

Systems' lecture
October 2005

user interface is the
USP of tomorrow's software

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quote

“You know you have achieved perfection in design, not when you have nothing more to add, but when you have nothing more to take away.”

—Antoine de Saint-Exupery

We like this quote because it shows the goal of an interaction architect in a software project: in a world, where software applications always offer more features, it is the job of the interaction architect to minimise the complexity of the application for the user.

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m+mi works has evaluated the latest version of the presentation module “Impress” of the Open Source Office-Suite “OpenOffice.org” and used user interaction methods to create a new, user-friendly re-design. In this lecture we will illustrate the user interaction principles with examples taken from this project.

OpenOffice.org Impress 2.0

Impress is comparable to Powerpoint, because two big goals of Impress 2.0 are to offer the same functionality as Powerpoint and a familiar user interface for Microsoft users.

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“We provide concept and structure for the user interaction of software. Methodically we investigate the interaction that optimally realises your project goals.”

In a software project we harmonise the needs of the product and development management and the needs of the user.

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interaction architecture process

consensus building



user scenarios



evaluation



analysis



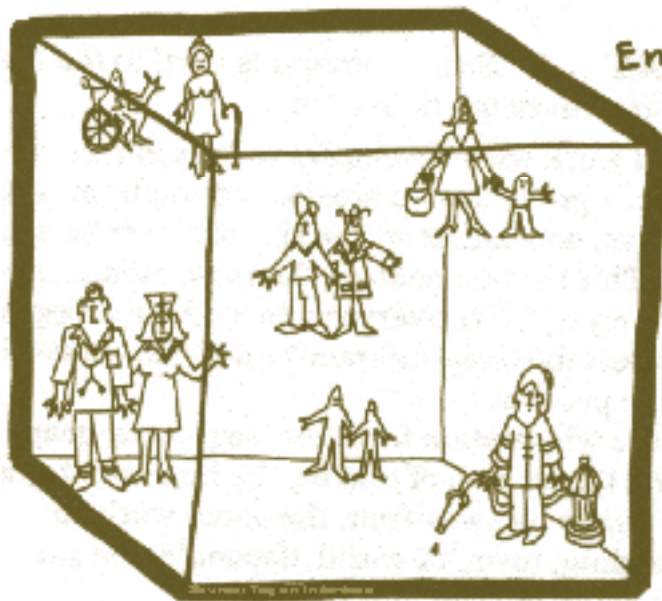
solutions model

After building consensus around the product vision, we work with the team to develop the user scenarios. Next follows a complete evaluation of the software, prototypes or design ideas together with the team, driven by our user scenarios. We apply our analysis methods to construct the solutions model that best realises the project goals.

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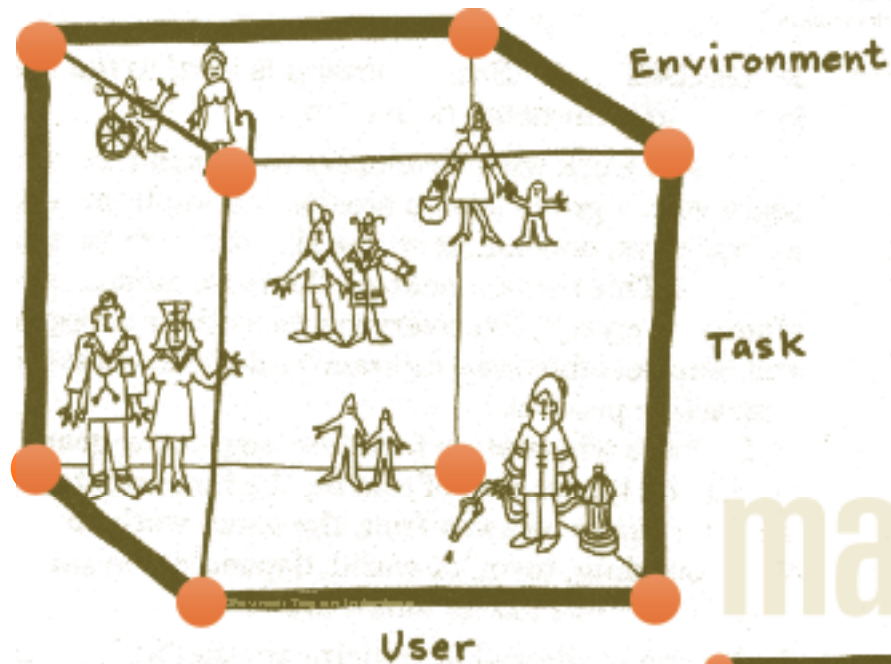
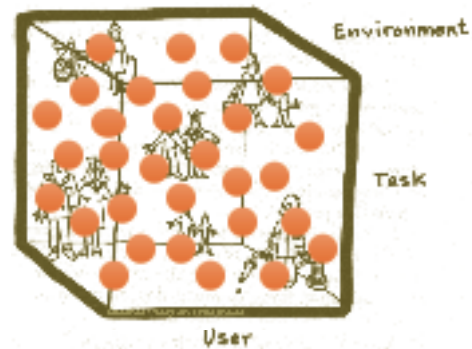
method: user scenarios

User scenarios are used to measure the user space. The user space describes how the software is used by the different users. There is no average user.



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How are user scenarios developed? Do we create as many variants as possible? No... As a result we would then get a "nice collection," but not a powerful design tool.



In the development of user scenarios we systematically define the corners of the user space with the help of the product definition; i.e. we gradually simplify or extend them until we step outside the product definition.

We can also develop user scenarios that are located in the middle of the user space. However, if these are simply an interpolation of the other user scenarios, they should be left out.



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User scenarios save time in each phase of the design process. Throughout the evaluation, user scenarios tell us what to evaluate. In the analysis they set the goals that need to be reached. And by the development of solutions they put an end to long discussions. User scenarios are facts and thus, more meaningful than the personal opinion of any team member.

in action

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Like Powerpoint, Impress delivers an unwieldy amount of functionality. However, we only needed 7 user scenarios to carry out this project.

Impress: 7 user scenarios

Scenario 1, 10 slides in 15 minutes:

- new presentation from Template
- insert slides and select 2–4 of the simplest text layouts
- insert and structure text (step by step)
- optionally: notes for presentation
- publish the presentation as PDF

On the left we have illustrated the simplest (but also most important) user scenario. In order for the user scenarios to be the common communication basis for all the team members, they should be compact and written in a clear, non-formal language.

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UI architecture principles

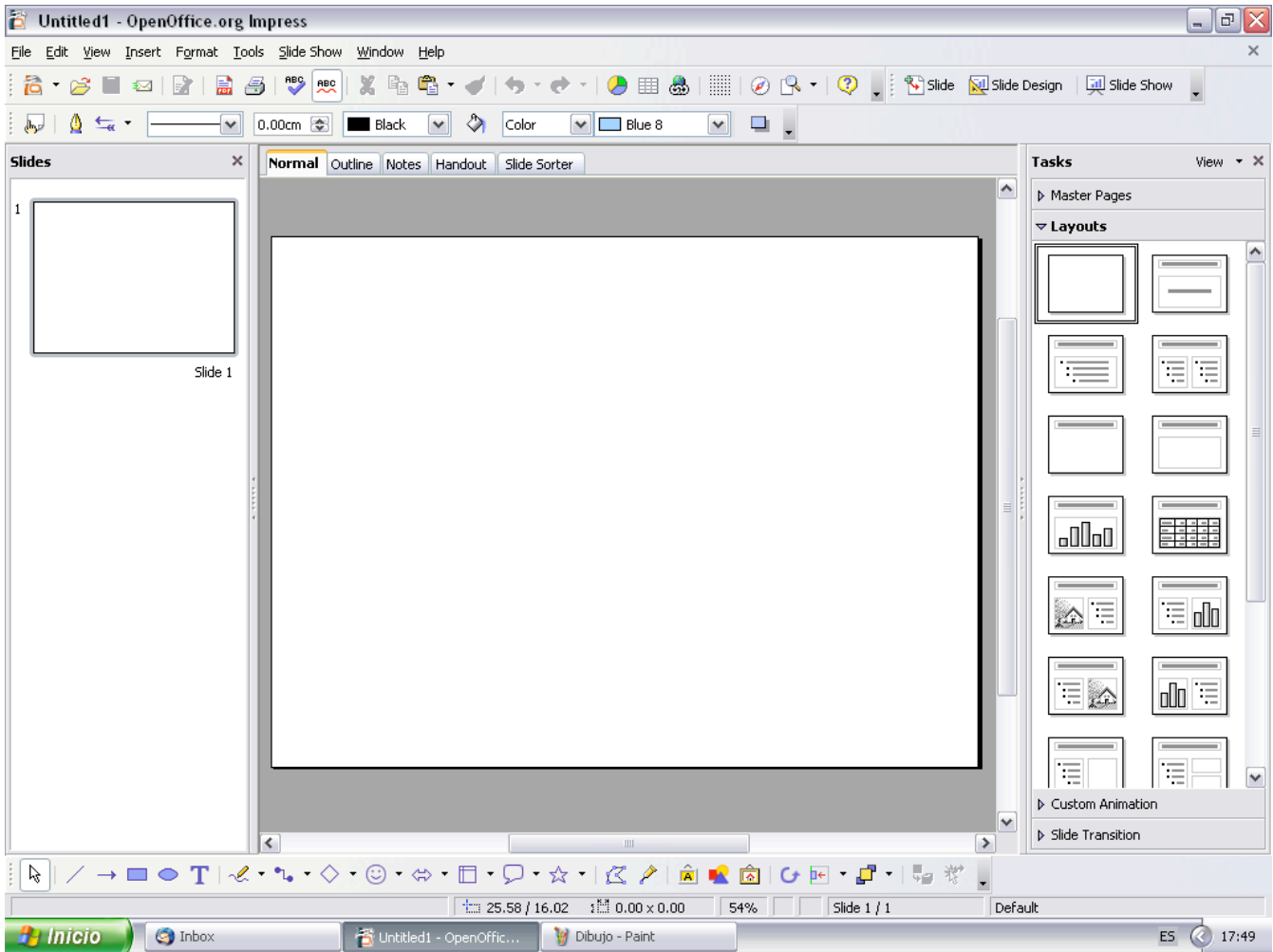
- 1** natural working environment
- 2** make it direct
- 3** high interaction density, but calm layouts
- 4** prioritise functionality
- 5** optimise user productivity
- 6** trim complexity

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natural working environment

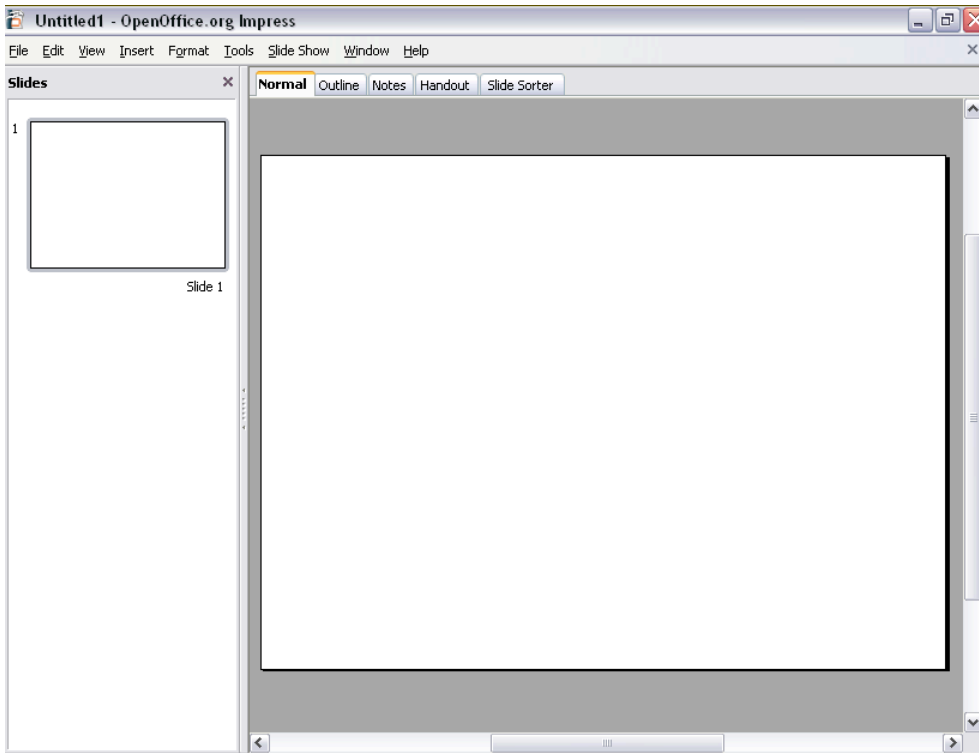
What is a natural working environment?
A motorway is a natural working environment
to drive with a car from A to B. There is
no distraction, no side street.





6 out of 7 user scenarios show that for the user the work with Impress consists mainly of working on the slides. During the evaluation the following became clear: since the surrounding area of the slide appears very hectic, it is distracting and makes it very difficult for the user to concentrate on the slide.

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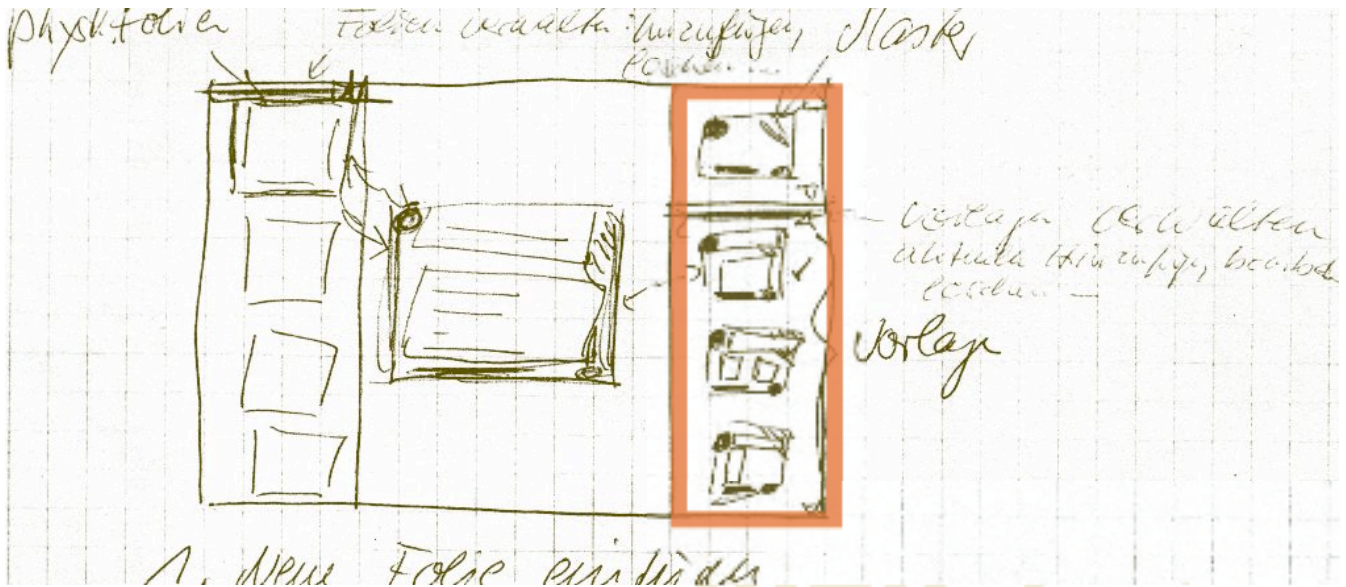


If we cut away the surrounding area, the interface becomes significantly calmer. In this way the user can concentrate on the slide without distraction.

Of course we now need to make available the functionality to edit the slides.

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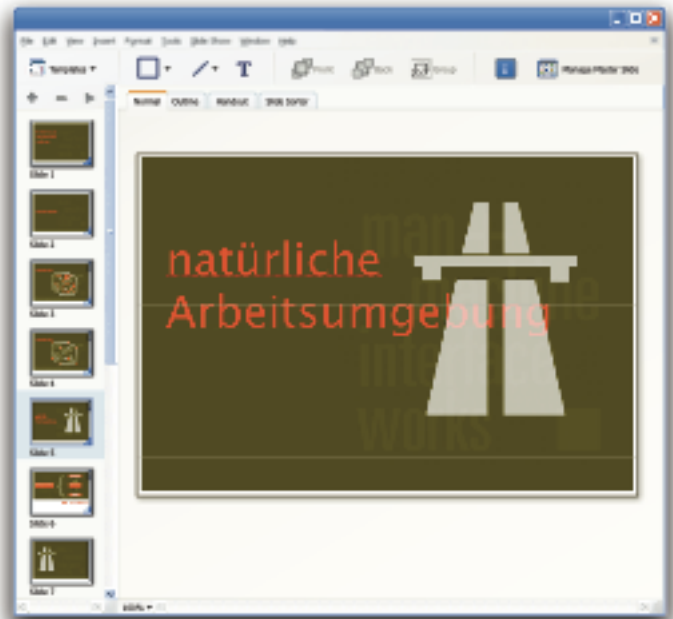
During the design process and the analysis of the user scenarios, we realised that a template from the actual template section of the Impress is only selected occasionally.



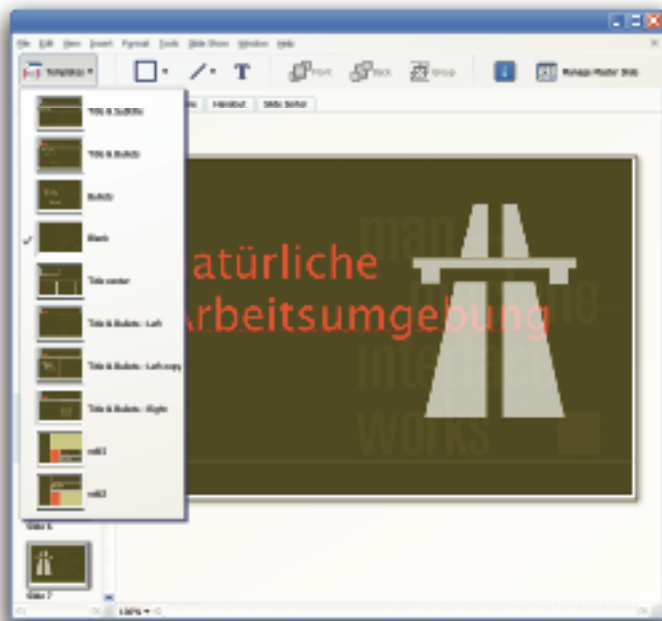
design process

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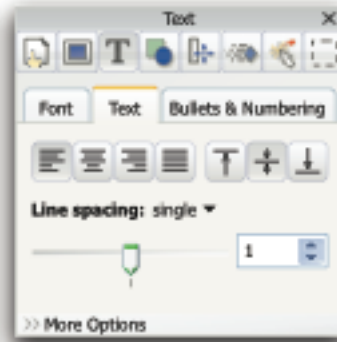
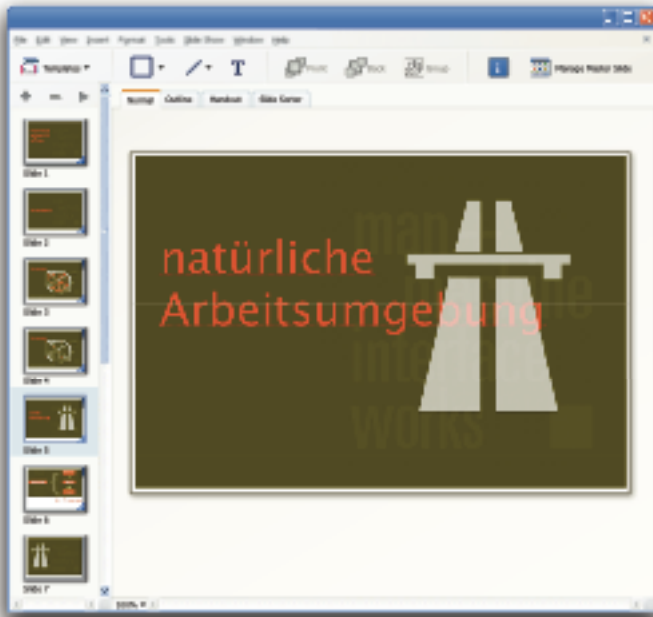
As the starting point for our design we used the ideal, simple working environment.



The selection of templates is direct via a menu.



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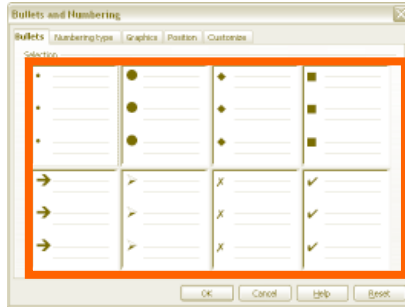


An inspector serves as a modern solution to offer a multitude of functionality in an immediate way.

Thus, keeping the same amount of functionality and observing windows' look+ feel, we met principle nr. 1:

natural working environment.

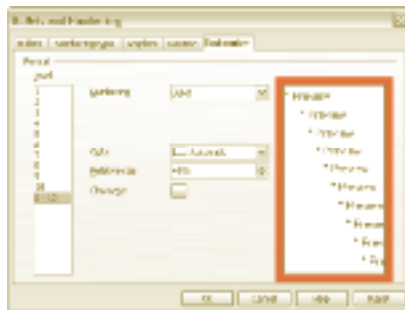
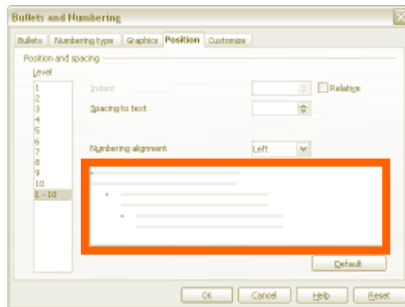
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make it direct

This principle sounds trivial. Why make it indirect?

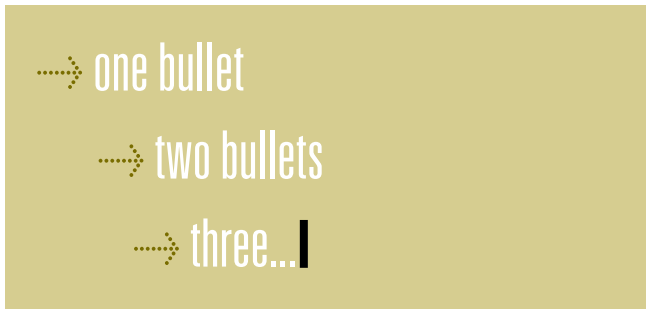
However, we looked at how bullets are adjusted in Impress: we see a dialog with three departments —each department has a different preview that tries to present, what will be the result of our adjustments.



2

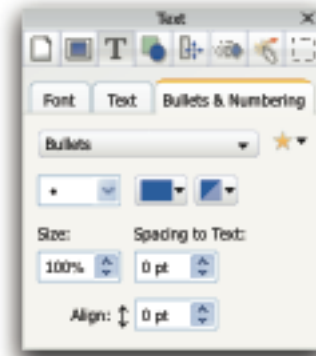
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During the design process and the analysis of the user scenarios, we realised the following: for the user the natural way of work is to adjust the bullets directly on the slide. Since the user has a clear overview of the slide, this should be possible.



The user can select with the cursor the section directly on the slide, and then adjust with the inspector the actual bullet parameters. The result of these changes will be visible directly on the slide. This illustrates principle nr. 2:

make it direct.



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high interaction density, but calm layouts

What is interaction density?
Let's take again the
example of the motorway:
an almost empty motorway
is a waste of resources.
It has taken so much
money to build and now
no traffic flows.

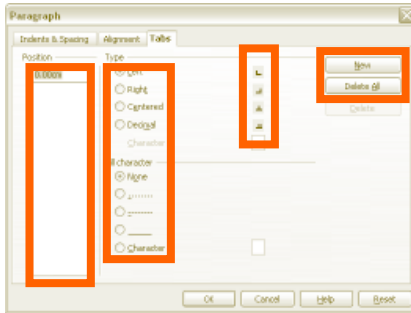


On the other hand,
on a crowded motorway
the traffic flows
significantly slower.
And even more important:
the situation is stressful
for all drivers.

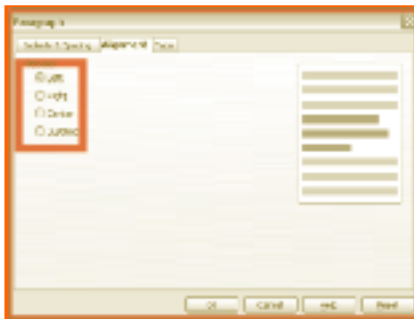
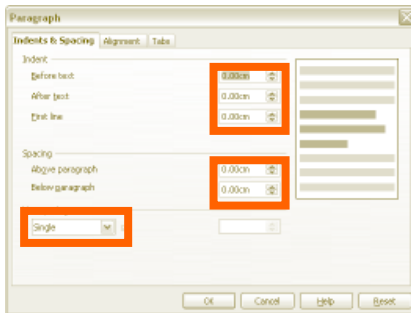


3

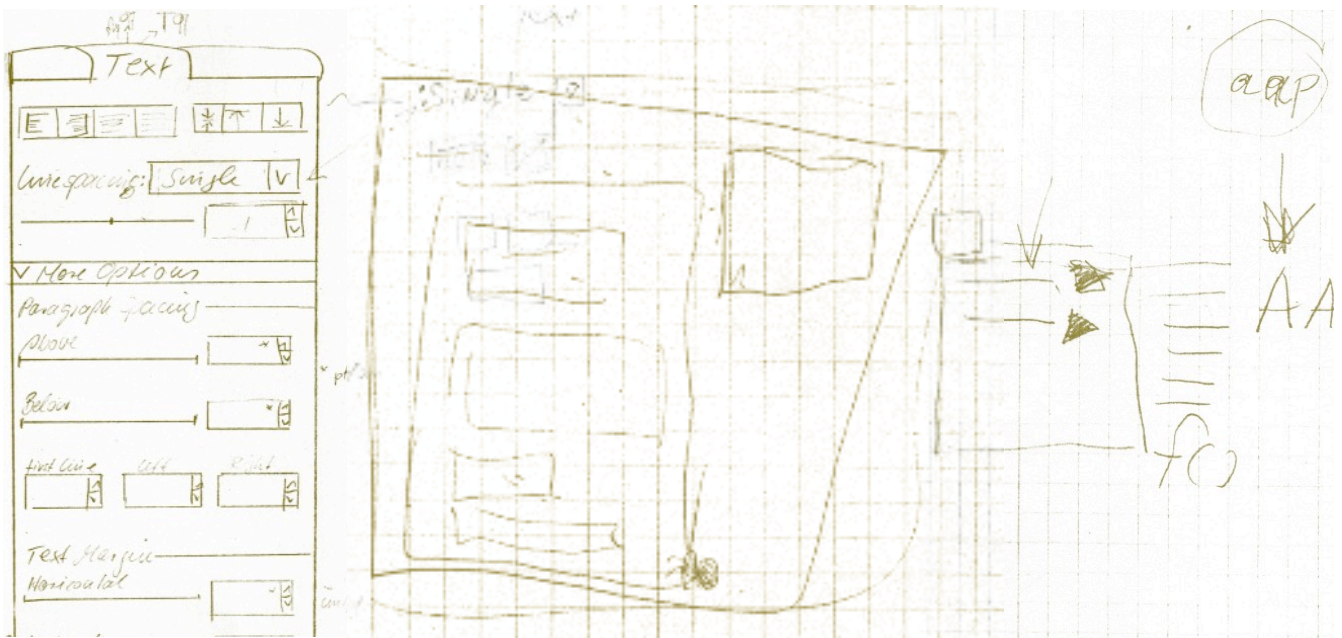
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Let's look at how paragraphs are adjusted in Impress: we see again a dialog with three departments and a preview. When we measure the interaction density, it is clear that the UI in this section goes in the direction of an "empty motorway."



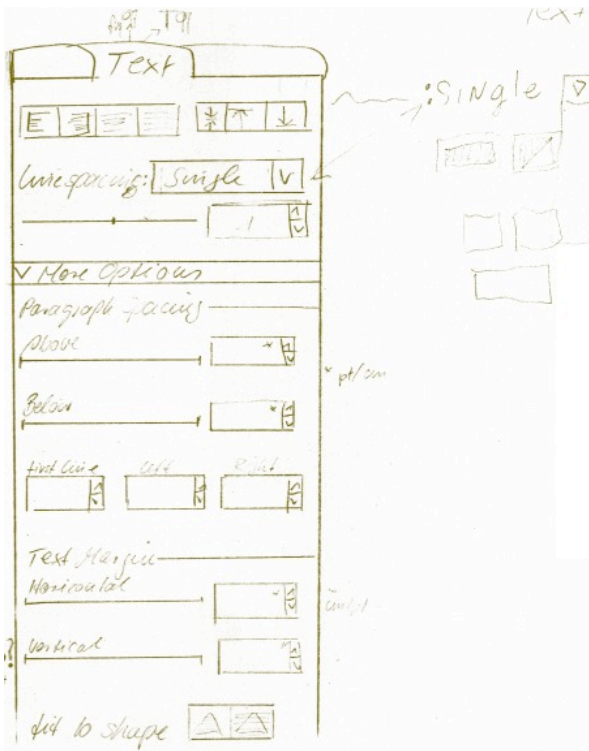
This is especially clear in the alignment tab.
(In this case we could talk of a stamp-on-a-postcard situation.)



With inspectors, we can reach high interaction density. On the basis of the user scenarios we optimised all the controls, although we had to make sure that the layout remained balanced and calm.

design process

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After the adaptation of the pencil-sketches to Windows look+feel (adhering to the guidelines,) the whole layout had to be still revised and rearranged, in order to achieve a calm working environment. This illustrates principle nr. 3:

**high interaction density,
but calm layouts.**

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After designing the inspectors there was still room for improvement. During the analysis of the user scenarios we noticed:

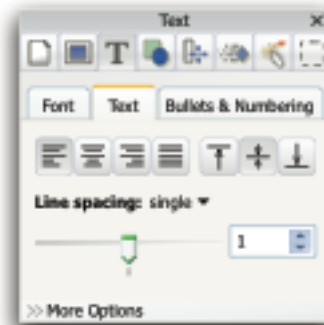
- Only some primary concepts are really understood by all the users.
- Some of the functions are more often used than other.

prioritise
functionality



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After we have prioritised the functionality, only first priority functions are offered on a first level. As a result, our design is also optimised to meet principle nr. 1: natural working environment.



Of course, second priority functions remain directly accessible. Thus, the user can decide whether to have the whole functionality directly available, or whether to have an optimal, natural working environment. This illustrates principle nr. 4:

prioritise functionality.

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10 in 15

The individual steps described in the smallest and most important user scenario ("10 slides in 15 minutes") do not contain the Styling of slides. In this user scenario it is all about the communication of content.

optimise user productivity

5

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- default settings for text + graphics
- complete styling of tables + all diagrams
- right position + proportions
- simply everything...

To meet these user requirements, we need a concept in which the whole styling is already made available in the form of templates.

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Logo

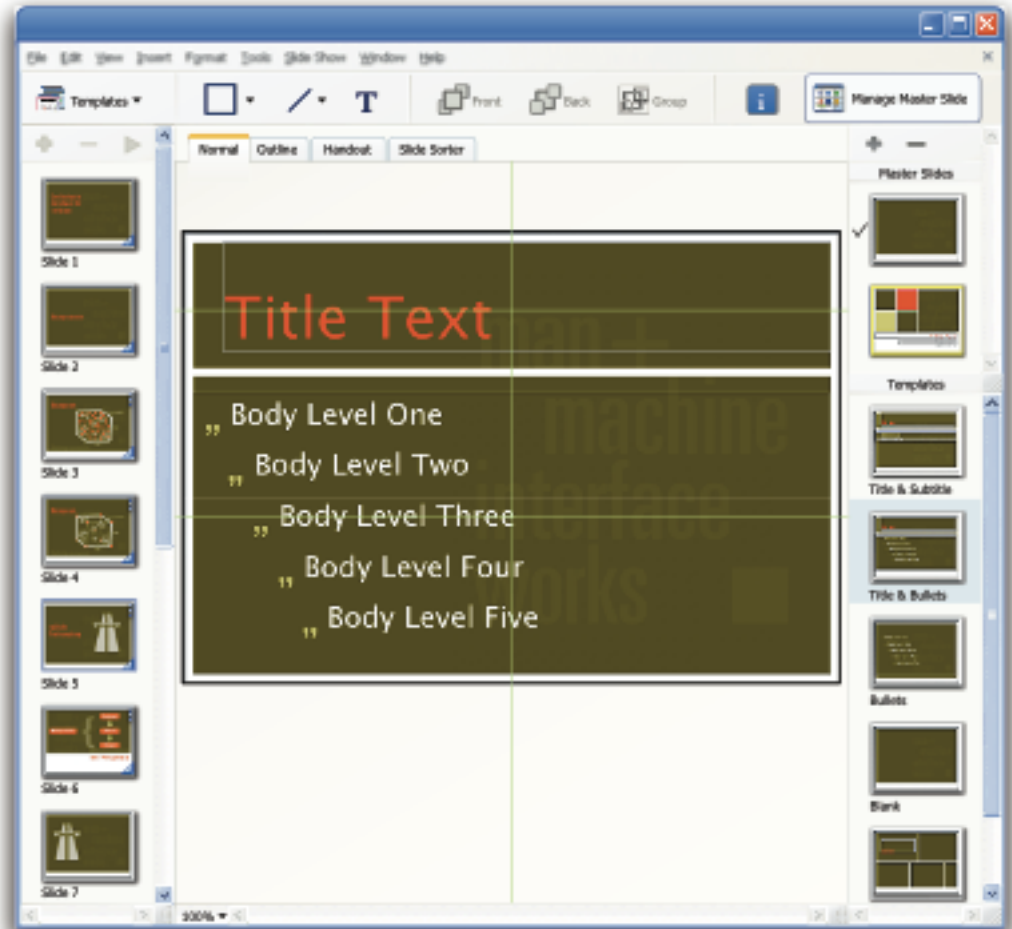
Department

Via these standard or corporate templates, the fundamental requirements will be met.

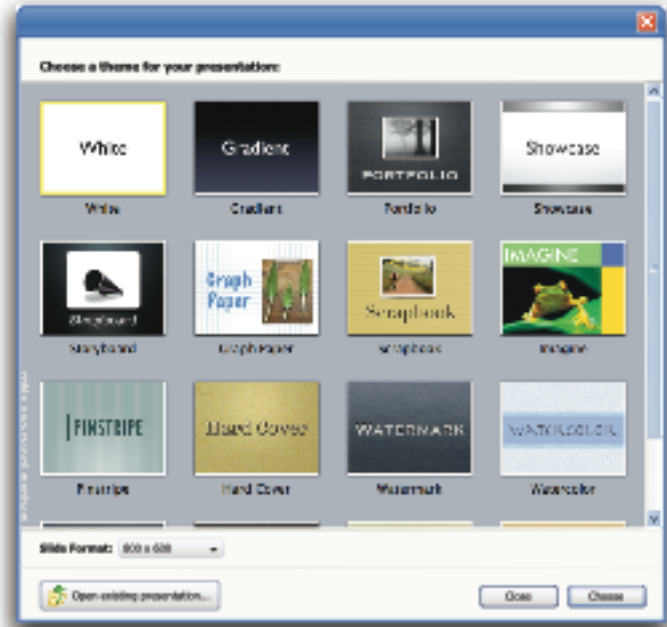
In order to increase the productivity of the individual user to a maximum, the templates must allow the user to add, in a very simple way, personal information like name, company logo or department title.

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In order for the user to make small changes on the templates with confidence, we offer in our UI design this in a simple and direct way.



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Like this, the fast creation of a simple presentation is optimally supported:

- open a new presentation;
- select a design theme;
- then concentrate only on the content of the slide.

We see that the simplest user scenario can form the basis for developing big concepts. This illustrates principle nr. 5:

optimise user productivity.

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We know this concept from Powerpoint: a template for a slide is a combination of a background design and a functional layout. This seems at first very flexible: every thing can be combined with everything.



trim complexity

6

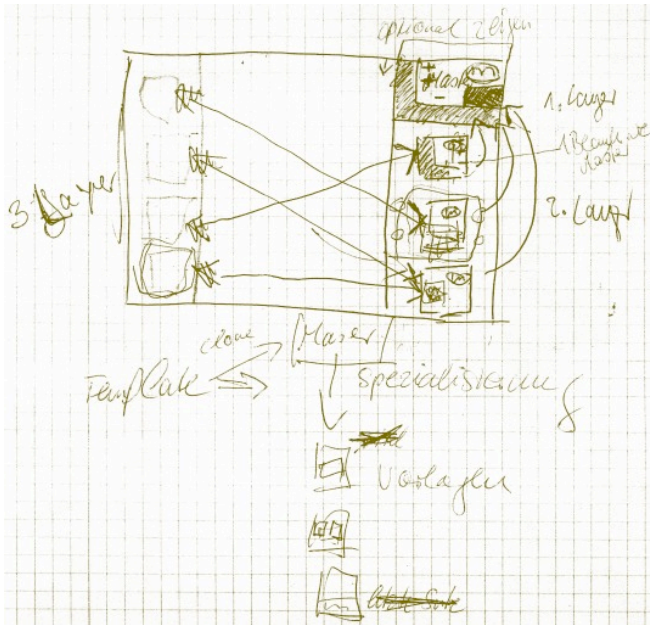
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However, by analysing the user scenarios it became clear that as far as the user is concerned, there is only one concept: the template.

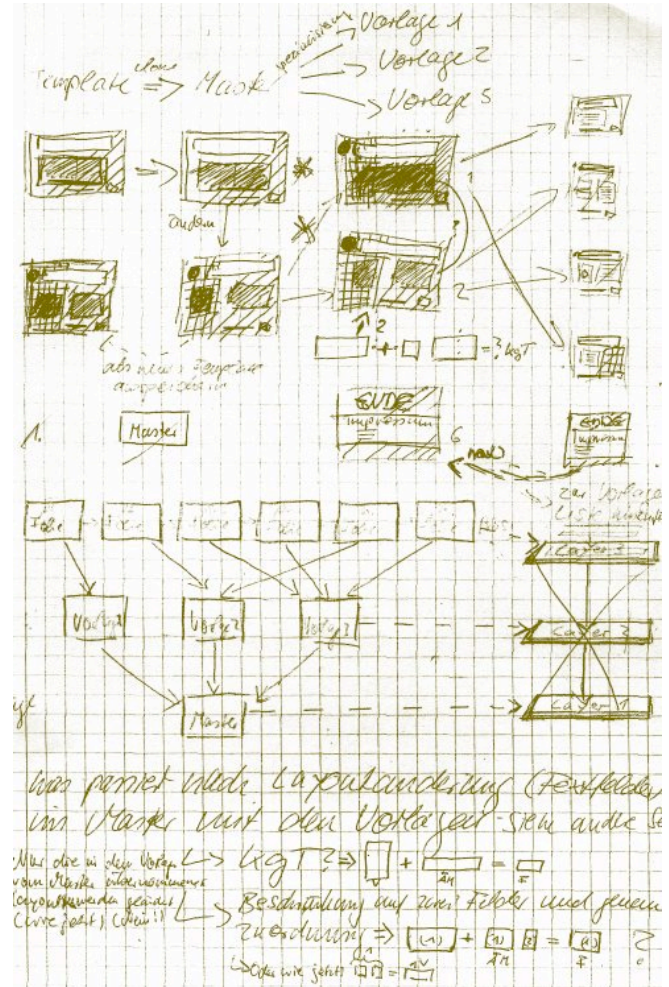


In order to realise this user model, we needed a simple, one dimensional template concept, in which form and function are combined in one level.

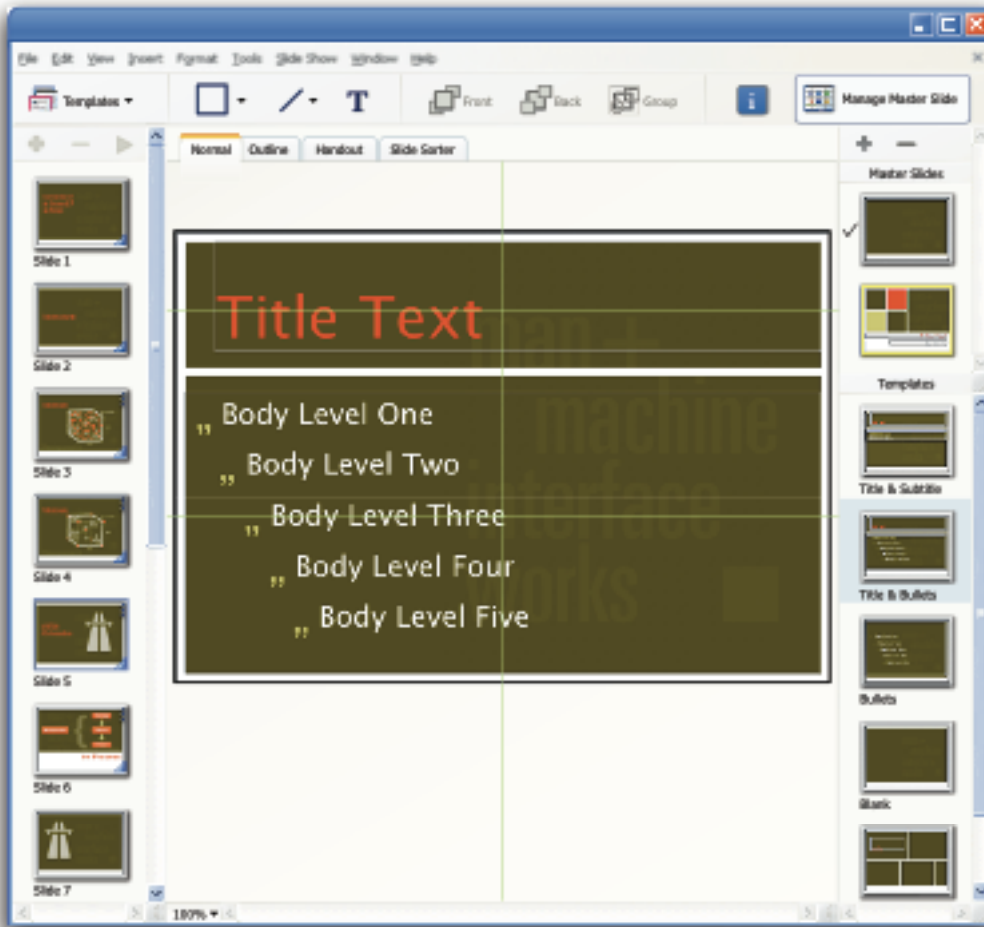
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During the design process we did not only develop a simple, new template concept, but also optimised the interaction that is used when dealing with templates and slides.



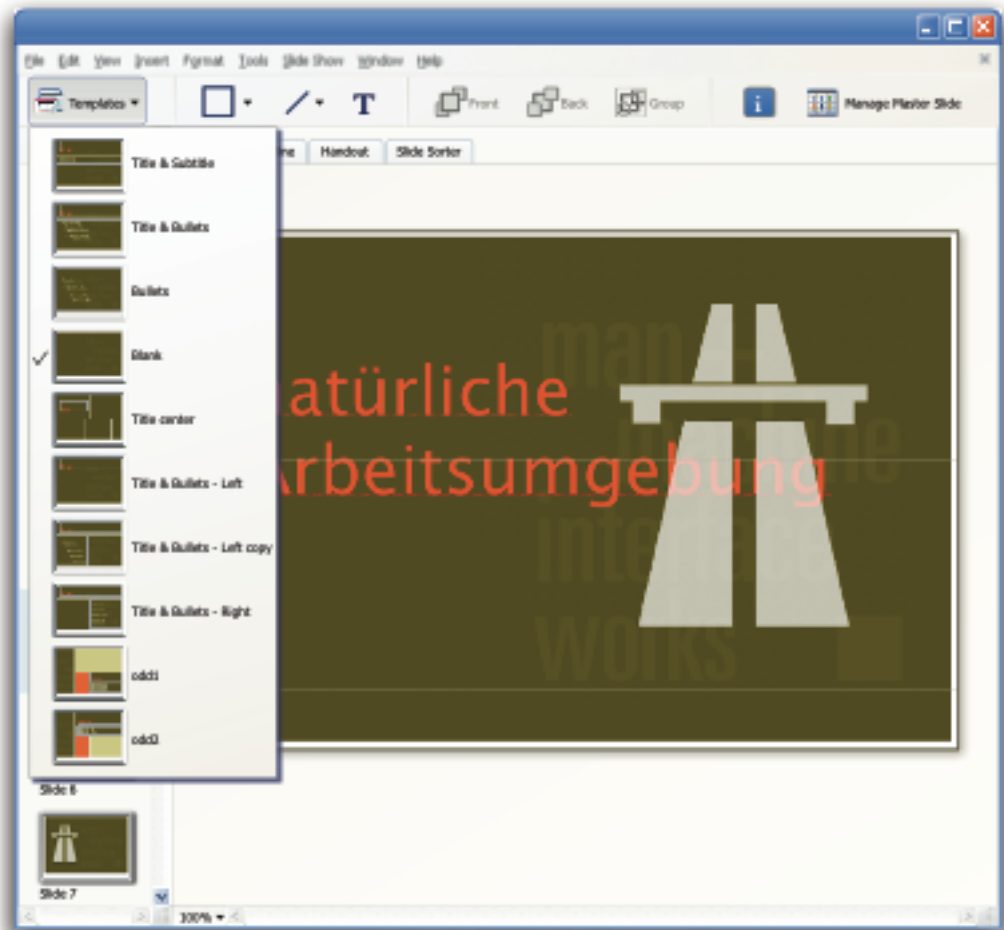
design process



With this concept, creating and changing templates is as easy as working with normal slides.

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When selecting from the template menu, the user does not need to combine form and function anymore.



In order to always develop easy to understand solutions for the user, we replace, when possible, more-dimensional concepts with a one-dimensional. This illustrates principle nr. 6:

trim complexity.

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During the design process one should take into consideration all the principles as a whole, although in many cases a compromise between them has to be made. This is the best way to optimise UI.

- 1** natural working environment
- 2** make it direct
- 3** high interaction density, but calm layouts
- 4** prioritise functionality
- 5** optimise user productivity
- 6** trim complexity

UI architecture principles

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user interaction trends

1 inspectors instead of dialogs

2 'modes' become invisible

3 less icons, and big

4 focussed software

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inspectors instead of dialogs

Inspectors are an outstanding design solution, to implement the illustrated principles and design a productive user interface.

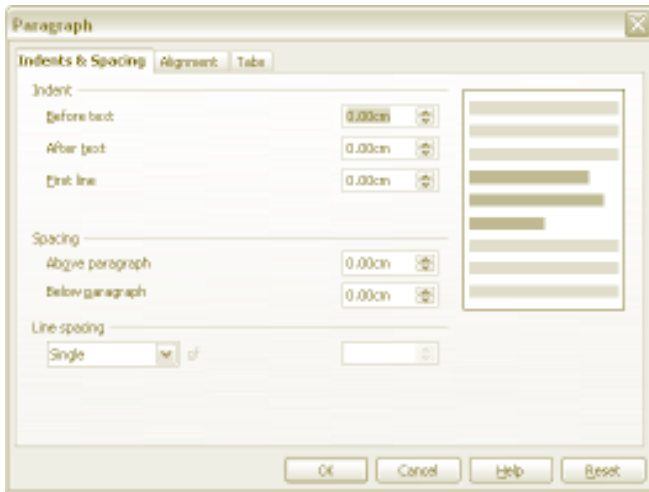
Do inspectors only work for formatting text, styling graphics or setting up animations? No...

In all those cases in which the data input is done via dialogs, the use of inspectors should be taken into consideration as a modern design solution.



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'modes' become invisible



In the accompanying dialog only paragraph parameters can be adjusted. Working in another way on the slide is not possible. This is a mode.

Even when people naturally and mostly unconsciously work in modes, e.g. to be able to concentrate on one thing, it is the conscious "jumping in," "being stuck" and then again "jumping out," that reduces the productivity.

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In this case, the problem can be solved with an inspector. Thanks to the direct way of working that it provides, the conscious mode transitions no longer apply.

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less icons, and big



By the methodical development of the interaction architecture of a user interface it becomes clear, that in many cases there is a better solution than to place icons in a toolbar.



When the communication goals of each of the toolbar icons are clearly defined and well-founded, there will remain in general very few icons (less than 10). As a result there is the possibility of making the few left icons big and clear, resulting in a measurable faster to use interface. (Fitt's law.)

3

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focussed software



Time is up, for software that promises to deliver everything. Successful companies differentiate themselves through a strong and compact product vision. They develop their software working methodically from their product vision.

When adding a new feature they analyse: does this feature makes my product stronger or does it weaken my product vision?

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user interface is the unique selling proposition of tomorrow's software

To announce new software versions in the market with a large amount of new features is getting less and less convincing. The selling argument is increasingly highlighting the fact that the new software delivers a completely overhauled user interface ("now even more intuitive".)

Companies, where this promise is not a hallow marketing slogan, work systematically and with UI methods in their development.

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Nokia: since the beginning of the 90s Nokia has staked everything on the ease of use of their handys and works methodically to achieve this goal. With success: Nokia still sells double the amount of handys as any competitor.

Philips: gears all their product development at a new marketing slogan "sense and simplicity." The biggest goal: "ease of use" is intensively pursued across all divisions, in each department. This applies not only to consumer products, but also for highly specialised products in vertical markets, like medical appliances.

Apple: the company has rolled up within few years the mp3-player market. This has been achieved thanks to a strong, focussed product vision and methodically working to meet very ambitious usability goals.

Who makes the UI their USP?

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in conclusion we would like to recommend:

Make your UI the USP of your software. Work on your UI systematically and with methods.

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