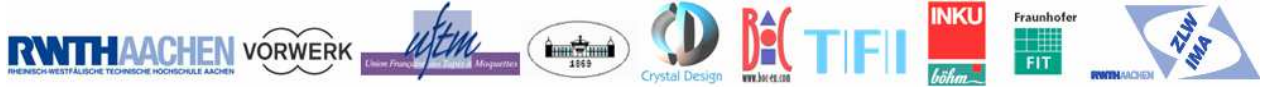


AsIsKnown
FP6-IST-4-28044



AsIsKnown

A semantic-based knowledge flow system for
the European home textiles industry

Work package 6: Virtual Interior Designer and Interface Design

Deliverable D19 "Report on analysis of customer and business requirements concerning the Virtual Interior Designer"

31.07.2006

Lead Editor:

Paul Aichner

Email paul.aichner@crystal-design.com

Fon: 0039 0472 831620

Fax: 0039 0472 831628

Status: v1.0

Content :

Starting situation	3
Actual market situation concerning design- and visualization-tools.....	3
Basic requirements	3
Basic requirements to the VID - functionality	3
Basic requirements to the VID - content.....	4
Basic requirements to the VID - service	6
Summary of basic requirements.....	6
Integrated screen-, layout- and navigation concept	7
Multi-Level User interface	7
Navigation through interaction with boards and windows.....	7
Cross-media visualization capabilities	8
The single components of the user interface	9
Cross-Visualization Modes	13
User-Groups	15
Use-Cases	16
Example A: Using as a classical product configurator and planner.....	16
Example B: Using with Product-, Interior- and Style-Assistant	16
Example C: Interaction between planning and presentation modes.....	16
Finishing through the calculation-mode.....	16

Starting situation

Actual market situation concerning design- and visualization-tools

A precedent questionnaire in the market showed, that actually there is only poor experience with computer aided designing tools in the sales process. Actually 6% have experience with fotomapping systems and 31% with 3D-visualization-systems.

The experiences until now have shown, that existing systems are too complex, which comes along with high advising expenses and require highly skilled people to guarantee professional output. The experiences about computer aided visualization systems are ambivalent, in some cases very positive comments were given; on the other hand the experiences were negative because there was no acceptance of the market towards these systems.

This technology, originally invented for optimizing product development processes, has been adopted successfully in the sales process meanly in the contract area, where the prospect of bigger business justifies also bigger investments in a sales service.

Basic requirements

Basic requirements to the VID - functionality

Due to these facts there are several basic demands to the **functionality** of the Virtual Interior Designer (VID) Application in AsIsKnown:

- **First of all the VID must be trouble-free and easy to handle from everybody.**
The typical user must not have any special skills about using the software or any special knowledge about the products. The VID should be self-explanatory in such a way, that it can be applied quickly. This also implies no need for intensive training of the operating staff.
- **The VID must provide fast, correct and useful results.**
So the VID must be as practicable to be accepted as a useful assistant within a consulting dialog between sales people and prospects.
- **The VID should integrate the own living conditions/situation of the customers**
That means, via a special service own photos should be able to be imported into the VID and be the basis of visualizing customized designs. If this is too complex, a 3D design-tool should be offered which is able to realize the personal living conditions into a virtual environment - in short time. When dimensions, interior and graphical design is determined, a walk-through option should be available including a 3D view.

Basic requirements to the VID - content

There are several basic demands to the **content** of the Virtual Interior Designer

- **The VID should provide user-specific content and functions as e.g. product and pricing information.**

A precedent questionnaire in the market showed, that 77% of the respondent want different levels of access for different user groups (e.g. professional interior decorators, architects, retailers, end-customers, etc.). If different access is wanted, it concerns mostly prices, technical data, and purchasing channels.

- a) The end user should not see any end prices, but only price-categories.
- b) More detailed information (e.g. real prices) should be shown to professionals.

The different levels of access should be reached by using a password-protected user access, which guarantees the listing of more detailed information only in case a personal login occurred.

- **The VID should provide realistic product presentations**

The textile structure of textile floor coverings has to be shown realistically and very detailed. That means the presentation on screens should be close to reality and reflect a good optic. This implies a high resolution of the product pictures. Moreover, also in the 3D simulation the presentation of textile structures should get a realistic impression. A very positive example for these options can be found on the website of the carpet producer Anker (www.anker-dueren.de). The high resolution of their pictures leads to a good visual quality. This feature should be combined with the option to zoom and to rotate.

Additionally, the user must be of course able to change the colours, the material structure and the design of the selected products.

Additionally, also the colour communication must be guaranteed, that means the colour shown on the screen should be the same as in reality. Moreover, e.g. the accuracy of the pattern must be guaranteed. The Virtual Interior Designer should consider the influence of the colour of e.g. curtains on the incidence of light in the room set. The optic should be also influenced by the transparency of curtains and shadows caused by pleats.

- **The VID catalogue should be clustered in different classifications**

The proposals to different environment- or product-catalogue should be clustered according the usage scenario (contract area: hotel, office, restaurant, hospital etc.; residential area: living room, bed room etc.). There is a need to identify who will carry out this clustering and who will assign the environments and products to the different clusters.

- **The VID catalogue should provide additional specifications**

Additional information concerning the product choice depending on the application area (residential or contract area) should be provided, e.g. ETG-“Certificate of Quality”, soil repellent finishing for carpets in schools, bringing in the technical data,

description of the quality etc. Preselection of articles with certain criteria e.g. colour or technical data like fire protection.

- **The VID catalogue should provide additional real-time-information**
The VID should list only product-proposals, which are really available. Additionally it should show the actual sales price.
- **The VID catalogue should be compatible to existing or set new standards in the sector**
One of the most important conditions is to find / define standards for the description and labelling of articles.
- **The VID catalogue should be comparable (common semantic)**
A uniform/consistent and systematically method for the product description is important. This is the premise for the search of alternatives across different suppliers.

Basic requirements to the VID - service

There are several basic demands to the **Service** of the Virtual Interior Designer

- **The VID must guarantee a Multi-User-Compatibility**
The Virtual Interior Designer should be used from different users simultaneous, independently of workplace and time, but with common access to a central database.
- **The VID must guarantee a role-based access and data protection**
The VID must provide a user- or retailer-specific and password-protected access to individual pricing-, discount- and ordering-data as well as to possible exclusive product-assortments. An improper access to trusted data must be prevented.
- **The VID must be compatible with other Systems**
The results of the VID should be usable also from third parties. This means that customized products or environments must be saved in an open image format (e.g. jpg).
- **The VID should provide EDI- Service (Electronic-Data-Interchange)**
The VID- Pricing- and Ordering-data should be exchanged with industry and retail partners through Electronic-Data-Interchange (EDI). If it is possible, international EDI standard-formats (UN/EDIFACT or XML) should be adopted.
- **The VID should be utilizable also in offline-Scenarios.**
That means that the user should also be able to work autarkic also in case, he has continuously or temporarily no web-access available (not online). The distribution and installation should also be able through a CD-ROM version (e.g. in the contract area, for the exclusively demonstration of hotel rooms).

Summary of basic requirements

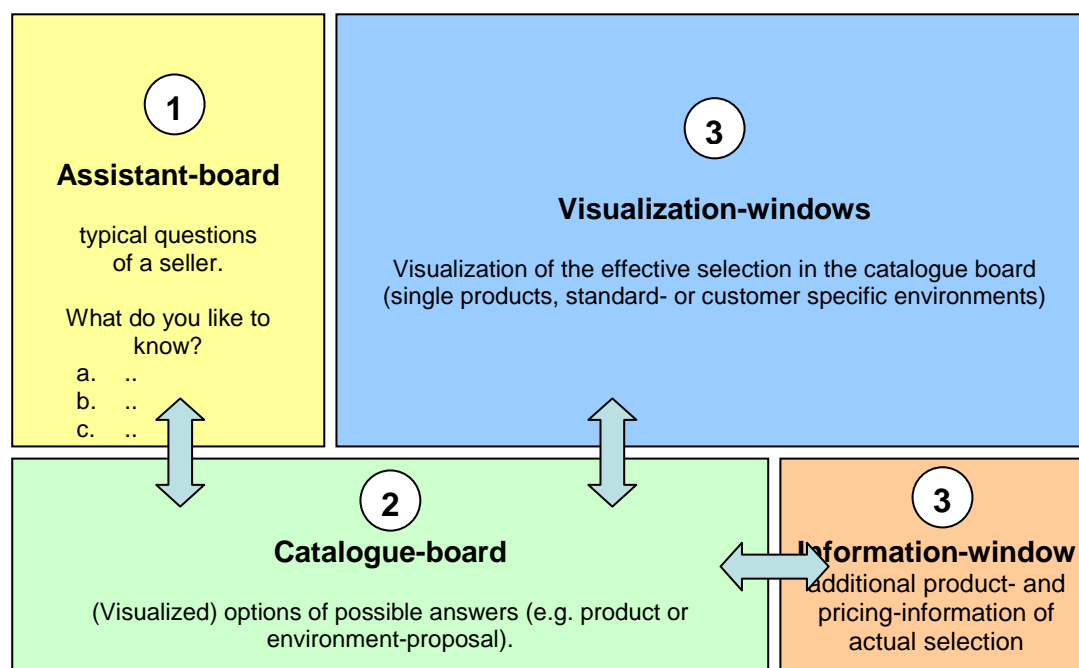
- Web-based service, available online (optional available also as an offline-application)
- Login-protected access to user-/user group specific content / functions
- Applicable even in B2C- (non professionals) as well as in B2B- scenarios (professionals)
- Intuitive and simply to use
- Self-Information and self-consulting across product-categories and suppliers
- Guided selection of products / proposals in any combination of possible variants
- Guided creation of customer-specific living-environments / product compositions
- Photo-, 3D- and virtual walkthrough-visualization integrated
- Pooling of ordering- and tracking-data
- Electronic-Data-Interchange of article basics and order data

Integrated screen-, layout- and navigation concept

The Virtual Interior Designer has to support the user in the sales process in an optimal way. A maximum of flexibility and simplicity of use must be granted. This will be possible due to a multifunctional user interface (GUI).

Multi-Level User interface

The content of every single menu and window will be adapted in real-time to the specific user requirements of the sales process. Additionally also the complexity of the content will be oriented to the „expertise“ of the user. The adoption will be done continuously in accordance to the established customer profile.



Navigation through interaction with boards and windows

In an interactive dialog the requirements of the customer will be established. In the same time proposals and results in the context of a complete environment will be visualized. This process will be continued in an iterative way to approach and visualize step by step an ideal solution for the customer:

In the **Assistant-board** convenient questions will be displayed, in the **Catalogue-board** plausible and convenient answers will be showed. Every choice will interact with the **Visualization-** and **Information-Windows**.

In the Visualization Windows the effective response in accordance to the option selected with different media types (e.g. photo-based media, 2D or 3D simulation) will be visualized. In the Information-Windows additional product- and pricing – information will be displayed.

Due to this simple functionality the user will be guided very easily through a complex selection and decision process. Additionally he has the comfort to compare, visualize and calculate different products and variants in seconds.

Cross-media visualization capabilities

The integrated screen- and navigation-concept keeps the application easy and simple to use, independently which media will be utilized for visualization of the results. In this way the customer decision process will be supported in an ideal way:

- **Presentation mode**
The VID provides interactive media for getting a first orientation and idea of customer requirements
In this mode the VID will communicate through the visualization window by using an interactive photomapping-technology in high-end photo-quality. Selections of alternate products will be showed singular or in a context of environments of theme-worlds (e.g. showroom-concepts, interior-concepts of different classifications, categories, styles, etc.)
- **Planning mode**
The VID provides real-time visualization to specify the individual customer requirements
If it is necessary, the VID will switch in this phase the visualization to real-time 3D-rendering technology in texture-mapping-quality. Step by step a room-layout with customer specific interior and decoration elements will be created.
- **Calculation mode**
The VID provides pictures and list-views to specify exact ordering data and documents
In this phase the VID will switch to a list view with pictograms to show the single chosen products with exact descriptions, quantities and calculated prices to create trouble-free ordering-documents and passing them through the following order process also in an electronic way.

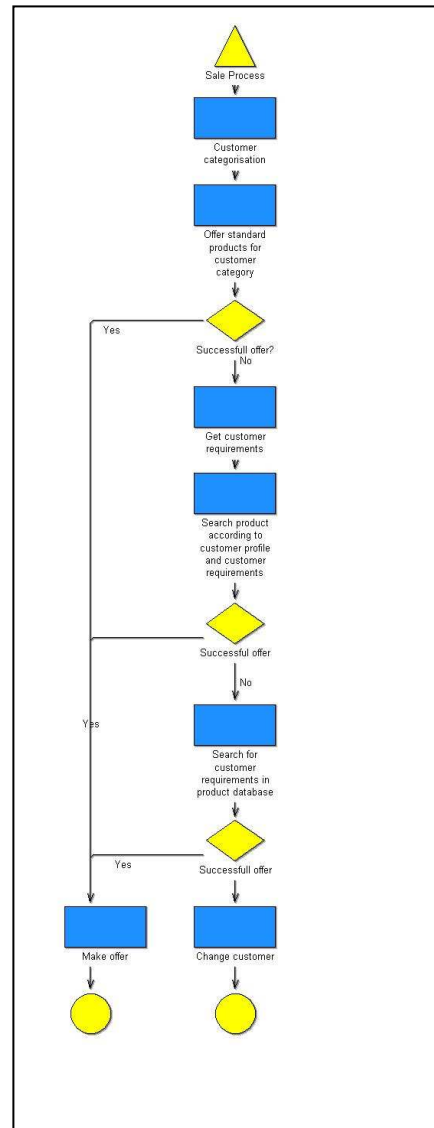
The single components of the user interface

The Assistant-Board

The Assistant-Board offers the user typical and convenient sales-tasks in form of questions and guides the possible selection-options in the catalogue-board:

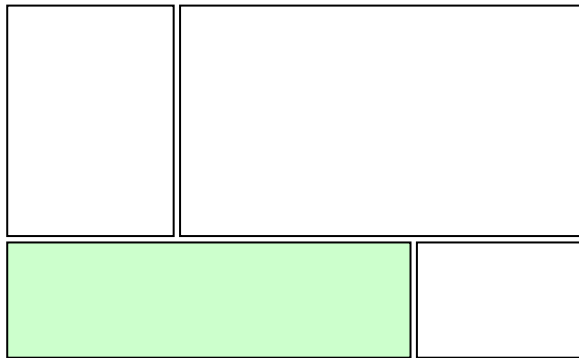


Example of different questions which determine the sales and decision process.



Catalogue-Board

The catalogue-board offers different options of possible and convenient selections (proposals). If possible, the selection will also communicate graphically to keep the user interface as easy and simple as possible.



Example: Selection of Lifestyles



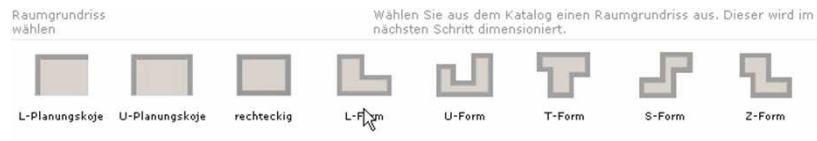
Example: Selection of products



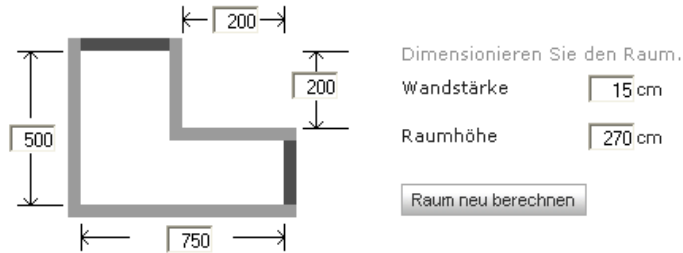
Example: Selection of variants



Example: Extended selections of predefined room-shapes ..



.. selection of exact dimensions of the room-shape ..

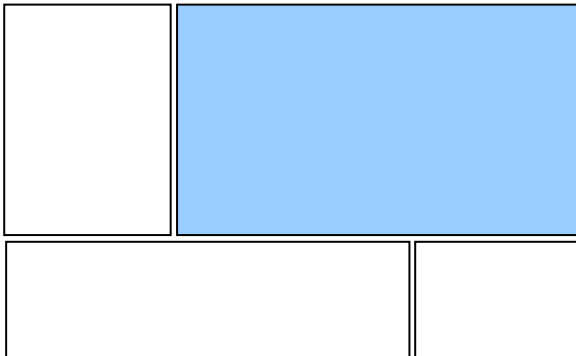


.. as well as exact dimensioned doors and windows in single walls..



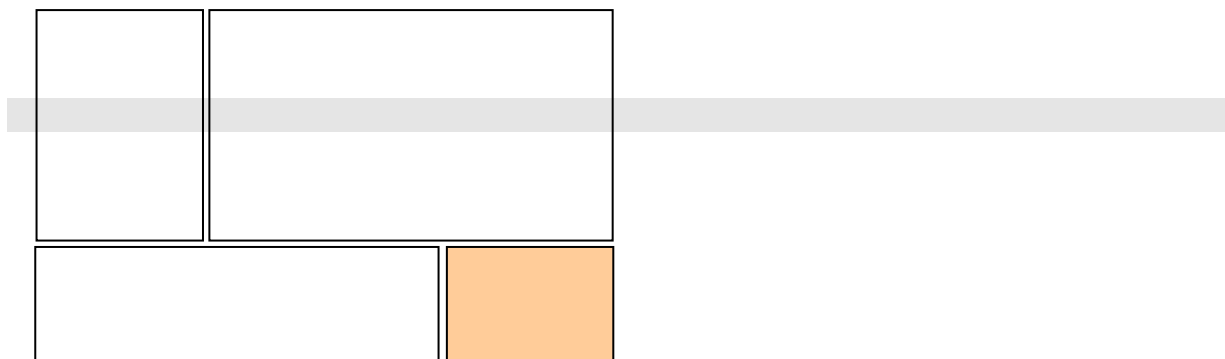
Visualization Window

The Visualization Window shows results of the selection, configuration and planning process. As visualized content single products, environments of showrooms or theme-worlds, the exact planning of the customer home environment or the list view of the effective customer selection can be displayed.



Information-Window

The Information-Window is required to provide additional information in the selection-, comparison and decision-process. Product- and Pricing –Information as well as single product pictures or real-time information like stocks and delivery time, planned square meters, etc. can be displayed.



Cross-Visualization Modes

Depending on the requirements of the sales and decision process the visualization window can display different media types and techniques: (e.g. images, interactive photomappings, 3D rendering, walkthrough-simulation or tabular listings).

In the following some examples are given:

Presentation mode

The user gets a first orientation and ideas of customer requirements

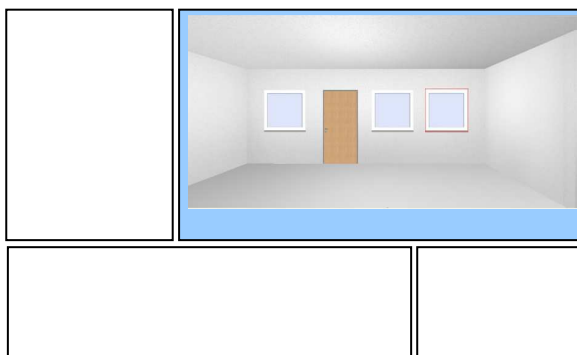
In this mode the VID will communicate through the visualization window by using interactive fotomapping-technology in high-end photo-quality. Selections of alternate products will be showed singular or in a context of environments of theme-worlds (e.g. showroom-concepts, interior-concepts of different classifications, categories, styles, etc.)



Planning mode

The user is planning and visualizing the individual customer requirements





If it is necessary, the VID will switch to the Planning-Mode to visualize the customers' home plan in real-time 3D-rendering technology and in texture-mapping-quality. Step by step a dimensioned room-layout with customer specific interior and decoration elements will be created.



Calculation mode

The user is specifying exact ordering data and documents

In this phase the VID will switch to a list view to show the single chosen products with exact descriptions, quantities and calculated prices to create trouble-free ordering-documents and passing them through the following order process also in an electronic way.

Auftrag			
Pos.	Elemente in der Planung:	Bestell-Nr.	Preis
1.	Garnitur Variante Modern (Scheitelmax 91x113cm, rechte, 207cm)		
1.1	 6702 Esstisch - Holz-Edelholz-Leder und Glasablagertisch Breite: 113cm, Tiefe: 90cm, Höhe: 88cm Rückenauflage: Leder Material: 5117/12; Eiche	3776_8703_5117	4.562,20 €
1.2	 31 Stuhl - weißelackierte Breite: 50cm, Tiefe: 50cm, Höhe: 88cm Oberflächen: Leder Rückenauflage: Leder Material: 5117/12; Eiche	3776_31_5117	1.316,80 €
1.3	 4488 Element - 1-sitzig Breite: 45cm, Tiefe: 50cm, Höhe: 88cm Oberflächen: Leder Rückenauflage: Leder Material: 5117/12; Eiche	3776_4890_5117	927,60 €
1.4	 6181 recto2 - Drehstuhl mit Belaufrücken und Drehhocker Breite: 50cm, Tiefe: 50cm, Höhe: 88cm Oberflächen: Leder Rückenauflage: Leder Material: 5117/12; Eiche	3776_6181_5117	3.929,80 €
Summe inkl. MwSt.			11.134,00 €

User-Groups

The VID will be used primarily in the main sales channels of the European home textiles industry like textile floor coverings, curtains, interior textiles etc.

Target groups are:

- professional users, e.g.:
 - retail/sales
 - wholesaler
 - Interior decorators
 - specialized dealers
 - contractor, architects
 - do-it-yourself stores
 - shopping malls
 - discounters
 - sales representatives
 - distributing agencies

- non professional users, e.g.:
 - end-customers at home
 - end-customers in retail-stores