Leveraging the Direct Manipulation Capabilities of OpenCms by Introducing a Page Definition Layer

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Presented by Konrad Wulf, businessMart AG,

at the OpenCms Days 2008, Cologne (May 5/6)

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1. Direct Manipulation and Software Ergonomics

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Definition of Direct Manipulation

» "Direct Manipulation is a human-computer interaction style which involves continuous representation of objects of interest, and rapid, reversible, incremental actions and feedback." (see Wikipedia)

» So, one aspect of that is that the user doesn't need to translate from one representation model to another. But this is exactly what sometimes needs to be done in OpenCms when editing in the workplace rather than in the preview itself.

» Let's have a look at an example.

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Direct Manipulation and Software Ergonomics

ISO 9241-10 defined in 1996 software ergonomic dialogue principles that are still valid:

» suitability for the task

» self-descriptiveness

» controllability

» conformity with user expectations

» error tolerance

» suitability for individualization

» suitability for learning.

} Direct Manipulation falls into these 3 categories

Web 2.0 and some applications of it

The definition of Web 2.0 is still a bit fuzzy, but there are some core characteristics:

» Community

  » Making use of the knowledge of the crowd

  » Cooperation and trust

» Rich User Experience ⟵ This is where our module comes in…

  » Desktop-like responsiveness (Ajax, widgets)

  » Allowing notifications (Ajax Push, e.g. web-based chat)

  » Easy to use

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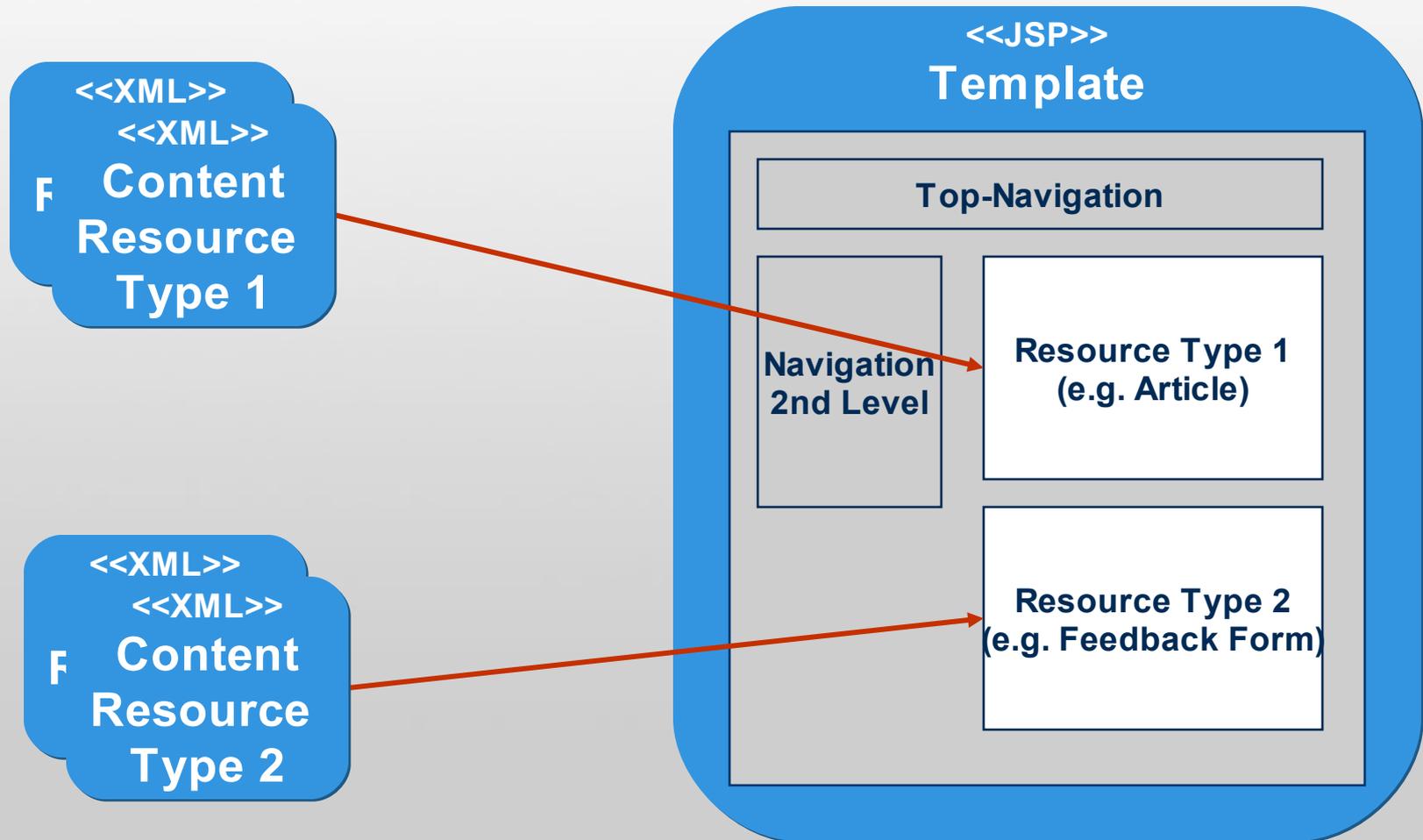
What is the Market for CMS?
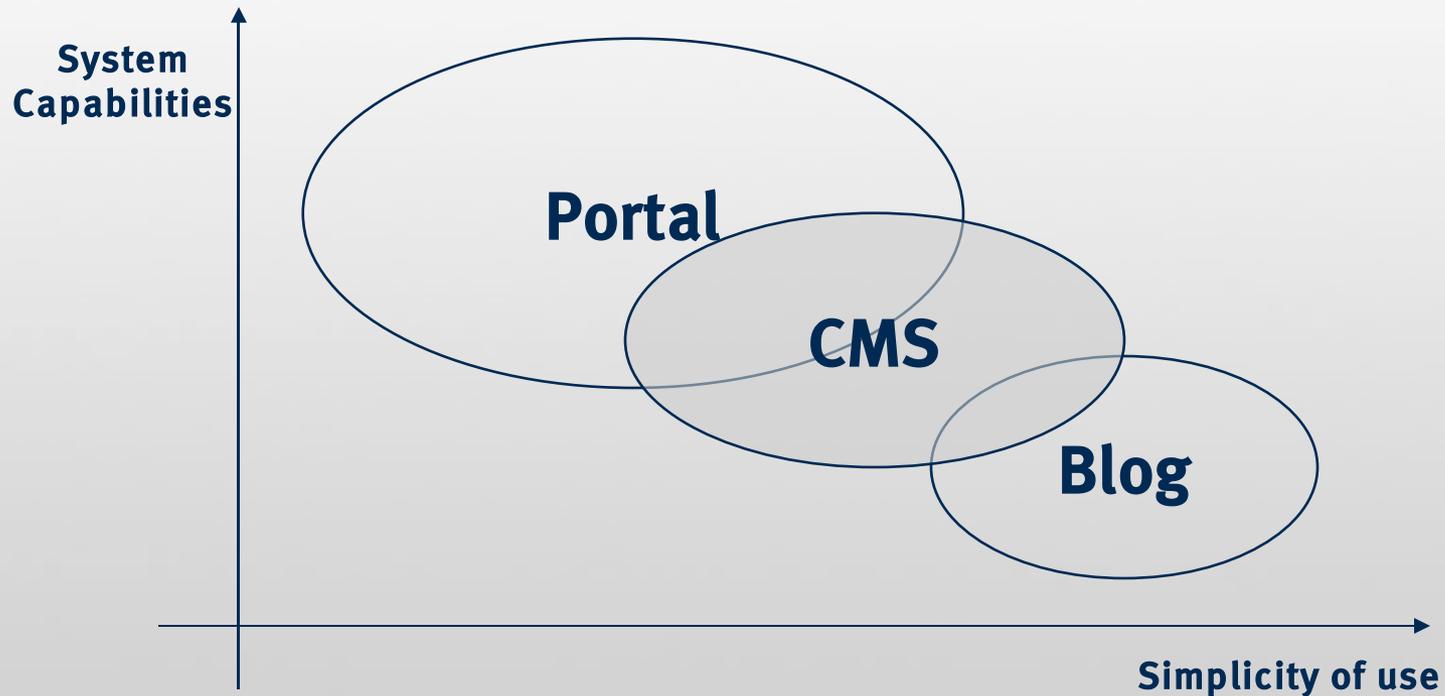
What are other vendors doing with respect to direct manipulation for the editor of contents? Let's have a brief look at competitors and adjacent markets: riot CMS
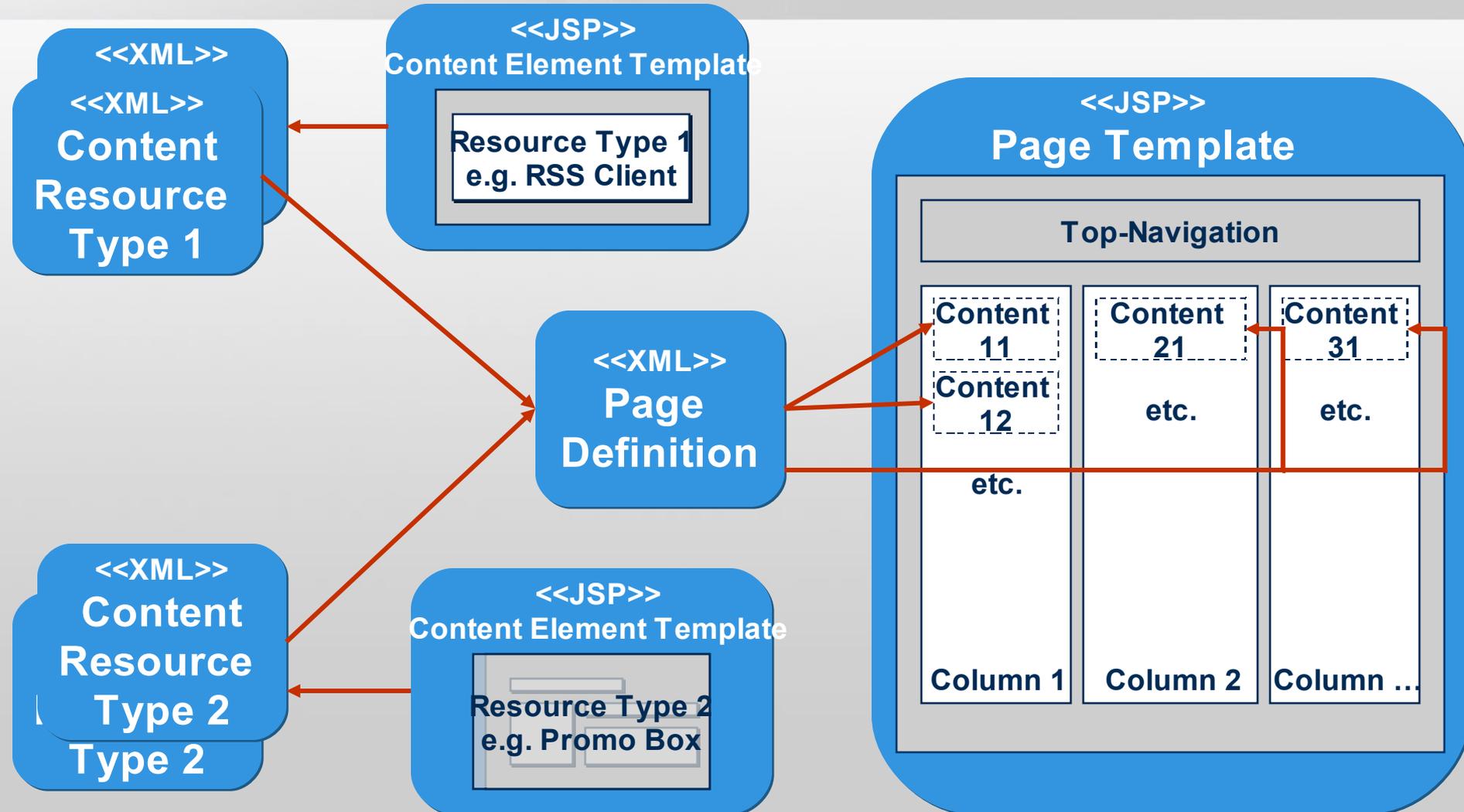
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Direct Manipulation in OpenCms so far

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» The following video snippet shows the Direct Edit feature of OpenCms as already shipped with the core distribution. In general, for the content schema, you have the possibility of using:

> » **Single files** of a predefined content schema

> » **Collectors**, a group of files with always the same content schema

Regular OpenCms Templating Mechanism

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Templating Mechanism with PDM

Demo

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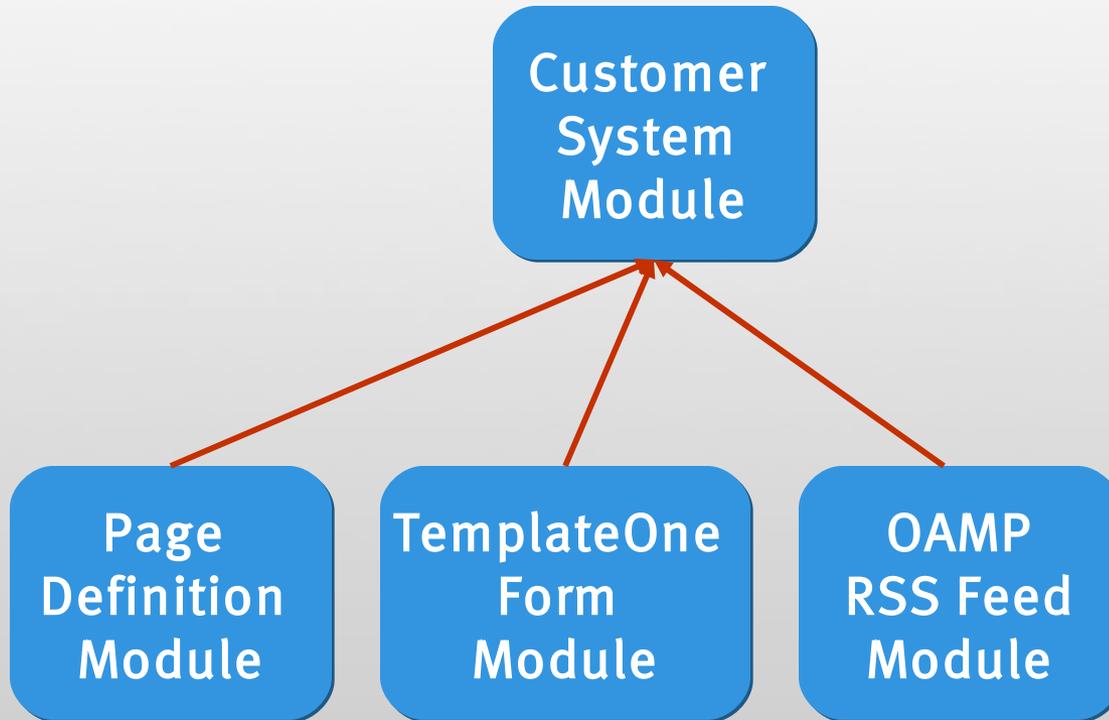
» Q: Okay, that's quite nice, but what does that have to do with direct manipulation and richer user experience?

» A: The PDM templating mechanism sets the basis for being able to manipulate a page's heterogeneous content elements directly from the page preview. Let me illustrate this with the following demo.

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Using the Page Definition Module in Your Projects

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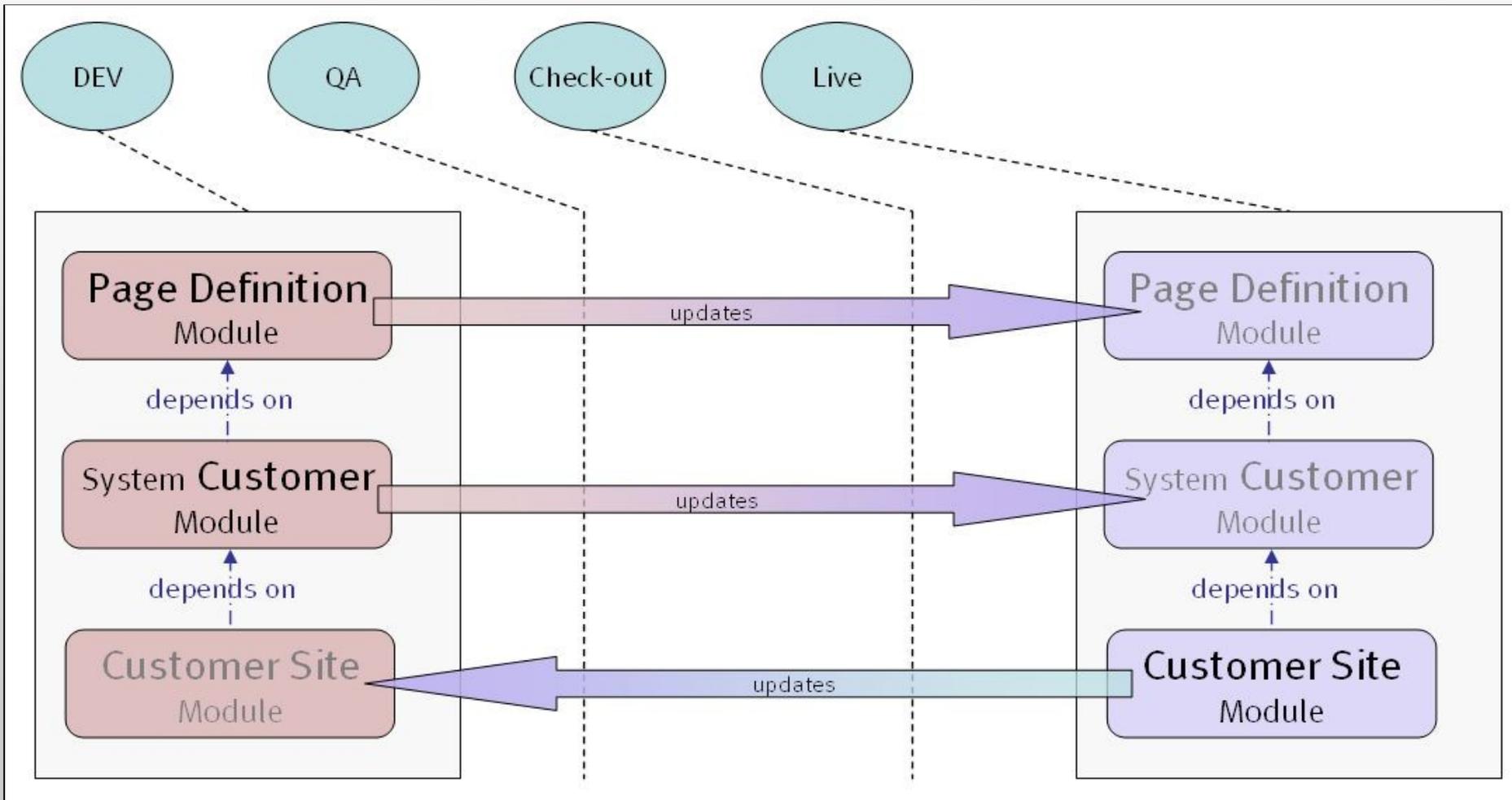
The Customer System Module can still be used together with other modules

And more ...

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PDM: Currently Known Restrictions and Caveats

» **Navigation:** The navigational concept deviates from the one provided with the opencms core application. Corresponding entries in the properties dialogs for resources should therefore be ignored. Instead, you will have to explicitly define the entries in the top and sub navigation content elements. This can be done directly from withn the page preview.

» **Localization:** Although you can use OpenCms native support for internationalization also with the page defintion module, the new workplace messages for the Editor using the page definition module are not localized,yet (they are in German).

» **DirectEdit Buttons:**

> » To toggle the visibility of the OpenCms DirectEdit buttons in preview mode, the key combination unfortunately had to be changed from *Ctrl+Space bar* to *Shift+Space bar.*
>
> » Since the positioning algorithm of the DirectEdit buttons to the right do not work for <div> and <li> elements in OpenCms, the buttons are left on the left hand side.

Future Prospects

» This Page Definiton Module could be just the beginning and a part of a continued Web2.0 evolution of OpenCms.

» A tighter integration with OpenCms is desireable, since the module provides generic functionality => version 7.5.

» The future depends on input from the community and on my side, on how many customer projects are coming up in the future at my company, businessMart.

Thank you for your Attention!

Are there any questions?

konrad.wulf@businessmart.de

**Download of PDM available at
http://www.businessmart.de/open-cms**

Leveraging the Direct Manipulation Capabilities of OpenCms by Introducing a Page Definition Layer

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Presented by Konrad Wulf, businessMart AG,

at the OpenCms Days 2008, Cologne (May 5/6)

Hello, my name is Konrad Wulf and I work as a Senior Software Engineer for a company called businessMart, located at Stuttgart, Germany. I will now hold a talk on the direct manipulation capabilities of OpenCms and how they can be improved. I will also present an open-source module we have developed at my company, which provides some of the improvements suggested.

Should you have any questions during the presentation please don't hesitate to interrupt me…

So let's have a look at the sections of this presentation:

1. Direct Manipulation and Software Ergonomics

2. Web 2.0 and some applications of it

3. Direct Manipulation so far in OpenCms and others

4. The Page Definition Module (PDM)

   » Idea and Design

   » Currently Known Restrictions and Caveats

   » Future Prospects

So, first we shall take a look at the concept of direct manipulation and how it fits into the concepts of software ergonomics. And there is also a linkage to the Web 2.0 paradigm, which I will show in section 2. In section 3 we will look at the current situation in OpenCms and alternatives, and finally I will give you insight into the Page Definition Module, the module that my company provides open source to the community.

» "Direct Manipulation is a human-computer interaction style which involves continuous representation of objects of interest, and rapid, reversible, incremental actions and feedback." (see Wikipedia)

» So, one aspect of that is that the user doesn't need to translate from one representation model to another. But this is exactly what sometimes needs to be done in OpenCms when editing in the workplace rather than in the preview itself.

» Let's have a look at an example.

When watching the example, you only need to look at the beginning: when clicking on the Direct Edit Button, you switch to form-based editing and the original context is not visible anymore. The Editor needs to relate in his mind the form representation to the the look and feel of the gereted output. This is not as direct and intuitive as it could be.

Direct Manipulation and Software Ergonomics

ISO 9241-10 defined in 1996 software ergonomic dialogue principles that are still valid:

» suitability for the task

» self-descriptiveness

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} Direct Manipulation falls into these 3 categories

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So how does the concept of direct manipulation fit into the bug picture of software ergonomics? In a fast changing environment like the Internet business many things become obsolete rapidly, but this ISO specification from 1996 still is applicable for software ergonomics. According to this spec an ergonomic user interface adheres to the following dialogue principles:

-Suitability for the task => A user should be able to accomplish a task by using software for what it has been designed for. This implies that the Software needs to adapt to the skills and customs of the user.

-Self-descriptiveness => It should be as obvious as possible how to use the software. The more the user needs to investigate in order to use the software properly, the less ergonomic the software is considered to be.

-Controllability => The user needs to have the impression to have full control over what the software does. On the other hand, an information overload needs to be avoided.

-Conformity to user Expectations => The user has certain common assumptions how a piece of software should behave. These expectations should be met.

-Moreover, the system should also run stable when the software has been used in a unforeseen manner (error tolerance),

-it should be possible to set some individual preferences by the user and last but not least,

-Ths system should support learning, so that a learning-by-doing éffect occurs.

Direct Manipulation isn't directly mentioned as a concept in this spec, but it can be mapped to „self-descriptiveness" because real world metaphors and the eliminated need for translation in a user's mind make a software more intuitive. It can also be mapped to „controllability" because of rapid actions with immediate feedback. Moreover, direct manipulation increases the compliance with user expectations, since people are already familiar with real world metaphors.

The definition of Web 2.0 is still a bit fuzzy, but there are some core characteristics:

» Community

   » Making use of the knowledge of the crowd

   » Cooperation and trust

» Rich User Experience ⟵ This is where our module comes in…

   » Desktop-like responsiveness (Ajax, widgets)

   » Allowing notifications (Ajax Push, e.g. web-based chat)

   » Easy to use

A current buzzword that goes around is "Web 2.0". What is it and what does it have to do with my presentation topic?

The definition of Web 2.0 is still a bit fuzzy, but there are some core characteristics:

One characteristic is a) the community effect and the other one can be summarized as b) rich user experience.

a) Main aims of the Community aspect is to Make use of the knowledge of the crowd, rather than being solely dependant on a single source of information, such as a manufacturers product manual. Underlying is an environmental setting of cooperation and trust, at least to a certain extent.

b) The Rich user experience aspect is mostly centred around a better responsiveness of webapps, so that they behave more like desktop applicatons. Moreover Ajax Push allows to escape from the need of a user to be the one who triggers an action, this allows many collaborative applications that were not possible in a plain Browser before. And all-in-all the aim is of course to make web apps easier to use.

The Rich User Experience is the main motivation for the module, I will present in a moment. So here's the link between Web2.0 and the direct manipulation enhancements to opencms we shall investigate in this presentation.
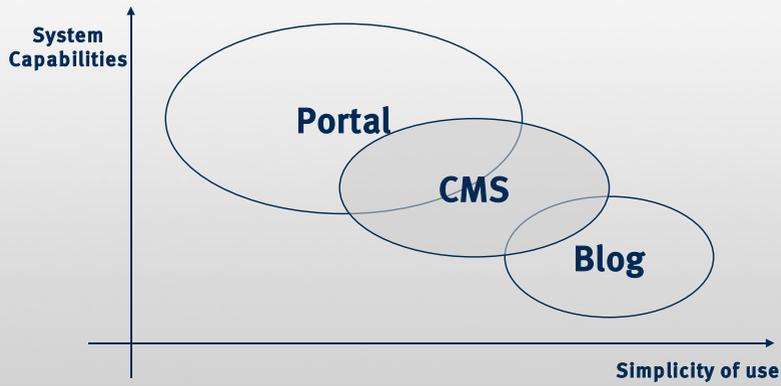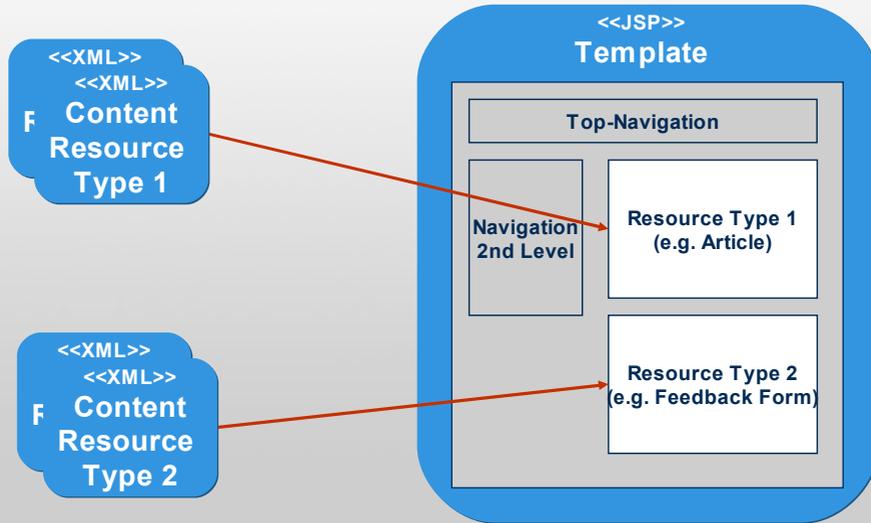
Looking at what others do, it is worth noting that the market does not only consist of other CMS solution providers, but also of portals and blogs. We will now look at one other CMS product and how they solved the problem of providing an intuitive and easy to use interaction possibility with the page content.
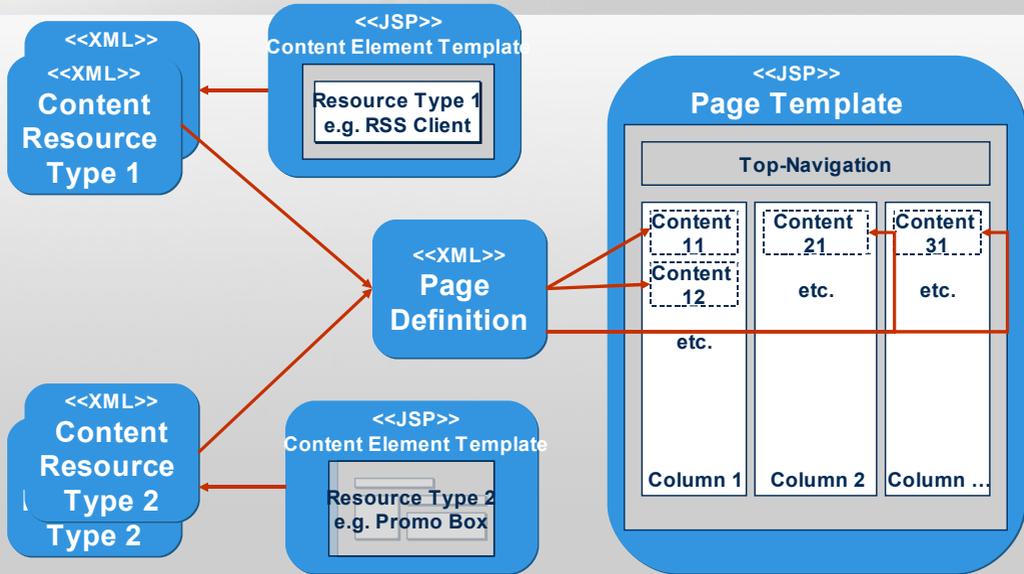
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Regular OpenCms Templating Mechanism

<<JSP>>
Template

Top-Navigation

Navigation 2nd Level

Resource Type 1 (e.g. Article)

Resource Type 2 (e.g. Feedback Form)

<<XML>>
<<XML>>
Content Resource Type 1

<<XML>>
<<XML>>
Content Resource Type 2

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Templating Mechanism with PDM

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» Q: Okay, that's quite nice, but what does that have to do with direct manipulation and richer user experience?

» A: The PDM templating mechanism sets the basis for being able to manipulate a page's heterogeneous content elements directly from the page preview. Let me illustrate this with the following demo.

In the linked-in demo you see how the Page Defintion Module allows the editor position content elements freely on the page. After the rearaangement a save button can be pushed that stores the new page arrangement via a background Ajax Request. On completion a popup informs about whether the storage was successful. You also see how to easily create new content of any resource type, in this case a small feedback form on whether this piece of information was considered to be useful. Clicking on the plus sign in the column where you want to fill in new content, you get a pop-up window that let's you choose the type of resource you want to create.

For putting already existing content elements to a page you need to switch to form-based editing, by pushing the top left button (the one above the "save" button). In the page definition form, each content field appears with the PageDefintionWidget, that allows you also here, additionally to the VFS File Selector, to open a referenced vfs file and to create a new resource whose path will be pasted into the corresponding field of the page definition form. After completion you return to the page preview.
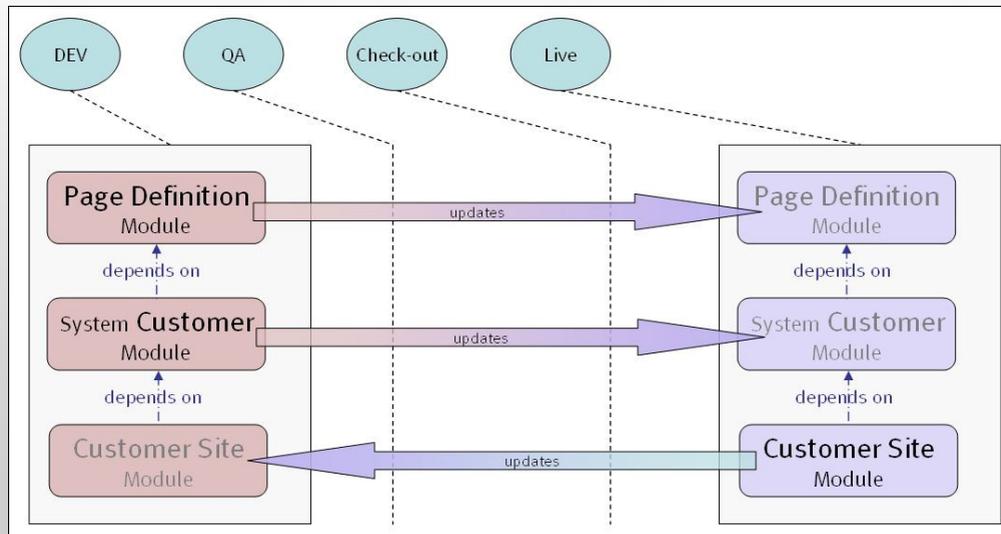
The Customer System Module defines the resource types to be offered with OpenCms, and provides the templates for the content elements.

The Page Definition Module provides the functions, templates and widgets for the page definitons.
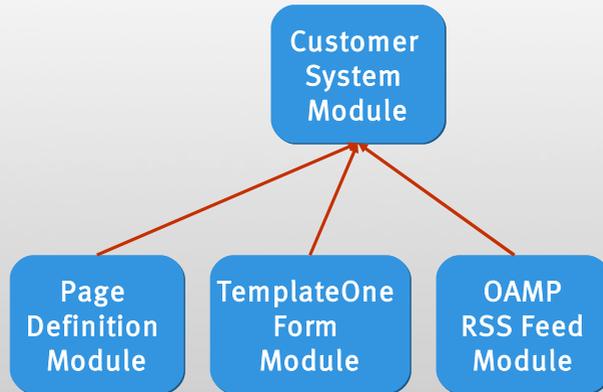
Your Customer System Module can still be used together with other modules. The Page Defintion Module tries to be as minimal-invasive as possible with regards to other modules. All you will have to do is define a content element jsp rather than a page jsp template for the resource types you want to use, since the other modules usually are PDM „ignorant".

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Although the page defintion module really offers added value and for sure facilitates the life of the editor, there are still some limitations that one should know when using this module: (see above)

» This Page Definiton Module could be just the beginning and a part of a continued Web2.0 evolution of OpenCms.

» A tighter integration with OpenCms is desireable, since the module provides generic functionality => version 7.5.

» The future depends on input from the community and on my side, on how many customer projects are coming up in the future at my company, businessMart.

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Thank you for your Attention!

Are there any questions?

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