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# PROOF OF CONCEPT

or how to decrease the budget several times as well as the risks associated with its implementation?





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15 pages of practical knowledge on the effective implementation of IT projects using the Proof of Concept technique.



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# Introduction

## The market rewards agility.

In such a dynamically changing world, the approach to designing and developing complex IT systems is also changing. The key is to quickly verify the assumptions and develop an optimal solution that can be implemented quickly. The traditional approach means in this context a huge risk, including budget related to changing requirements, protracted process of project implementation, or rapid technology aging.

Questions arise: How do you test the idea for a solution? What should I do to implement this solution efficiently? Is it worth reaching for external support? If so, at what moment and how to find the right supplier? What should be done so that the solution of the problem does not turn into an expensive, large, long-term and ineffective project?

The answer to these questions may be **Proof of Concept** and an agile, experienced team that has knowledge in the field of creating POCs based on specialist knowledge and new technologies, such as machine learning or big data.

Where does this belief come from? In this material, I will share with you our experience of implementing one of these types of projects, thanks to which we have helped the client not only to respond to the challenge with which he came to us, but also to lead to the technological transformation of the entire organization.

## PoC: agile and constructive



We've been dealing with PoCs for a long time. Recently, more and more, because customers increasingly come to us not only with a specific project, that they want to implement with us, but also with the problem they have to solve.

**Why are more and more companies deciding to start developing their products with the PoC path?**



# 1

**Proof of Concept** regardless of the type of problem, size of the company and the industry, allows to test possible solutions in a short period of time and a low cost and see, if the ideas we already have, can be implemented in accordance with the adopted assumptions.

# 2

It allows medium and large companies to be more agile and more efficiently respond to changing market expectations, as well as to compete in this context with agile startups, e.g. in the context of implementing innovations based on the latest technologies. The **Proof of Concept** approach allows us to, based on low cost, test whether often expensive, new technology will contribute to the expected business value.

# PoC



is a way to test the idea and whether it is possible not only to implement it in accordance with the adopted assumptions, but also the effect we desire. It is based, among others, on a thorough analysis of the challenges the system is responding to, the processes it covers and the needs and expectations it has to meet.



# Challenge

One of the interesting PoC's projects we had the pleasure to implement, was a project carried out for the client, who asked us for substantive support in the approach to rewriting the ERP application created for over a dozen years.

**ERP was written in technology that ended its life and at some point and there was a risk of lack of necessary support.**

For the client it was a serious problem, because over time it would mean that there are no new security updates and that there is an increasing problem with finding specialists who can work in this technology.



# About POC, which began the technological transformation of the company

We started the project with an interview and workshops with the client. On this basis, an architectural outline of the new solution was created. By the way, we also identified the main technical problems, that had to be dealt with in the second approach to the system. They were:

- 1** Very poor quality code – the first system was written by very young people who worked under no supervision. The solution was “hung up” when servicing more than 50 people, and ultimately had to support several thousand users.
- 2** Implementation of the tool for new customers took two weeks. The system also failed to meet all the business requirements set before it.
- 3** The problem was also an unattractive visual side and weak UX. The small configurability of the system was significant.
- 4** The project was using libraries that were no longer supported. This caused unforeseen problems. Each change required participation of an external company, which meant that the client was dependent on the supplier, because only such external expert could make any changes in the system.

Based on the information collected, we designed and implemented PoC, which cost the client a total of 10 MD. The plan consisted the use of data structures and business logic hidden in hundreds of stored procedures.

The very architecture of the old solution was impressive, but the innovative and unusual approach at that time meant that the success of the combination of technologies was questionable.

The developed approach provided for the verification of hybrids between old and new technologies.

Creating a completely new system would take years, which was not an option from the point of view of the client.



## **We have been able to successfully complete the PoC**

We have managed to create a hybrid of the business logic from the old application together with a modern one – backend and frontend. The first project with which the customer originally came to us was frozen due to the scale of costs, but the second was based on PoC, which led to the technological transformation of the entire organization. How did this happen?



# POC = SUCCESS

# Solution

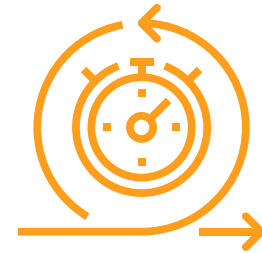
## Starting point

Initially, our client wanted to rewrite the system using the services created by the previous supplier. We were asked for technological and quality consulting and preparation of the initial valuation.

During the process, it quickly turned out that the existing supplier would not be able to cope with new challenges, and therefore an official tender was opened. We helped our client prepare materials and workshops, as a result of which another supplier was selected. Most potential suppliers have abandoned the project already at the workshop stage.

Why? Due to the complexity of the project, both from the technological and business side, lack of customer experience in this type of projects, lack of IT infrastructure and incomplete analysis of the topic.

It was time for our move. We estimated the subject, presented the first offer consistent with the client's assumptions and it turned out that the cost is too high for him.



## What did we suggest in this situation?

The client was not ready in terms of IT for such a large undertaking as rewriting the ERP system (software whose aim is to integrate all processes taking place in the organization). The scale of the project was enormous, and the client did not have appropriate competences or IT infrastructure. Such change, unfortunately, can not be done within a few weeks.

It also quickly turned out that ERP is not the only system that requires rescue – the customer's sales system, which was created for a year, and was developed by three more, even though created in newer technologies, also required resurrection.

Having all the necessary data, we decided that it would be best to start by reducing the scope, which meant implementing a different, smaller system, as well as switching to an agile work methodology and determining MVP, the smallest, functional version of the system that generates business value. As a result, the client will obtain the appropriate know-how in the modern production process of IT systems, and will use the acquired competences to create an ERP system. By agreeing new assumptions regarding the system and approaching the project flexibly – we could start our cooperation.



**Initially, we assumed a completely different approach to system revitalization. Thanks to the Proof of Concept we quickly learned that we need to change them dramatically if we want to achieve our goals while thinking about the budget we have.**

**Within just 10 days we not only found the answer to the challenge we had, but also prepared a plan thanks to which we could carry out this change**

IT Systems Development Manager, the representative of our client responsible for the project implementation

## New approach

During the project, our team worked side by side with the client's team. The goal was to transfer **know-how** when it comes to **the modern manufacturing process**. We also used **a partnership approach** - we wanted the client to be **self-sufficient**.

## New standards

We have introduced **development standards**, and we have conducted training for client's developers. We also organized **a common code review**.

## New work model

During this cooperation, we conducted workshops with **Scrum and Agile**, as well as analysis. We provided **design patterns**.

We have implemented **Continuous Integration, git, Gerrit, Jenkins** and have taught the customer's team how to use it.

## Permanent support

After six months of work, the client implemented the **MVP system** for production not only for himself, but also for one large customer. Is our work finished at this stage? No. **After implementation, we continued to develop the system and support its maintenance.**

## The effect of starting the project from PoC

It started with a one-man team and 10 MD. After two years from implementation point, the client already serves several beneficiaries of his system.

**The system was implemented in a shorter time than originally assumed and, more importantly, began to earn money for our client.**

An agile approach meant that we quickly dealt with changing requirements, adding large functionalities during the work that were not foreseen at the start of the project.

**As a result, we have provided a sufficient system for half of the original valuation of the complete system.**

We have also created an IT infrastructure at the client's, thanks to which the implementation of new projects is now much more efficient and easier. The client is not dependent on an external supplier. He alone can maintain the system thanks to the fact that we also trained his team.

**He chooses us for his development because he wants and does not have to.**



# PROOF OF CONCEPT

PROOF OF CONCEPT CASE STUDY





# POC

## - what to remember

Based on the experience, the client comes to us with some challenge, and we suggest to just start the project from PoC, because thanks to this we can:

- Examine this problem deeper
- Lower the costs to test possible outcomes and different solutions
- Limit the cost of the project, which will be created on this basis
- Eliminate possible problems and risks
- Increase work efficiency



## What is worth remembering when planning to use Proof of Concept to find answers to the challenges we face ourselves?



- ✔ It is worth determining what are **the unknowns** and what questions we want to know the answers to.
- ✔ The scope of works should be minimized. We do not want to create a large application. **We want to verify potential risks as little as possible.** At this stage, it is not worth spending resources on things that do not require verification.
- ✔ An important element during PoC is **an open head.** Answers that will give us early verification may not be the answers we like, but they will potentially save us the budget.
- ✔ When creating a PoC, the supplier must have **a high business awareness of his client.** He should know why and why PoC is created for. This will allow you to develop a better approach to the solution and notice abbreviations that would otherwise be unachievable.
- ✔ It's also worth checking if someone has solved this problem before. **It is worth drawing inspiration and knowledge from others.**



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