

ADVANTAGE –

BUDGET CONTROL IN

AGILE SOFTWARE PROJECTS

JOIN THE
REVOLUTION



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Dear Readers,

“Corporate IT is going to experience radical change” – that is the core message behind the concept of the New School of IT. You might wonder if there has ever been a time when IT development development stood still. Changes, radical transformations and paradigm shifts – triggered by new technologies – are a constant part of all our lives. Your current workspace has very little in common with a workspace from 2004 and virtually nothing in common with a workspace from 20 years ago. So what is so special about the current situation? Why do we describe the present developments with the drastic image of a “RevoluITon”?

Because this is the moment when three developments that were previously seen as separate have been united. Mobility, agility and elasticity have joined forces to change the rules for successful corporate IT. What does that mean for your company? Expensive software projects that take months to deliver results are not the right approach for your mobile applications, which require short development cycles. **Mobility drives agility.** The rapid and flexible development of software that is published weekly or daily cannot be held up by static IT infrastructure. **Agility drives elasticity.** Your systems must be able to handle 100,000 mobile users just as reliably as 100 users. **Elasticity allows mobility.**

These examples demonstrate that there are many connections; development is interdependent and drives further development. Such changes are like waves that meet and reinforce each other. The New School of IT shows you how trends look like, which interdependencies are typical and which instruments allow you to react perfectly.

However, we are not just facing a technical revolution. The New School of IT also means that the position of IT in companies is changing. Identifying connections, establishing new business processes and reaching new target groups: IT departments are being called on more often to provide the basis for such activities. Companies are becoming increasingly “digitised” and IT is freeing itself from the role of supporting specialist departments. It is going from being driven by new developments to driving them.

We want to guide you along this path, one we consider revolutionary. Please do not hesitate to contact me. Let’s discuss the effect that this developmental dynamic will have on your company and department.



Best regards, Prof Dr Volker Gruhn

P.S. I present the central themes of the New School of IT in four minutes at New-School-of-IT.de.

adVANTAGE – Budget control in agile software projects

1. Introduction

In software projects, a balance has to be struck between the conflicting interests of customers and contractors: while the customer expects to get as much as possible for the lowest possible price, the contractor wants to increase sales while limiting expenses and effort. The project brings the two parties together to pursue a common objective: to ensure the project's success. They have to find a way to align their interests.

Traditionally, software projects are billed at cost or at a fixed price. Fixed-price models are suitable for agile projects only to a limited degree. It tends to be difficult or impossible to determine all required specifications – which pricing will be based on – at the beginning of the project.

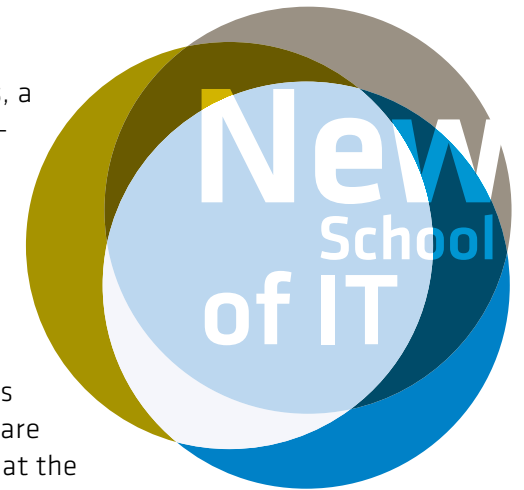
Appropriate billing models have to be found if companies want to benefit from the advantages of an agile approach in software development. You can read more about the benefits of agile software projects and their development in the white papers at www.New-School-of-IT.de.

With adVANTAGE, IT service provider adesso has developed an agile and value-oriented process model that combines flexible requirements management with suitable pricing and warranty services.

With adVANTAGE projects, a list of prioritised requirements is created jointly with the customer, which is addressed in individual sprints (fixed project phases lasting a few days or weeks, during which a new, functioning release is developed). The services are billed according to quality at the end of each sprint. If the contractor fails to realise the user stories (requirements for the solution to be developed) specified for a certain sprint within the framework of the jointly agreed target budget, the additional costs will be charged at reduced daily rates.

This pricing model ensures efficient development and helps avoid unnecessary expenditure.

In addition to mobility and elasticity, agility is one of the three major drivers in IT. The New School of IT outlines the trends individually, which correlations exist and how businesses and IT managers can address them.



2. Limitations of the cost and fixed price model

2.1. Billing at cost

The simplest way to outline a software project commercially is by billing it according to actual expenditure and material cost, or time and materials (T&M). This is a typical model in many industries, such as trade professions. A fixed daily or hourly rate is normally negotiated, which may be differentiated according to the activities performed. The actual time spent on those activities is recorded and the service billed accordingly.

This has an obvious advantage for contractors: the more work they perform, the more they earn. They will therefore always be open to making subsequent additions or modifications to the original project. This pricing model also meets key customer requirements because it offers a lot of flexibility. The scope of the services can be quickly adapted any time.

This type of contract is usually chosen if the customer does not want to, or cannot, obligate the contractor to adhere to a certain schedule, quality or budget framework. This may be the case if, for example, the customer wants to be in charge of personnel and work content, or when requirements are not sufficiently clear at the start of a project.

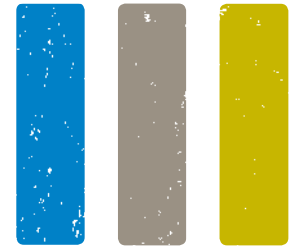
The disadvantage of the model: there is no fixed budget, meaning that costs can increase unexpectedly. Despite a lack of budget constraints, it is not guaranteed that the project will be completed on schedule as the contractor always benefits if the work continues. The customer tends to bear the greatest risk in this model.

2.2. The fixed price model

In the fixed price model, suppliers commit to competing the contractually agreed activity within a certain time and budget framework and to a certain quality standard. In return, they are guaranteed a fixed price. They are entitled to payment as long as they complete the work within the agreed budget, time and quality framework, regardless of whether their actual costs are above or below the agreed price. The customer's advantage in the fixed-price model is that costs can be reliably planned: there is a fixed budget and a clearly defined scope of services.

The model assumes that the customer's and the contractor's ideas about the content and scope of the project match. Ideally, detailed specifications are available at the beginning of the project. If requests to change the project are made, they are to be understood as a change of contract. Customers tend to select the fixed price model when they care more about completing a project within a certain time and budget framework than about flexibility. They assume that they have provided "complete specifications" and no changes, or only minor ones, have to be made during the project.

Such conditions are rarely met in reality. Even if comprehensive specifications exist, they are very rarely "complete". The ideas of those involved are often unclear and their range of experiences vary: "complete" specifications are an illusion.



The supposed sense of security is also an illusion. The risk is only seemingly transferred to the contractors. Because they have to manage the risk in an economically viable manner, they will charge a risk premium to be able to plan sensibly. The less clear the project specifications are, the higher the risk premium will be, meaning that the pricing model may turn out to be no cheaper than the other. The contractor will charge for additional or subsequent requirements, and the fixed price model's initial cost benefits can quickly vanish.

As actual projects always turn out to be a mixture between fixed price and T&M models in practice, it cannot be guaranteed that costs will not spiral out of control, even with a supposed fixed-price model.

The software industry is facing a dilemma: individual projects at a fixed price without detailed specifications represent an incalculable risk for contractors. In practice, it is clear that not all specifications can be defined in advance.

A lot of factors are in favour of agile methods where specifications are reduced to a minimum and rapidly deployable software is produced instead. And there has been a change in mentality among companies and service providers in that regard. There is no way around agility for companies that want to drive their business – which is increasingly driven by IT – because agile software development provides the basis to respond flexibly to changes. And it can spread from IT departments through the entire company.

3. Agile fixed price

The desire to combine the flexible opportunities for agile development and the budget security of the fixed price model led to the development of the agile fixed price model several years ago.

“Agile fixed price is a contract model for service providers and customers in IT projects that are carried out with agile methods. The model provides that the costs and timeframe will be set after an initial test phase, and that a procedure to manage the scope of the project within a fixed framework will be agreed.”¹

Unlike fixed price projects, the agile fixed price model uses a comprehensive, but not detailed, description of the contractually agreed objectives at the start of the project. Customers and contractors jointly estimate the scope of the required work and costs and agree on a non-binding budget based on that. After a test phase, both sides compare their findings with their original estimates and decide on the conditions of implementing the project.²

1. Definition quoted according to Wikipedia: https://de.wikipedia.org/wiki/Agiler_Festpreis (accessed on 28 February 2014). On this topic, see also Michael Hönning: Agile and fixed price: contradiction or perfect pairing? Presentation at the chapter meeting of the PMIFC Hamburg Local Group on 13 January 2012; <http://www.pmifc.de/PDF/2012-02-20.AgileFestpreisprojekte.pdf>; see also: Andreas Opelt, Boris Gloger, Wolfgang Pfarl and Ralf Mittermayr: The agile fixed price. Guidelines for truly successful IT project contracts. Hanser Verlag, 2012

2. See https://de.wikipedia.org/wiki/Agiler_Festpreis (accessed on 28 February 2014)

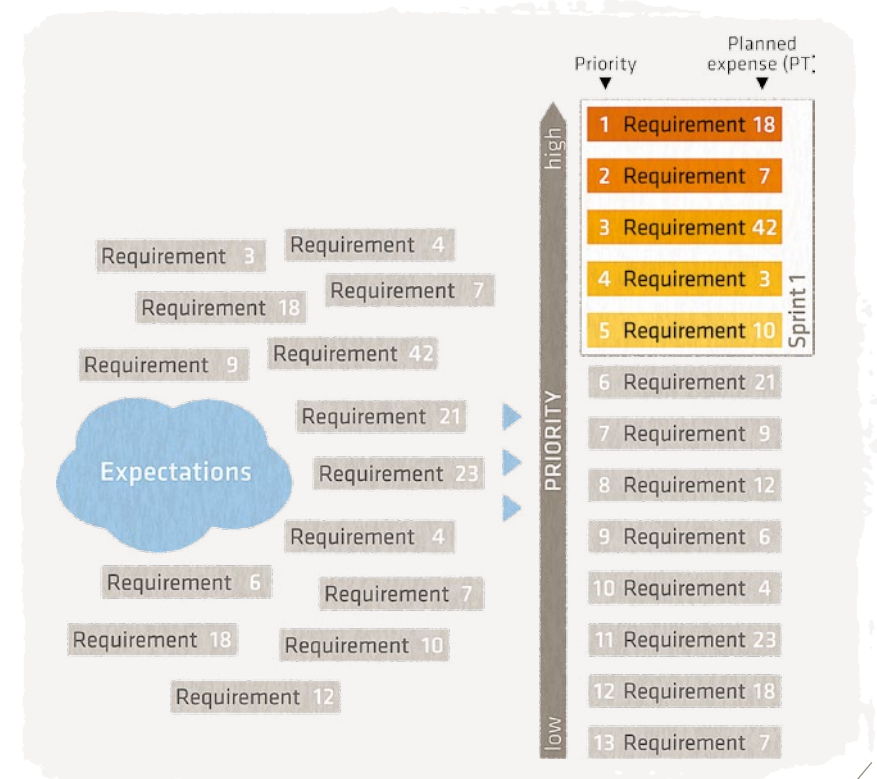
Although this approach is going in the right direction because it highlights the importance of a practicable billing model for agile projects, the term “agile fixed price” nevertheless remains a paradox: agile is not fixed, and fixed is not agile. There is the risk that the term creates unrealistic expectations. Software developers as well as customers will have to distance themselves from the idea that it is possible to implement such a project without taking any risks.

4. The adVANTAGE model

With adVANTAGE, adesso has developed an agile and value-based process model that combines flexible requirements management and project implementation with a pricing model that is related to fixed pricing. adVANTAGE is a reliably predictable and transparent model for companies that want to implement software projects flexibly – as in an agile approach – and still have efficient budget control.

Based on this model, customers receive exactly the software that meets their needs because they can get actively involved in the process any time, not only during the specification phase. At the same time, both customer and contractor have a clear idea of the progress, performance and development costs throughout the entire development process.

The agile process models are essentially based on the Agile Manifesto. The ideas in this are not exclusive but relative: “Individuals and interactions over processes and tools” does not mean that processes and tools should be done away with entirely, but that individuals and their inactions are more important. This agile approach results in a model of cooperation in which opportunities and risks between client and contractor are better distributed than in other models..



Turning requirements into priorities

4.1. Key aspects of the adVANTAGE model

A simplified adVANTAGE model project sequence looks like this:

At the start of the project, a prioritised list of requirements to be addressed in individual sprints is drawn up with the customer. Billing takes place at the end of each sprint and only for those applications that were successfully completed and accepted. If the contractor did not meet the requirements for the sprint within the agreed budget framework, the additional costs will be billed at a lower daily rate. This pricing model ensures efficient development. In addition, the risk premium that is normal in fixed price projects is not necessary. It is also possible to integrate new requirements in the project without initiating a costly change request process or having to accept excessive costs.

Sprint 1	Planned/ Actual	Acceptance	Billing
1 Requirement	18	20	✓ Actual costs two days over schedule => 18 × Daily rate + 2 × Reduced daily rates
2 Requirement	7	7	✗ No calculation => Moved to second sprint
3 Requirement	42	42	✓ 42 × Daily rate
4 Requirement	3	3	✓ 3 × Daily rate
5 Requirement	10	8	✓ Two days ahead of schedule => 10 × Daily rate

Billing at the end of a sprint.

4.2. Requirements

The adVANTAGE model's methodology is based on the principles of agile software development. More information about the methodology, roles and processes is available in the white papers at www.New-School-of-IT.de.

To apply adVANTAGE, the following conditions need to be met:

- ▶ The customer does not supply complete specifications.
- ▶ The customer has articulated his/her ideas, however, and can clearly describe what they expect of the new system.
- ▶ Individual requirements can be generated and estimated from these expectations. Requests should require 5 to 20 working days by one person, otherwise they cannot be implemented in a sprint and are more difficult to define.
- ▶ Overall, a minimum of about 100 work days by one person are required, as efficiency tends to improve with each sprint in agile projects and the project cannot otherwise benefit from increased efficiency.
- ▶ Customer and contractor are willing to share opportunities and risks to a certain degree.
- ▶ The customer appoints a technical expert to the project, who is always available and authorised to make decisions.
- ▶ It is crucial that the service provider has sufficient knowledge about the context of the application. Otherwise, estimates are uncertain. The service provider also has to be able to compensate for missing specifications in terms of the software technology and technical accuracy.

If these conditions are met, the model can be a valid alternative to traditional contracts.

adesso AG has already been applying the adVANTAGE model successfully since 2011 in a number of projects.

4.3. Conditions

The adVANTAGE model needs – like any other project – a contractual basis. The following criteria should be considered when drawing up the contract:

- ▶ The daily rates and how they are derived should be explained.
- ▶ If errors are found after completion, they are addressed in the next sprint. The daily rate is calculated with regard to the total of the relevant user story.
- ▶ Warranty obligations also exist in the adVANTAGE model. It should be specified that the warranty only takes effect after the project is completed.
- ▶ Invoicing takes place after each sprint.
- ▶ The customer can end the project after each sprint, for example if less important user stories are no longer required.
- ▶ The customer should be committed to making an expert available at any time.

4.4. Benefits of the adVANTAGE model

The basic feature of this approach is that customer and contractor work together, which is not limited to identifying requirements or signing the service level agreement, but continues throughout the entire process. This model places more demands on the customer than a fixed price model. In return, the client can check on the project and influence it anytime.

When combining the adVANTAGE model described here with agile development, customers benefit from a pragmatic approach while project results can be applied quickly. The advantage for contractors is that they do not have to bear the risks alone, as is the case with the fixed price model, and that they can always communicate changes and their impact on the budget transparently.

The advantages can be summarised as follows:

- ▶ Fast availability of a first version of the application
- ▶ High flexibility during the entire development process
- ▶ Budget control even in agile projects
- ▶ Timely information on quality, timeframe and cost of application
- ▶ Customers have more influence on the result.
- ▶ Contractors take on responsibility while requirements remain flexible

THE AUTHOR

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5. Conclusion

Two aspects should not be overlooked when developing software: efficient software development that creates suitable solutions quickly and within the budget framework is a crucial competitive advantage, independent of the sector or the size of the company. But software development is also always a risk. It is complex, and tasks and requirements are changing dynamically. In addition, customers and contractors naturally have different interests. For a project to be successful under these circumstances, processes for both aspects have to be developed: on the one hand, an agile approach, and on the other, a billing model that spreads risk – such as the adVANTAGE model.

As part of this, it has to be clarified that suppliers of custom software will in future have to take on more risk. It is becoming increasingly rare that customers will grant them full “insurance” should a project fail or costs exceed the budget. But customers also have to realise that they pay for the hidden risks in “fully insured” projects and that spreading risk transparently may be more beneficial. Of course, both sides have to work on balancing risks and interests, for which the adVANTAGE model provides a formalised framework.

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We prepared further topics related
to the New School of IT here:

www.New-School-of-IT.de/downloads



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