

CREATING SPACE FOR DEVELOPMENTS –

SOFTWARE PROJECTS

IN THE INTERACTION ROOM

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 “RevoluTon”?

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.

Creating space for developments – software projects in the Interaction Room

1. Introduction

Not all software projects can meet set expectations: They don't meet their time or budget targets and there are functional deviations from the requirements. The reasons are firstly the complexity of the tasks and technologies, and insufficient communication from the involved specialists and IT experts. It often happens that only after lengthy work on a project, it turns out that both sides were at cross-purposes from the start. Changing the direction of a project later on is difficult.

Software developers have always created procedures for better management of requirements and specifications. On the one hand, plan-oriented models and approaches have established themselves. They are based on the assumption that specifications are largely complete at the start of a project and subsequent requirements are to be avoided. This leads to an inflexible development process. On the other hand, agile models have become very popular in recent times; they are flexible and can yield results quickly, but have the reputation of lacking many project standards such as clear documentation.

IT departments should not view these approaches too academically. They have to face the realities of a specific development task and generate results on time and stick to the budget. Among those realities is the fact that some requirements will only become apparent during the project and will have to be considered. Other requirements

turn out to be superfluous. Apart from the objective of flexible software development, companies have general requirements regarding their ability to plan a project: They need reliable information on delivery dates, functions and budgets. It is unlikely that the management would otherwise support a project.

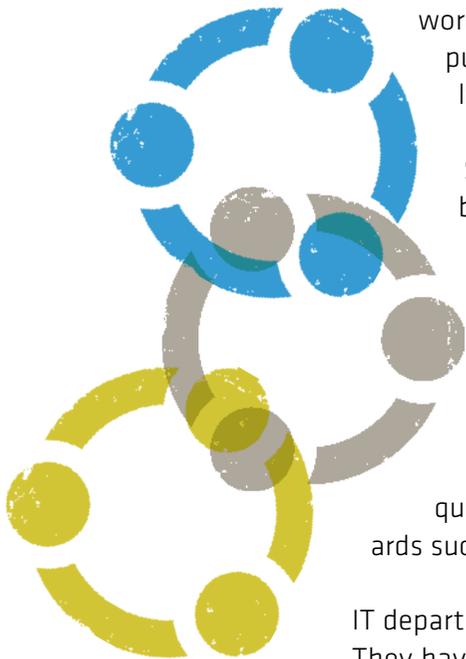
Companies have to find out to what degree of incompleteness they can accept and to what degree they can work with changing objectives. The aim is to combine the advantages of agile software development with security when it comes to planning processes. Agility has to be tamed so that it can achieve its full effect.

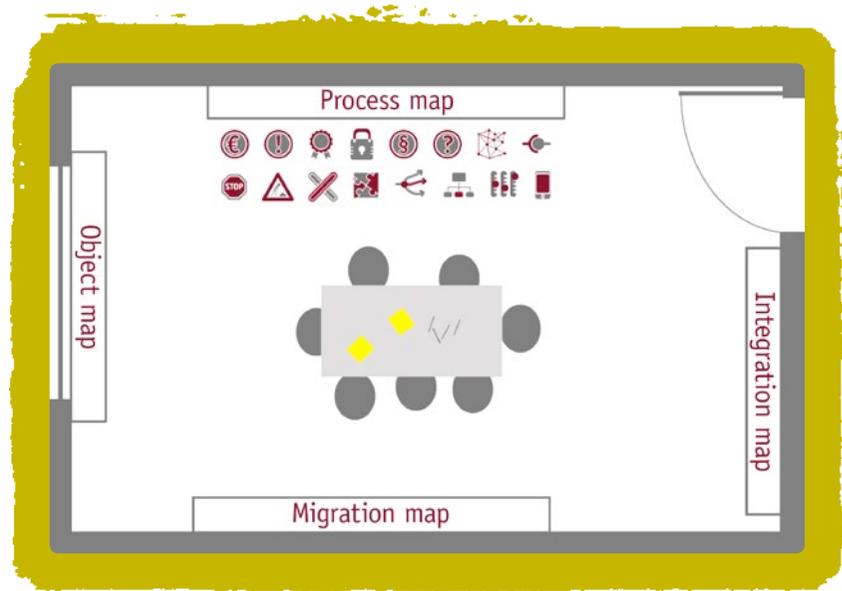
2. The Interaction Room

The existing software process models – both plan-oriented as well as agile models – indeed lay down an organisational framework for the project's course, but they do not help interdisciplinary teams to get to grips with the content matter of the system being developed.

Companies and project managers, IT and specialist departments have to throw traditional ideas of projects, communication and meeting culture overboard if they want to be able to continue to develop successful software in an increasingly challenging environment.

This is exactly why adesso AG and paluno – The Ruhr Institute for Software Technology at the University of Duisburg-Essen – have developed the “Interaction Room”.





The Interaction Room: A real, walk-in space

2.1. Basic concept

The Interaction Room is not a virtual room, but a real, walk-in space. It functions as an organised communication platform for all those involved in a project.

The Interaction Room serves several purposes:

- ▶ the focus on mission-critical aspects
- ▶ identification and elimination of risks associated with intuitive visualisation methods at an early stage
- ▶ improving teamwork and the establishment of joint project responsibility between the IT and specialist departments.

The Interaction Room makes the relationships between processes, data and the application environment transparent and creates the basis for efficient decision-making processes. It is a method which steers the interest of those involved towards the project's progress and contributes to ensuring that all participants continuously work on the vision of the software that is being developed. The Interaction Room is not a theoretical concept, but has proven itself in the business environment, as can be seen in successful projects in which the Interaction Room has already been used effectively.

The approach is quite different to a conventional procedure in which the project participants would collate all the requirements in workshops, the project manager would decide on the next course of action based on this and finally delegate assignments so that the project can be implemented. The more complex a task is, the more difficult it is to plan and conduct a project from start to finish without disruptions. This means a great deal of coordination is required: there is a risk that decisive issues are only detected at a late stage.

2.2. Structure of the Interaction Room

The Interaction Room can be accessed by the project team at all times throughout the duration of the project.

2.2.1. Furnishings

The room's furnishings can be rearranged as required – the idea is not that the participants should just sit opposite each other in a typical conference fashion, but be able to move around the room and engage in discussions. Moreover, they are encouraged to work with walls and “maps”.

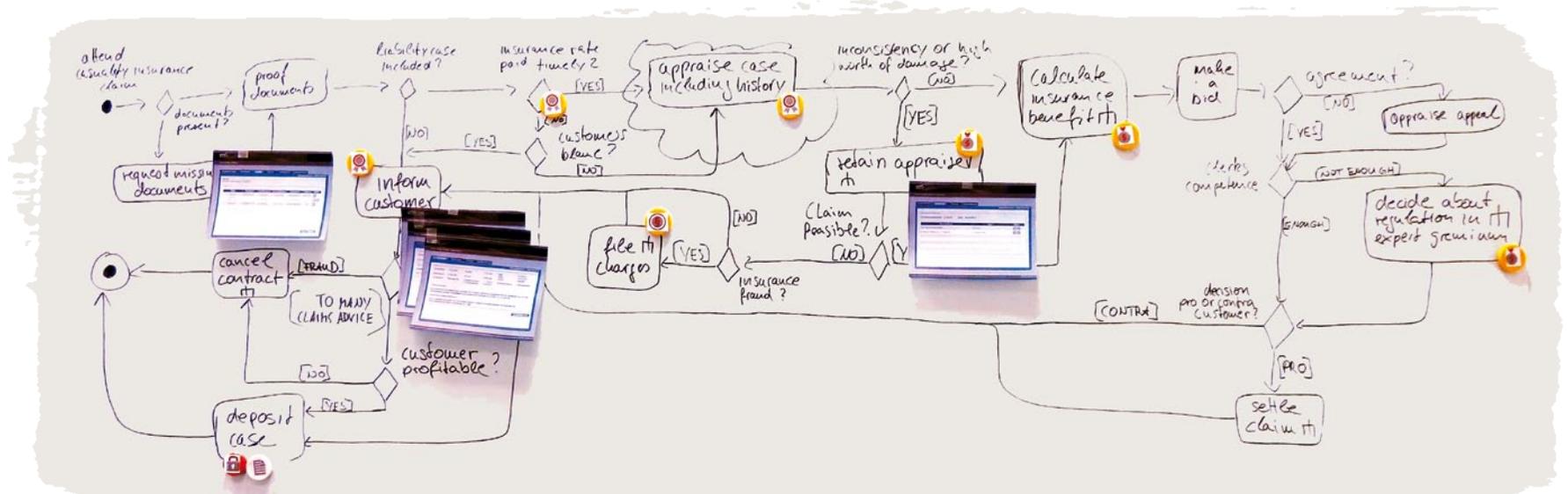
2.2.2. Walls and maps

The four walls of the Interaction Room play a central role in structuring communication. They are used to visualise processes and present project details, and help to identify problems. The basic components of the Interaction Room include “maps” – wipeable whiteboards – attached to each of the four walls. The models that are developed on the maps bring the critical aspects of a system into perspective at a glance.

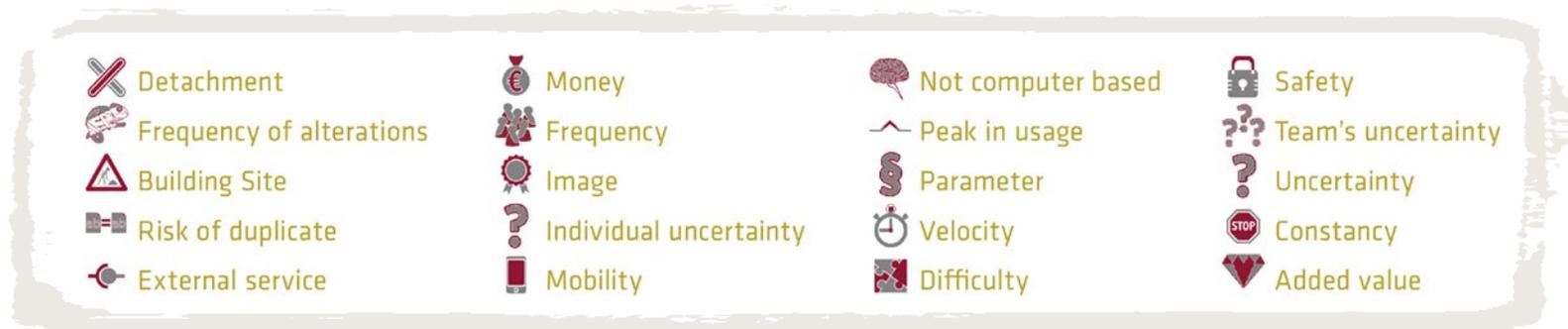
The following thematic maps have been proven in practice:

- ▶ The **process map** illustrates the procedures that need to be implemented in the technical domain
- ▶ The **object map** illustrates the relationships between specialist and technical data structures
- ▶ The backlog and project progress are documented on the **status wall**
- ▶ The **integration map** illustrates the interfaces and dependencies of surrounding systems

The Interaction Room participants use the maps to model processes, record information and visualise the project status.



Processes are visualised on the whiteboards.



Annotations are used to highlight important points

2.2.3. Annotations

Annotations are used to highlight important points and enhance the focus of discussions. These symbolise factors relating to value, quality, complexity, integration and uncertainty. These annotations consist of groups of predefined symbols, which are affixed on the maps in the course of the discussion.

The symbols are standard features of the Interaction Room and are available to the team prior to the start of the project.

2.3. Teams

In the Interaction Room, an interdisciplinary team of specialists and IT experts works together under the guidance of a moderator. All of those who need to understand the project and all who can explain the individual aspects – specialists and IT experts, project managers and client representatives – should be invited to the Interaction Room.

In a series of voting rounds, the teams come up with joint solutions for the key themes and issues of the project. The participants visualise this by assigning symbols to the individual aspects of the project.

The Interaction Room is a tool that enables specialists and IT experts to communicate better with one another by presenting processes in a way which does not solely focus on the IT aspect. This allows the representatives from the specialist departments to be able to contribute to the discussions.

2.4. Models

The Interaction Room was inspired by methods such as Scrum – an iterative model of software development – and DevOps, a concept based on the joint responsibility of development and operations.

However, the Interaction Room can generally be used independently of a single concrete process model. It is suitable for agile models from the Scrum environment. Updating cost analyses and continuously having to follow up budgets limit agility. This tool provides a reliable commercial framework within which those responsible can organise software projects in a company.

2.5. Principles

To ensure that cooperation in the Interaction Room goes smoothly, all participants need to be aware of certain principles in advance.

- ▶ Abstraction: Unlike digital documents, walls are finite. This forces participants to concentrate on the essentials – a deliberate effect of the Interaction Room. The method of recording no more than 15 process models each with a maximum of 15 activities on the process wall has been proven to work. This helps the participants to mask out details that tie up unnecessary resources.
- ▶ Value orientation: The crucial question is how the Interaction Room members can identify the essential and critical parts of the software system in the making. In practice, project participants tend to devote too much time and resources to simple contexts that they quickly comprehend. For example, they will provide detailed models about the persons involved, but pay too little attention to modelling key business processes. The Interaction Room's answer to this is the so-called “value annotation” of process and object models, which are visualised using appropriate symbols.

In various rounds, the participants attach annotations – in the form of symbol stickers – to the process model. Each participant can use as many symbols as he or she likes in a single round. At the end of a round, the team discusses the results. Where there appears to be a great deal of controversy, the vote is delegated to so-called breakout sessions. Here, the team members can draw up detailed concepts and discuss individual requirements.

In a final round, each participant makes an assessment as to which subject areas – represented as activities of process models – the Interaction Room team members have insufficient detailed knowledge of by marking the corresponding activities with symbols. They subsequently work out which measures are required to compensate for these deficits (such as bringing in additional experts or looking at solutions in current business processes or applications in detail).

- ▶ Inconsistency: An important company-wide IT project should not become an IT-dominated event in which the specialist departments are underrepresented. When describing process models – a field that IT experts generally have a lead in – the Interaction Room deliberately refrains from prescribing the syntax, so that all participants focus on the specialist content. In consultation with the Interaction Room moderator, the participants use whatever makes sense to them, accepting any possible syntactic inconsistencies in the process.
- ▶ Uncertainty: During the early stages of software development, not all specialist contexts are known in equal measure or are clear to all; there may be controversy about a number of issues. To determine which contexts have not been communicated, all participants of the Interaction Room are required to mark critical issues with the “uncertainty” symbol following the introductory discussion. In this way, they can highlight the areas in which additional knowledge is required.

3. The Interaction Room in practice

3.1. The Interaction Room at Barmenia

The introduction of SEPA meant that the insurance group Barmenia has been faced with the task of adapting its software systems. From account information to authorisation of standing orders and management of customer data, SEPA has changed how financial transactions are performed. Almost every department of the company has been affected by the changes.

The participants decided to employ the Interaction Room as a project tool to make this major project manageable for the team members and management, as well as to reveal interrelated areas and visualise decision-making tools.



The Interaction Room in practice: The teams meet regularly to discuss and coordinate the project.

Step by step, the team members modelled the new business processes on the maps and walls of the Interaction Room. With the help of annotations, or value symbols, the project team systemised and assessed the processes recorded; each participant affixed as many symbol stickers as they wanted to the process model, and the results were subsequently discussed. If opinions differed on various points, the vote was delegated to so-called breakout sessions. As the project progressed, it became clear which elements of the entire SEPA process were not considered critical and which required more thorough scrutiny.

Thanks to the possibilities that the Interaction Room offers, the whole SEPA project was implemented in four steps:

1. Collating the SEPA requirements
2. Recording the Barmenia business processes
3. Mapping the SEPA requirements with the process activities
4. Prioritising the processes

Step 2 illustrates the benefits of the Interaction Room approach. The vast majority of team members involved in this part of the project possessed extensive process knowledge, but had no or little experience in modelling business processes. To be able to harness the existing knowledge, the Interaction Room dispenses with extensive methodological ballast. All participants can apply their knowledge of business processes and their importance for SEPA intuitively with the help of annotations.

A survey among the IT experts and specialists at the end of the project showed that the Interaction Room's design and the instruments it offers made a significant contribution to implementing the SEPA project. In particular, the structure of the room and pragmatic approach won over the participants. Flip charts, diagrams and symbols, and the almost complete absence of overly formal project modelling ensured that all participants were able to contribute their expertise to the project.

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1997 and is now the Chairman
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“In the Interaction Room, the crucial aspects of a project are identified quickly,” explained Kai Völker, who heads the central IT service management department at Barmenia. “The participants literally see at a glance where more effort needs to be invested and how the overall project is developing.”

3.2. The Interaction Room in mobile projects

The Interaction Room is an open, visual and communication-oriented tool for project work, which makes it ideally suited to the requirements for the development of mobile applications. These types of applications can only be described and developed to a limited extent using conventional tools for three reasons:

1. The project team has to deal with mobility-related topics such as interaction, gestures, and voice control.
2. Usability plays a crucial role in the success of the application.
3. Mobile applications are often complex solutions with high integration requirements.

These specific factors are taken into account when the Interaction Room is set up by only using suitable abstractions and symbols that stem from the line of thinking of the specialist department. Examples of this are:



Gesture control:

This annotation identifies processes in which special attention needs to be paid to the input method. This can apply to both standard and advanced gestures.



Usability:

This annotation is used to identify particularly complex dialogues. This can apply to the presentation of extensive information on different devices in different situations, for example.

Additional mobile topics are reflected in corresponding symbols, such as offline availability or the locality of data.

A whole set of annotations deals with the topic of integration, which is so important for mobile applications. An example is the “External service” annotation, whereby data or functions for the system stem from an external source. Or the “Replace” symbol, which is used to identify parts of a system that shall no longer exist in that particular form in the future.

This visual approach ensures that all participants have fast access to explicitly mobile topics, too.

In addition, the “wall concept” of the Interaction Room can be used for mobile topics. For example, Barmenia used an interaction map when developing the so-called “Life Checker App”. In typical Interaction Room style, easily comprehensible graphics and drawings were used on the map to outline the interaction between the user and the app. These sketches served as the template for the application that was subsequently developed.

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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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