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Business-Software for People

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Which Project Approach is Right for your Project?

IMPLEMENTATION

PROJECT OBJECTIVES

PROJECT MANAGEMENT

HYBRID APPROACH AGILE INTERNAL RESOURCES

CORPORATE CULTURE

WATERFALL

BUDGET

TIME

COMMUNICATION

COSMO CONSULT

PREFACE

Dear readers,

Have you ever worked in a software project which was not successful? If so, then you are not alone. About 8 out of 10 people in projects share this with you.

This raises some questions: How can you do it better? And what does this have to do with water falling down or a pile of sweaty rugby players?

We have compared the two common project approach methods "waterfall" and "agile" and present you the mixed form often applied by COSMO CONSULT.
The also included self-test shows you what method is beneficial for your company or your project.

Have fun reading and implementing!

Yours sincerely, Lukas Schmid & Peter Burghardt

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WHY PROJECTS FAIL

Generally, projects fail due to simple things:

Unclear or not measurable objectives and expectations
- What is to be achieved?
- How do we measure feasibility?
- Which expectations exist (environments, legacy, changes that actually have nothing to do with the project)

Lack of willingness to change
- Fear of changes or of rationalising
- Little imagination for the new system or lack of abstraction ability
- Rebuilding the legacy system
- "Do we change ourselves or the system?"

Poor communication
- There is too little communication or communication is not target group-oriented
- Lack of a common project language (technically, not geographically)

> **!** IN OUR GUIDE
> **"7 SUCCESS FACTORS FOR CRM PROJECTS"**, YOU WILL FIND FURTHER TIPS AND TRICKS FOR SUCCESSFUL PROJECTS.

EXCURSUS: CHARACTERISTICS OF WATERFALL MODEL AND AGILE METHODS

The waterfall model
The waterfall model is a tried and tested process model that has its origins in the construction and production environment. It describes a strict sequence of the project phases:

ANALYSIS AND SPECIFICATIONS	IMPLEMENTATION	TEST	DELIVERY

Each phase is executed one after the other. Backwards steps or subsequent changes are therefore only possible with increased effort. Due to the mostly abstract requirements on software solutions, this method is therefore only possible to a limited extent or with appropriate adaptations for software projects.

Impact on the project team
There is an increased demand for coordination of the project parties in the analysis and specification phase. Implementation usually takes place with very little participation of the project customer / customer project team. An increased interaction in the entire project team takes place only after the implementation in the testing phase. The customer and the future users thus need to know and define their requirements already at the beginning of the project – without comprehensive knowledge about operating the final new application.

Disadvantages of the waterfall model in IT projects
The definition of the requirements at the beginning of the project challenges users to describe abstract processes without detailed knowledge about the operation of the software. The classic waterfall model is relatively inflexible when it comes to subsequent changes to requirements. Change requests which, in this model, are applied only in the test phase (rarely also already in the implementation phase) generate higher costs than in other process models. This model wrongfully gives the feeling of a "perceived" higher security in terms of budget and schedules, which, however, quickly run out of control when change requests occur at the latest.

Agile methods
The agile methods are relatively recent procedure models that have their origin in the product development of fast-moving markets. They follow the principle of minimising the time to market: i.e., going live or launching to the market as soon as possible with a minimum feature set / a minimum of necessary functions.

The implementation of change requests is possible with little effort due to the high degree of involvement of the project team in the actual implementation. Thus, an appropriate implementation of the requirements according to the target state is possible more quickly. Basically, the so-called "sprints" in agile project approaches are a series of very short waterfall projects with very limited content. However, agile approaches have the reputation of being unstructured or even chaotic.

Impact on the project team
The interaction with the project team is maintained over the entire duration of the project. The current implementation is presented in regular meetings and also the definition or detailing of other requirements is done there. The costs and efforts of internal resources are, therefore, distributed differently across the entire

project (from our experience) and slightly higher than in the waterfall model. In agile methods, the total number of requirements is defined only in the course of the project, which makes it necessary to let yourself in for a "perceived" uncertainty.

Phases or feature packages
Depending on the procedure model, we speak of phases or feature packages. The waterfall model is phase-oriented, agile methods speak of feature sets or packages.

Waterfall
▶ The time to market usually takes until the end of the project.
▶ Through small release cycles, however, the implementations can be handed over to the customer for (functional module) testing at an early stage.
▶ Mapping of entire areas or processes takes place only after the completion of a phase.
▶ There is a high risk that requirements change until the end of the project as the solution only becomes actually tangible for the user at a late point in time.
▶ The internal resource load is focused on the beginning and the end of the project.
▶ There is little integration of users in the development phase.

Agile
▶ The structure of the system usually takes the form of small releases which expand or deepen the functionalities step by step (for example, common in mobile phone apps which start with a small scope of functions and are then further expanded through updates).
▶ In theory, you can already publish first feature packages after 2 to 3 sprints.

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ARE AGILE METHODS TO BE UNDERSTOOD AS A MEANS OF SALVATION?

Many companies recognise that their previous project approach is not ideal, and are looking for new ways of project handling. In recent years, agile methods have become downright "means of salvation". It came as a big surprise that also agile projects have failed. Does agile not work either?

No, agile works and in many cases even better than the well-known waterfall method. But – and this is a capital "BUT" – like any methodology also agile methods must be adapted to your own company or even to the respective project and the customer.

A practical comparison: Buying a car, park assist system
Anyone who has ever bought a car knows the situation. The car dealer talks about amazing functions whose names you have never heard of and whose function you only understand superficially. Let's take a really simple example: the park assist system, shortly after its introduction a few years ago.

The car dealer says that the park assist system would certainly be a good extra because it is handy: The car parks itself, no dents, no more unpleasant wide distances from the pavement, etc. You might think to yourself that you have some problems with parking and this would make small parking spaces not so bad anymore. You order the car, get it delivered and then comes the big surprise: the park assist system does not even work for small parking spaces.

What happened? The requirement was actually defined clearly, the interpretation of the existing knowledge led to an unsatisfactory result.

Why did this happen? Because you did not have any experience with this new function and thus could not even ask the right questions.

This is also the problem with the waterfall model and the reason why so many IT projects fail: At the beginning of the project, you should define which functions you need and how these should be implemented – without having seen the system in detail or having worked with it.

The well-known communication problem between the sender and the receiver particularly frequently causes problems with the waterfall method since the receiver (customer) has little knowledge about the outcome of the project at the time of specification, only sees and can react to the result very late.

The waterfall model
A path specified from the beginning –
going back is possible only with great effort.

Agile methods
The procedure adapts to the situation –
the direct route is not necessarily the best.

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DIFFERENCES BETWEEN WATERFALL AND AGILE BUDGET ASPECT

"Perceived security" with the waterfall method

You are probably wondering: "If waterfall does not work, why is the method still being used?". The question is easily answered: Due to the perceived security, especially the perceived budget security.

If you define, write down and confirm everything with an acceptance at the beginning of the project, the scope of the project can be estimated pretty well and the costs can be compared with the intended investment budget.

Let's look at the practice:

Name 5 projects from your area which, after the construction of the Hoover Dam, were below or in line with the originally estimated budget. If you have personally experienced five or more projects (without googling) for which this holds true, then please stop reading immediately and continue to work with the waterfall method.

Generally, projects first exceed the budget. Either because they were not calculated correctly or because the scope was extended with new requirements in the form of change requests.

Please note: changes are almost inevitable. Projects are something new, unique and risky. This means that changes are in the nature of things and must be taken into account. This is where project management helps with corresponding methods and processes.

Let's look at a deeper level:

Why are there deviations from the plan?
Here are the best reasons in our top 5 ranking.

5. All the agreed project processes live for exactly one day after the kick-off, then there is everyday life again. Delays are not tragic, proactive work becomes the taboo word of the project and the original project plan adorns the wall only as a memorial of the "lost colleagues".

4. The project is managed from a hidden place, the most important key players do not receive the necessary time and the implementation partner compensates with best practices. The truth comes to light in a test phase at the latest.

3. The project objectives are defined poorly, from the lack of control develops a "make a wish" attitude with a nice amount of new ideas, comfort functions or isolated solutions.

2. "No problem – we are changing our processes" – sales really likes hearing this – but the reality looks much different. Specialist department quote: "But we cannot change our processes. Then we need 5 clicks more and need to hire another resource! We will do this the same way as before." or "But this has always been that way!?!"

1. The product was sold in the framework of the existing customer budget, the requirements of the specialist departments, however, require a much higher budget.

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"Perceived uncertainty" with agile methods

Agile methods radiate a perceived uncertainty. With these methods you do not specify everything at the beginning, but the requirements are specified and distributed over the duration of the project. By implication, this means for many people: "Oh my god, this is going to be a bottomless pit! How do we know how much this will cost?"

These concerns can be dispelled by explaining that agile does not mean that you do not think about the requirements at the beginning. Estimates and calculations are just as valid for agile projects as is the case with the waterfall method.

The probability that an agile project does not exceed the budget is higher than with a waterfall procedure.

This is due to the above-mentioned "perceived uncertainty", because the requirements are not defined and fixed at the beginning and because you see results from the development early.

Because you can make experiences with your system early on and get to know it, you can describe your requirements in a better way. The project work thus becomes more efficient and effective. The planned budget is used for the development of the known requirements and not for subsequent changes of already completed developments.

This advantage does not exist with the waterfall model, which is why, when the results become visible at the end, additional, often quite high costs arise to adapt the system to the "actual" and expected requirements.

DIFFERENCES WATERFALL AND AGILE – TIME ASPECT

Agile is not faster

We are often asked in the run-up to projects whether the project could be completed more quickly with an agile approach. Our answer to that is no.

> **PRACTICAL TIP**
>
> An agile approach is not faster, but you can see what you get more quickly.

With a waterfall model, it definitely takes longer in comparison until you can see what has been developed. First, some time is spent with analyses and afterwards development takes place. The result is available respectively later than in agile approaches.

With agile methods, you will see results after each sprint. Accordingly quickly can you react if a wrong path has been struck.
With a waterfall model, the wrong path has been struck for longer before you see the results. Going against this is thus expensive and time-consuming.

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**DIFFERENCES WATERFALL AND AGILE –
INTERNAL RESOURCES ASPECT**

Anyone who thinks that as a client you can rest assured and watch what happens with agile methods is wrong. In principle – this is what probably everybody with project experience knows – the cooperation of both project partners is mandatory for each project.

The waterfall model, however, suggests that you as the customer must invest less time and resources. The course of the resource load shows from experience that the resource load increases in the specification phase at the beginning and in the test phase at the end of the project.

Agile methods seem to be more time-consuming for the customer at first glance, at least, the continuous and intensive contact between the project partners is mentioned as an advantage . The activities of the requirements analysis and specification are more evenly distributed, which however, makes quite considerable resource provisioning on the part of the customer project staff permanently necessary. At the end of the day, the internal customer costs should not be higher with an agile approach than with the waterfall model but just more distributed.

PRACTICAL TIP

Dedicated project teams are a basic prerequisite for an agile approach. A sufficient availability of the project team must be ensured both on the part of the customer and the partner.

**DIFFERENCES WATERFALL AND AGILE –
CORPORATE CULTURE ASPECT**

The advantage of the agile methods is that the constant contact between the people working on the project promotes identification with the project. The cooperation in the project team even becomes more efficient and effective, the results are perceived as being more satisfactory.

What makes a real difference is the mindset necessary for agile methods.
One principle is: less managing, more leading. In order to introduce agile methods, e.g., scrum, in a company, a high level of confidence of the executives in their employees is essential since scrum teams, in principle, work self-organised. Accepting the "perceived uncertainty" requires confidence in the project partners and the method. If this confidence is present and you are not afraid to make mistakes, agile methods will work.

PRACTICAL TIP

Our experience is that an agile project approach poses a challenge both for the partner and the customer in terms of project organisation and corporate culture. Many of our customers lean more towards the waterfall model because they can plan the internal costs better and, if necessary, consider seasonal framework conditions.

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RECOMMENDATIONS FOR IMPLEMENTATION

Introducing something strictly following the textbook does not work. No matter in which sector and in which field of activity. You often hear of companies failing with the waterfall model and then introducing an agile method – often scrum – according to textbook. When the first projects go wrong again, the guilt is assigned to the method. As with any change and subsequent introduction of processes in a company, also the process of project handling must be adapted in accordance with the conditions in the company.

Especially when it comes to handling a project following an agile method as a consulting company, great care must be taken whether the customer is even ready for agility (see questionnaire). One imagines agility often easier than it actually is. Our experience has shown that many project partners are not yet ready for agile methods. This is often due to the fact that their expertise is in other sectors where agility in terms of software development is not necessary – e.g., you rarely build plants following an agile method.

For this reason, COSMO CONSULT has developed a hybrid approach largely compensating for the disadvantages of the waterfall model with the advantages of agile methods.

TRIED AND TESTED: HYBRID APPROACH OF COSMO CONSULT

In principle, the hybrid approach follows the waterfall model: analysis and design, followed by development and testing. At the end comes the roll-out of the system.
The difference of the hybrid approach to the waterfall model consists in the approach during the development and testing phase. The development is handled in so-called sprints with a duration of 2 to 4 weeks. The development results are presented at the end of each sprint and tested and accepted by the customer.
This means that the test phase takes place largely in parallel to the development. In the subsequent, final testing phase, only the so-called integration test is carried out which focuses on the integrative processes.
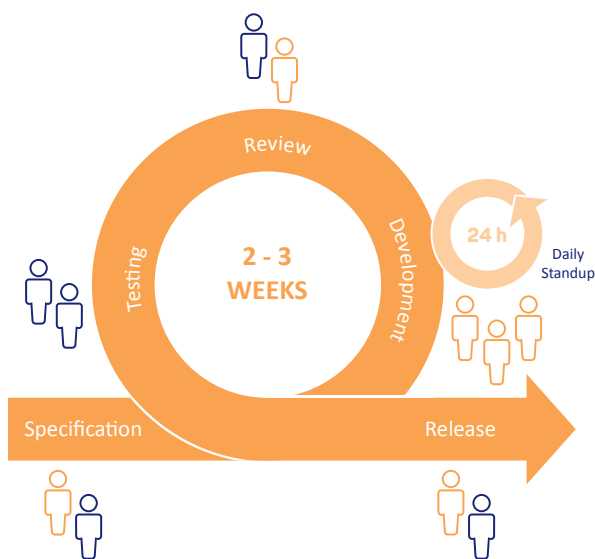
PRACTICAL TIP

With this hybrid procedure model thus the perceived uncertainty and the perceived security are translated into actual security.

Our recommendation: Think about the procedure in detail or include a partner or consultant who have the relevant know-how in this decision early on.

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SELF-TEST: WHICH METHOD IS RIGHT FOR YOUR COMPANY / YOUR PROJECT?

/1 My company ...
A. ...is strictly hierarchical. Official channels must always be observed, every decision needs a form with three copies and five signatures.
B. ...has hierarchical structures but staff is also entrusted individual responsibility. Decisions are made but there is also some discussion.
C. ...does not think long about decisions. We prefer to make errors quickly rather than thinking academically at length.

/2 Processes are ...
A. ... our most precious resource and determine our daily work. We are also not afraid to revise processes.
B. ... documented in my company but at best serve as well-intentioned proposals.
C. ...a complete foreign word for my company.

/3 Conception is ...
A. ... very important. We want to define everything at the beginning and then do not digress from our plan.
B. ... important, it is best to define as much as possible at the beginning of the project. However, deviating from the plan must be possible.
C. ... well and good but does not help a lot if you want to devise something unknown.

/4 We want to ...
A. ... say at the beginning what we want, and expect a solution from the contractor at the end.
B. ... be involved but cannot provide resources over the entire duration.
C. ... participate as much as possible in a project. Constant contact with the development partner is important to us.

/5 Results ...
A. ... will be okay – we are happy to be surprised.
B. ... we do not want to see them only at the end but we also do not want to see new results every two weeks, this is too much for us.
C. ... we want to see them as quickly as possible.

EVALUATION TABLE FOR THE SELF-TEST

Please tick off according to your response. The ideal project approach for your company arises from where you have most of the ticks.

As a project partner for our customers, we believe it is our responsibility to define the project approach appropriately with our customers, wherein we provide experience, processes, tools and methods. The choice between agile or waterfall is a fundamental decision which we will define together in the sales or project start phase.

QUESTION		ANSWER	
/1	A	B	C
/2	A	B	C
/3	A	B	C
/4	A	B	C
/5	A	B	C
Total			
Project approach	WATERFALL	HYBRID APPROACH	AGILE METHODS
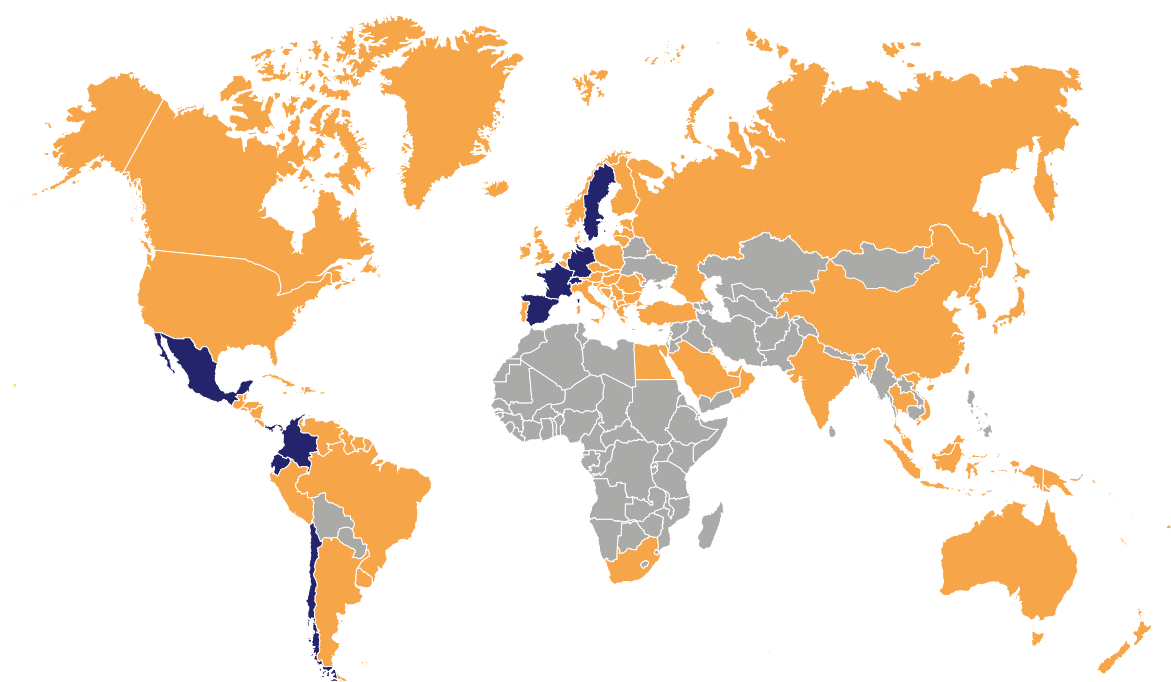
GERMANY | FRANCE | SPAIN | SWEDEN | SWITZERLAND | AUSTRIA
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