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RESEARCH ON PROJECT AND PRODUCT MANAGEMENT IN TECHNOLOGY INDUSTRY IN THE DIGITAL ERA

Summary. *The changes caused by digitalization give rise to a definite need to increase managerial and organizational flexibility. In some areas the impact of these rapid changes is significant, in others the impact is weaker, but is clearly felt in all industries and functions. This determines the need for research of project and product management to help managers form an approach to achieve optimal results and gain a competitive advantage over the other technology companies. Focusing on the project management and product management topics, the current paper falls into a niche of great relevance and strategic importance for the technology industry. In this regard, the purpose of this study is to examine the product and project management in times of digital transformation and to analyze whether the transition from project to product-oriented management in technology industry is necessary. The methods used in this paper include: analysis and synthesis; research through literature sources, results of theoretical and empirical research in the field of product and project management, etc. The results show that integrating a product mindset within projects will enable technology companies to further adapt to the dynamically changing business environment and to provide a unique value proposition in times of digital transformation.*

Key words: *product management, project management, digital transformation*

Introduction. Digitalization has undoubtedly simplified the way business organizations work. But on the other hand, it has introduced fierce competition in the business world, where every company strives to make maximum profits with minimal investments. Thus, the competitive business environment requires the way of doing business to adapt to the changed external conditions and to design stable management processes [9].

Understanding the role of project management and product management in achieving the strategic goals of the organization has increased significantly in recent years. This role is key in terms of company's growth potential and strengthening its competitive position.

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Comparison of the concepts for product-oriented management and project-oriented management. It turns out that what has been accepted over the years, namely that good IT project management guarantees the success of the resulting solution, is not sufficient. According to Mik Kersten [4], the traditional IT project is not enough to meet the software development requirements today. According to an IBM [3] survey, 76% of consumers expect organizations to understand individual needs. And it's not just end users who want the technology they use to look good, be user-friendly and have the

necessary functionality. The same trend is observed in B2B world and as a result the new solutions must meet the needs of both segments at the same time.

The strategy for products and services development is increasingly determined by their launch and demand, as a result of which product management is progressively replacing project management. Achieving project goals such as fulfilling the set tasks and completing certain phases does not guarantee the success of the product. Before considering the question of whether product management should replace project management, first it is needed to explore and examine what the two concepts are in times of digital transformation [11] and what their distinctions are.

A product manager and a project manager are two roles of key importance in achieving company's strategic goals. And while both require skills for effective communication, collaboration with different teams and decision-making, the similarities end there.

N. Marinova and K. Hadjiev [6] give the following definition of project management – it is a management approach, in which through specific organization of human, financial and material resources it is performed a unique range of activities (to achieve significant change) with restrictions on time, costs and set quality requirements. According to A. Apostolov [1], when it is talked about good project management, it means such management that ensures achievement of pre-set goals and results at an acceptable price.

Project management answers the questions "how" and "when". The question of "how" they will organize and allocate the tasks is among the top priorities of all project managers. Technology projects are often complex, involving many people in different phases of the project. Therefore, good project management is determined by good planning and optimization of team work. On the other hand, the answer to the question "when" the project will be completed is key to project management. Accomplishment of the tasks and

phases in the set deadlines is the measure that determines how successful the project and, respectively, the project management are.

In general, traditional project management is determined by the Gantt chart and various applications such as Microsoft Project. It is closely tied to management techniques and has several main features:

- Milestones;
- Results where project goals are achieved in a linear sequential flow (according to the "waterfall" model);
- IT projects much distinguish from business as usual;
- Fixed capital and operating budgets require project managers to forecast all costs;
- Risks are pre-planned and set;
- Plans for launching the product are strictly defined and do not include the product life cycle (the product life cycle is a priority and task for other teams and budgets);
- Interchangeable resources that are set at the beginning of the project. Usually, team members are involved in several projects, and their commitment ends at the time when the solution is complete;
- Success is measured by whether the project is completed on time and within the set budget.

On the other hand, product management is an organizational function within a company dealing with new product development, business justification, planning, verification, forecasting, pricing, product launch, and marketing of a product or products at all stages of the product lifecycle [5]. Product management focuses on two other questions – "what" and "with what effect" or "why". The organization and the team need to be aware of "what they are doing" – what product they want to create. This will most easily eliminate the risk for another part of the organization to be already developing a similar product and

throw effort in vain. On the other hand, when it is clear why the user needs this product, the task of the programmer is much easier and he knows exactly which features to concentrate his efforts on. This ensures better marketing of the product.

The answers to these two questions make product management to be much more oriented towards business, customer and marketing. In other words, the product management is at the intersection of business, technology and customer experience. Why business? Because it focuses on maximizing the business value of the product. Why technology? Because it must be clear what technology will be used. And why customer experience? Because in the end the product meets the needs of the customer and must give him enough value and be as useful as possible for him.

Product-oriented management is characterized by:

− Time frames that cover the entire product life cycle, including maintenance, upgrades, product viability and end;

− Products are elements of the investment, and the financing is done on the basis of business needs;

− Success is measured by whether the business goal has been achieved, including whether the expected profits have been reached;

− Risks are identified during the whole time, which makes it possible to prematurely discontinue work on the product or to change the approach if new opportunities come up;

− Permanent teams, which are interconnected, are involved in the creation of a product;

− Management is based on the product development roadmap and various tests of hypotheses. As the focus is put on certain features and on business value of the end product, agile methodology is used;

− The process is much more transparent, as the aim is to constantly see the gaps and shortcomings which could be duly resolved.

Analyzes and results. According to "Product Management Hiring Trends in the US – 2019" report, for the period 2017 – 2019 the job positions in the field of product management in the United States have increased by 32% [10]. Companies are in serious demand for experienced candidates to perform this function.
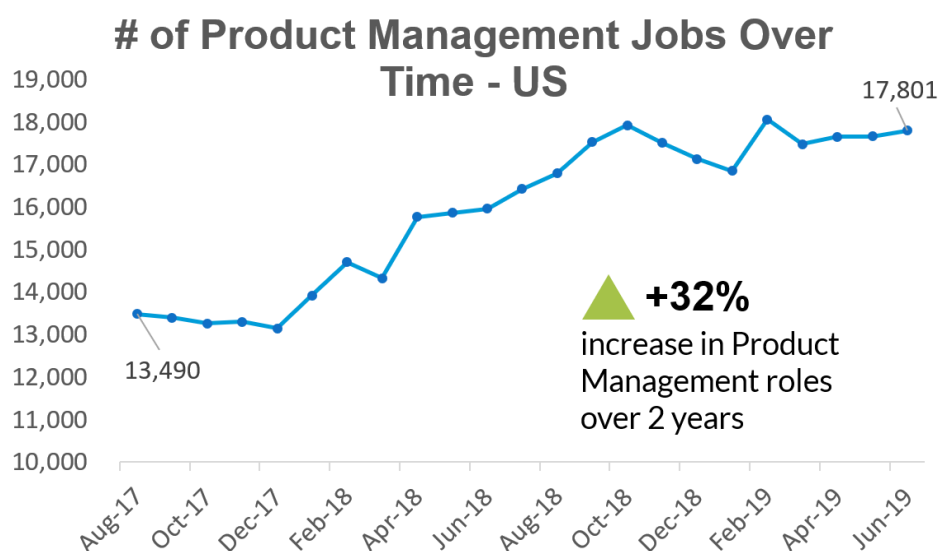

Fig. 1. # of Product Management Jobs Over Time - US

Source: Product Management Hiring Trends in the US — 2019

For the same period there is growth of 26% in product management jobs at middle level and 51% in senior management [10]. Career options are diverse – from Product Manager, through Senior Product Manager to Chief Product Officer.
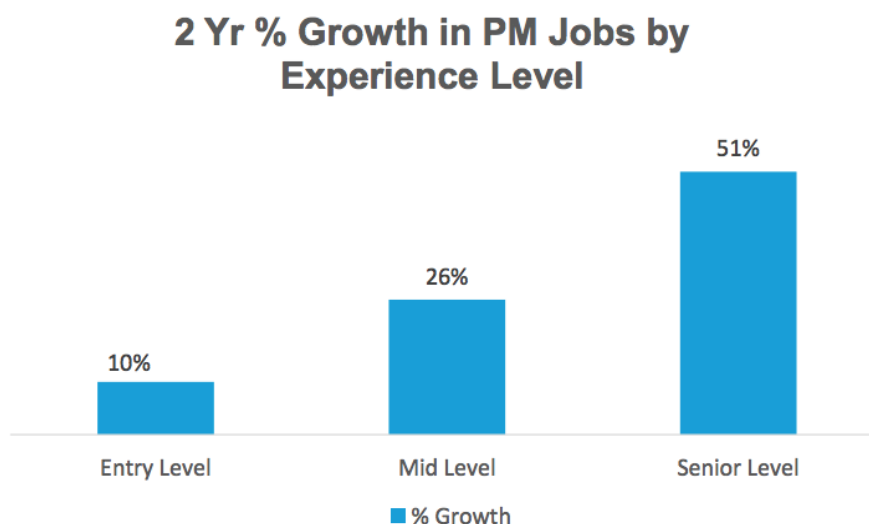
2 Yr % Growth in PM Jobs by Experience Level

Fig. 2. 2 Yr % Growth in PM Jobs by Experience Level

Source: Product Management Hiring Trends in the US — 2019

The main responsibilities of the product manager are related to:

− Research. To collect the necessary information, the product manager researches and analyzes the market and competitors.

− Strategy. Based on the available information, he prepares a strategic plan for the product. The strategy includes goals, product or service presentation, feature prioritization, and a rough timeline.

− Communication. The strategy is presented to the stakeholders in the organization – the CEO, other managers, investors, developers and sales and marketing departments. All these units intercommunicate throughout the development phase and after its completion.

− Coordination of programmers. Once the strategy has been drawn up, the plan must be implemented. During its implementation, the product manager coordinates the departments of programmers, marketing and sales specialists, who are involved in the process.

− Feedback and data analysis. Once the product is ready, tested and brought to market, the product manager analyzes the data from its performance

and customer feedback. The purpose of this analysis is to identify strengths and weaknesses and take further steps to improve it.

According to Kersten [4], to undertake the project-to-product management transition, "IT leaders can assess software organizations not by the lines of code written or microservices produced, but by how much business value their products deliver to customers." Companies need to structure their IT and software units into product value streams. His concept determines the productivity of the software team based on its ability to improve product features and deliver new value to customers; to fix defects; to manage risks, related to security, availability and compliance; and eliminate technical debt. According to Kerston, through this approach, software teams can move from the world of project plans to product-centric management.

However, many experts [7; 8] are adamant that both project management and product management are important and not every activity can be managed as a product. Often digital products require integrations that must be managed as a project. Therefore, some IT experts [2] believe that project management is part of product management, which in turn can be considered as a comprehensive program. The answer to the question why such a transformation is needed then is in one word – "digitalization". Technology has reached a point where IT culture needs to be transformed from simply creating a tool to work towards innovation and to empower employees and end users.

Conclusion. The results of the study provide grounds to summarize that project managers are focused rather inward, on organizational tasks of planning, management and provision of resources, in order to maximize quality and minimize project risk. In contrast, product managers are business-oriented and focused outward, on customers, business needs and the market, in order to maximize the value of the product and bring revenue to the company. However, integrating a product mindset within projects will enable technology companies

to further adapt to the dynamically changing business environment and to provide a unique value proposition in times of digital transformation.

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