

User Experience Building Blocks - Reducing Design to Content Filling

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ABSTRACT

Design methods are usually described and evaluated with focus on user-centricity and potential for innovation. This paper discusses design processes with respect to scalability and repeatability.

Categories and Subject Descriptors

Human Computer Interaction, User Experience, Design Process.

General Terms

Design, Human Factors.

1. INTRODUCTION

For large software vendors and provider of platforms, the costs of designing new solutions on top of a platform or extending or adapting existing solutions to vertical markets and specific customer needs have to be considered. Different strategies have been implemented to solve this problem

1.1 UI Standards

One common approach for reducing costs of design is to define and distribute design standards that describe re-use components and generic page layout. While the main purpose of such standards often is to enforce consistency across screens and applications, UI standards also speed up design by providing a basic rule set of how to layout the screen and functions.

But this is only true for the experienced designer who is familiar with UI standards, and who is apply such rules when creating a new application design. UI standards are, as the name already implies, usually very UI centric and only provide limited hints on when to use them for what user requirement.

While UI standards may speed up the detailed user interface design, they generally do not provide much guidance on what requirements to collect and how to map requirements to a good design.

1.2 UI Patterns

With service-oriented technology and modern front end technologies, user interfaces can be built based on re-usable pattern components. After the pattern has been designed and implemented once, it can be re-used within or across applications by linking it to different data sources or by modifying the configuration. For example, a list of work orders for service technicians and a list of approval requests for line managers can be implemented using the same inbox pattern and linking it to different sets of work items and offering different related actions.

UI patterns have been primarily introduced to accelerate software development by shifting from a coding to a

configuration paradigm. When assembling a pattern based application, designers must be able to map an usage scenario to the closest available pattern and configure the pattern in a way that it supports the targeted use case. Patterns are perceived as very helpful if they match the user requirements, but also very restricting if they limit creativity and constrain the design.

Academic research on design methods does usually not differentiate between free style design and pattern-based design, because pattern-based design is typically a proprietary approach specific to one platform or vendor.

In the following sections I want to argue that the potential of UI patterns can be extended beyond the technical re-use aspect if they are described as design building blocks that guide requirements gathering and reduce the design process to content filling.

2. User Experience Building Blocks

User Experience building blocks describe, similar to UI pattern, re-usable components of an application, but instead of just describing UI, they are focused on the underlying work practice of users [1]. Such design building blocks carry much more semantic than UI description and serve as templates for re-occurring usage patterns instead of re-usable UI components only.

2.1 Guidance for Construction

Before a designers details out the user interface, it is best design practice to first layout the application structure and decide upon the information architecture of the application.

In scenario-based design, task flow models are used to identify the required interaction steps and to come up with a screen flow that supports each usage scenario. While storyboarding such interaction sequences, the designer defines screens that support the steps within the task flow. Another way of capturing such interaction sequences in a more abstract form is to write use cases and specify the system input and output required for each interaction step.

Interestingly, this process does ignore one very prominent design metaphor which is the concept of places. A good software application design is centered around meaningful information places from which the use may initiate certain actions.

For example, in an online shopping product, it is obvious that there will be a place for browsing products, a place to review the shopping cart and to check out, and maybe a place for setting personal preferences and maintaining profile data. One concrete shopping usage scenario would cross the catalog and the shopping cart place, but would not necessarily identify such places as key information places, but only as screens required for this specific task flow.

While playing with some core usage scenarios, the main design focus is on identifying the appropriate places that reflect generic user intents and bundle information in a meaningful way. Once identified, the scenarios are again used to benchmark the resulting navigation within and between places.

As we can see, the process of finding an application structure is relying on the dualism between testing flow and, at the same time, establishing places. One design method which offers an explicit design step and notation for describing the application structure independent of the actual user interface is the User Environment within Contextual Design [2]. The User Environment introduces a concept of focus areas which represent information clusters. Such focus areas can be used to describe and specify information places in a non-UIish way and also add links between such focus areas to support concrete usage scenarios.

While visually oriented designers sometimes perform this step with UI sketches, others have strong preferences for the User Environment method and maintaining their entire application structure is such an abstract notation. In case of multi-channel applications, in which a focus area may map to different user interfaces depending on the target device, UI independent representations of an application become a key asset in the design.

User Experience Building Blocks can be considered as specialized focus areas tailored for a specific work practice. For example, a toolset to build online shopping solutions could offer User Experience building blocks for shopping in a catalogue, a shopping cart, and for a personal profile. Each of such templates would resemble focus areas with some pre-defined semantic tailored to the purpose of this building block.

As the purpose of an User Experience Building Block is known a-priori, it can provide suggestions about functionality and content. It could, for example, suggest functions for browsing and collecting multiple products in the catalogue, or changing quantities in the shopping cart when checking out.

Designing based on User Experience Building Blocks is like working with a pre-defined abstract User Environment tailored to a certain task domain. The construction of an application is much faster when templates of building blocks are available. The designer only has to fill in the information and functions specific to the use case.

2.2 Guidance for Discovery

As User Experience Building Blocks abstract common work practice, they can also be used to guide user research and set focus in the contextual interviews.

As described in Contextual Design, the focus setting before the contextual interview is very important as it influences what you discover in the field. When interviewing or observing the work practice of end users, the interviewer will only capture those facts which he or she is focusing on. If you are focused on people to people collaboration, you might capture every communication between people, but may not notice how users organize their personal work or do other job related tasks.

User Experience Building Blocks can train interviewers to focus on certain aspects [3]. Once interviewers discover an opportunity to apply a building block (for example observing a shopping scenario might set the focus on validating the appropriateness of the catalogue and shopping cart functionality. Such design building blocks activate a set of design hypothesis which can used to be validated in the

interview or used as a heuristic tool to guide the interview to complementing information.

3. Deconstructing design

Defining a design process based on User Experience Building Blocks allows for targeted requirements gathering and, in the extreme, reduces the design process to content filling. Solution architects would capture content and functions within specialized templates. In [?] we gave examples of Context Maps that are used to capture information for building blocks used in composite business applications.

If pre-implemented UI patterns are available for the User Experience Building Blocks, the capturing of requirements could be potentially done directly within the target user interface, either on paper or per wysiwyg editor to get feedback not only on concepts or ideas, but on UI samples. End users can usually not articulate their needs, but respond to sample UI very directly.

Apple's iWeb is such a tool for creating web pages by selecting an appearance (colors, border decoration, fonts) and specific page type templates (layouts). These are pre-populated with placeholder content (text, images, links) which the user replaces by copy-paste, drag-and-drop, importing or simply pointing to a page to be linked to on click. So right from the beginning there is a web page which can be viewed in a browser and navigated, but then can be progressively modified, first with own content, then by connecting pages, then by tweaking various appearance aspects, like changing the font size or background color.

This is a good example of end user development [4] in which the expertise of design is not required and the user is enabled to develop a web site without any understanding of design and underlying technology.

The potential of replacing UI design by directly mapping content to User Experience Blocks depends on the existence of patterns of work practice and predictable user intents. This is often the case in many business applications and consumer oriented web sites.

User Experience Building Blocks leverage an initial design and amortize the investment in design over many, many instances of solutions. It requires a high quality initial design based on a solid analysis and identification of patterns of work practice in the target market.

4. REFERENCES

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