure**

At the same time, the company retained in the structure of new division the organizational model, roles and responsibilities from GE Software subsidiary. Moreover, specialists and managers from GE Software, who possessed traditional set of competencies and skills, were also invited to develop innovative solutions. Thus, the new company retained the organizational model, business processes, competencies and skills of traditional IT department employees, innovation was carried out by the usual "non-innovative" methods.

### 6.3. Corporate Culture

Beside the need for the evolution and development of skills and competencies of employees of the new digital division, the question arises about creating of innovative corporate culture that motivate generation of ideas, attract the necessary specialists and ensure stimulation of full-fledged innovation processes. Many researchers point out that the legacy of GE's traditional IT, including organizational structure, processes, and staff, has hindered emergence of the necessary innovative corporate culture. GE Digital was never able to overcome traditional product-centric paradigm of work and switch to customer-oriented and service approach (Kumar, 2018).

To develop innovative corporate culture, various new organizational approaches are proposed, for example, Agile / Scrum, Design Thinking and others. These approaches require fundamentally different skills of team building, team management, other competencies of managers and, accordingly, new personnel development programs. Experts note that in implementing of the digital transformation agenda, it is necessary to rethink products, services and approaches to work, using the start-up mentality as culture of constant experimentation to generate innovations (Chemitiganti, 2018). For example, to stimulate finding of innovative solutions, the motivating factor is unique rallying synergetic culture that develops using individual organizational techniques for team management and requires special leadership skills (Covey, 2011).

Oppositely, GE Digital experienced difficulties to build effective innovation processes due to the use of traditional organizational management methods and staff competencies.

## 7. Conclusion

The analysis results show that GE's experience includes both successful strategic and organizational decisions, as well as mistakes made during the company digital transformation developing.

GE's successful experience includes adoption of important fundamental strategic and organizational decisions:

1) decisions about the need to develop the company digital transformation for upgrading of traditional business;

2) creation of separate division that ensure digital and innovative development.

The following key errors in implementation of digital transformation should be noted:

- As part of strategic management:
  - a. ineffective goal setting, including focusing on one solution requiring long-term large-scale investments,
  - b. insufficient assessment of the role of partners, orientation to own resources without attracting experienced partners, inefficient work on development of the partner ecosystem,
  - c. expectation of quick returns on investments, high expectations of revenue from new innovative division, including quarterly indicators of revenue and profit.
- As part of organizational management
  - a. inefficient organizational model of the innovation division

b. core staff with lack of skills and competencies in innovation processes

- Lack of innovative corporate culture development agenda.

Thus, within the framework of listed management decisions, it was difficult to realize the planned potential of digital transformation. Management strategic and organizational decisions led to separate positive optimization processes of evolutionary nature that were incommensurable with investments and shareholder expectations. GE's experience can be summarized as recommendations for other companies implementing digital transformation programs and can also be used to develop theoretical principles and methodological tools for business digital transformation management.

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