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**SMART CONCEPT FOR PROJECT MANAGEMENT – TRANSITION TO DevOps**

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**Abstract:** The article aims to reveal the transition and evolvement of the Project management in its variety and benefits that brings for the business organization. There will be reviewed three main concepts for Project management: Lean, Agile and DevOps. Lean concept concentrates its efforts to deliver more value with less waste by reducing everything that does not add value. In other words: Doing more with less. An organization that applying Lean Methodology is aiming to provide perfect value to customers following perfect process of creating value with zero waste. There are key principles which guide the actions for applying Lean techniques. In order to do this the experts have to perform Lean thinking. In other hand the main philosophy in Agile approach is striving for the same costs and at the same time but improving work so that the customers remain satisfied. There have been various frameworks like Scrum and Kanban which offers different tools to manage projects and refer to Agile Project Management. It encourages adaptive planning, evolutionary development, early delivery, and continual improvement. Agile approach leads to rapid and flexible response to changes. This method is highly used and beneficiary in complex projects where the situations are constantly changing. Lean and Agile approaches have many things in common. Both of them are seeking to add value and prefer working in small badges to avoid large mistakes. Different approaches effect in different way for different organizations. In an effort to avoid some disadvantages there is some companies that moved towards DevOps. DevOps Approach also is a method in strong connection with Lean and Agile methods by steer them to operations work. While Agile Project Management focuses its efforts to Development (Dev), there is still a loop which needs to be covered – Operation function (Ops). Participating of the development and operations experts together in the entire product or service lifecycle is the main concept of the DevOps. The soft skills of the people that are expected to adopt and move by the principles of any philosophy have an important role. The way they think and execute their responsibilities are as important as the principles itself. The tools are useless if the people are not willing and don't know how to use them. Every one of those philosophies strives to answer challenges of the business environment and rapidly changing customer's needs with different tools. The collaboration between them and the transition from one to another shaped Smart concept for Project Management which puts in front quality, customer feedback and continuous delivery and deployment.

**Keywords:** Project management, Lean approach, Agile management, DevOps.

## 1. INTRODUCTION

The modern, fast developing society needs more than ever to embrace and identify benefits that work in a multidisciplinary way may bring. Participating of the development and operations experts together in the entire product or service lifecycle is the main concept of the fairly new term “DevOps”. Although DevOps as an approach is recognized and used mostly in software development, it can be properly implemented in Project management in general.

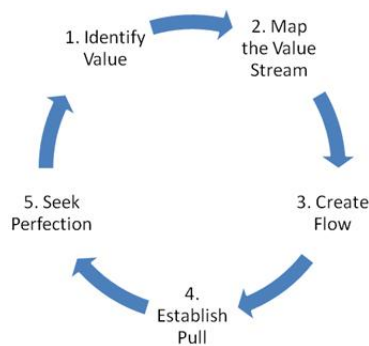
The **main objective** of the article is to discuss prevalent approaches for Project management and in particular the transition to DevOps approach.

Looking in the near past we can find that Project management complexity is becoming more identified as an area which has to be studied and explored to reaching better results. In this article will be discussed three major philosophies for Project management: Lean, Agile and DevOps.

## 2. LEAN CONCEPT

Lean concept first appears in manufacture but later it has been adopted to other areas to improve project team work and implementation. In general this method concentrates its efforts to deliver more value with less waste by reducing everything that does not add value. In other words: Doing more with less. First Lean method was applied in manufacturing, but it's advantages can be used in every other area by improving how the team works together and client interaction. There are five lean key principles (5 Lean Principles Every Engineer Should Know, 2019):

**Figure 1. Lean principles**



Source: *5 Lean Principles Every Engineer Should Know*

URL: <https://www.asme.org/engineering-topics/articles/manufacturing-design/5-lean-principles-every-should-know> (18.04.2019)

Regarding there can be differentiated five main steps for applying Lean approach(The Five Steps of Lean Implementation, 2019)(Eight Steps to a Lean Manufacturing Approach, 2019):

1. *Determining value* – Define value that final customer needs at the price that meets his expects.
2. *Eliminating waste* – This core principle may be accomplished either with value stream analysis to identify and eliminate activities that don't add value or to increase activities that add value.
3. *Shorten work cycles* – Working in small batches allows to rapidly identify problems and resolve them.
4. *Extend employee autonomy* – Give the employees more freedom to make decisions and provide them tools for doing this.
5. *Solicit customer feedback* – Use a systematic approach for obtaining input from customers.

Not always adopting Lean leads to improvements and the reason for that is some basic mistakes that have been made implementing the method. Sometimes the whole system is not agile enough and can't follow the principles, in other cases the management is not prepare and doesn't understand the process. Problems can appear and if before starting Lean there is a lack of preliminary preparation or if the indicators are measured but that not leads to any changes (Bogdanova, Parashkevova, & Stoyanova, Agile Project Management, p.98, 2019).

Lean is a business methodology which aims to bring more value to the customers following two key sentences: „Continuous improvements and respect for people” and “Increasing access to information for more responsible decision making and more added value to the customers”.

### 3. AGILE PROJECT MANAGEMENT (APM).

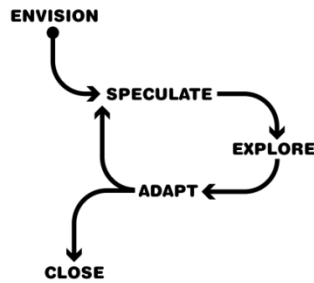
The main philosophy in this approach is striving for the same costs and at the same time but improving work so that the customers remain satisfied(Bogdanova & Parashkevova, Agile Project Management, p.10, 2018). In traditional project management time and resources are variables and scope is constant. In Agile project management these elements are in the opposite position - time and resources are constant and scope is variable. This shapes the striving for better result with the same costs and in way that the clients will be satisfied. There are four more important things about APM (What is Agile Management, 2019):

- ✓ People and their relationships are MORE important than established processes and existing work systems.
- ✓ The final working product is MORE important than comprehensive documentation
- ✓ Close partnership whit the client is MORE important than formalizing contractual relations
- ✓ Continuously responding to changes is MORE important than following the original plan

Lean and Agile approaches have many things in common. Both of them are seeking to add value and prefer working in small badges to avoid large mistakes. Agile is about the people who are motivated, working in proper environment and receiving the support they need. This is the way they feel they are trusted to get the job done.

Jim Highsmith, in his book “Agile project management – creating innovative products”, identified five main phases in APM structure: Envision, Speculate Phase, Explore, Adapt and Close.

**Figure 2. Agile Project Management Lifecycle**



Source: Jim Highsmith, *Agile project management – creating innovative products*. Publisher: Addison-Wesley, 2004

The most typically for Agile Project Management is that implementation of projects is divided into “small, consistent time intervals”(Agile Handbook, 2019) which are called sprints. This is the part where the work is accomplished. The sprint is period of time with concrete amount of work to be done during that period. The sprint is finished when the period expires and a new sprint begins. During sprint’s meetings every member of the team answers briefly to three questions:

- What did you do yesterday?
- What are you going to do today?
- Do you need any help or are there any blockers in the way?

This practice allows members of the project team to be informed on time about work progress and to take out their problems if there are any. Although many positive things Agile method brings to an organization, there are some critics as well (A Beginner’s Guide To The Agile Method & Scrums, 2019). Agile is more developer-centric than user-centric and focuses on processes but doesn’t recognize product design as important aspect. The Agile methodology also is considered ineffective in large organizations and specific type of projects.

#### 4. DevOps APPROACH

This method is in strong connection with Lean and Agile methods by steer them to operations work. DevOps takes a step forward to ensure that business meets market needs. While APM focuses its efforts to Development (Dev), there is still a loop which needs to be covered – Operation function (Ops). Operations have their important place in our increasingly service-oriented world and that’s why we observe natural transition to DevOps method (Operations: The new secret source, 2019). This new method lays on the main agile principles. It attempts to bridge the gap between the Dev and Ops and seeks to control how these two separate functions operate as one (Hemon, Lyonnet , Rowe, & Fitzgerald, 2018). There can be used different terms to describe DevOps such as a movement, a culture, a set of tools which aims to improve methods of managing complex systems. The main question that can be answered with using this approach is “*Why?*”

DevOps is a culture of collaboration between development and operation teams in favor of more efficiency, faster innovation and higher value delivery to the businesses and the customers. There are some main principles DevOps is built on (DevOps: Breaking the Development-Operations barrier, 2019):

- Collaboration and trust – this principle is founded on shared responsibility, transparency and faster feedback. Working in synchronization allows to bringing Dev and Ops closer and changing the mindset of traditional team work.
- Release faster and work smarter – speed is a key factor when we talk about software development. More frequent release leads to more time for the team to response if anything is not good enough
- Accelerate time to resolution – the fast feedback helps the team to minimize the time to resolve the problem. This keeps the customers satisfied. Issues that could appear are regarding absence of open communication and increasing tension among teams.
- Better manage unplanned work – there will be always unplanned work the question is how the team will manage it. DevOps processes allow clear prioritization, better managing unplanned work and keeping focus on planned work.

**Figure 3. DevOps Model**



Source: *The Way of DevOps: A Primer on DevOps Principles and Practices*  
<https://www.smartsheet.com/devops> 18.04.2019

DevOps practitioners seek to create value for customers and foster a manageable workflow that places people over product by designing, building, testing, deploying, managing and operating faster and more reliably (The Way of DevOps: A Primer on DevOps Principles and Practices, 2019). There has to be made a point that DevOps is not a way to get your work done by somebody else, it's a way to get your work done better.

## 5. CONCLUSION

In conclusion it can be put that all the three approaches: Lean, Agile and DevOps are oriented towards customers and towards adding value. Their advantages when are well implemented can help project teams to improve workflow regarding time slots and quality. Every company has to make their informed choice if and which principles and methods are helpful to adopt. The choice depends on various factors and specifics of the company. The first step is to get acquainted with the main features of the different approaches. Lean, Agile and DevOps methods are linked to each other and represent modern, smart concept for Project Management.

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