

VERTICAL USABILITY DESIGN

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Do usability designers need an understanding of industry verticals to create cohesive experiences in enterprise applications?

ABSTRACT

Designing user interfaces and experiences for enterprise applications demands a certain degree of domain knowledge. This industry vertical knowledge enables usability teams to gather the right information; understand the enterprise; design, prototype and test the solution. In this paper we have deconstructed the tasks and challenges faced by usability teams in designing for domains.

KEYWORDS

Usability design; industry verticals; enterprise applications; application experience design; brand communication

INTRODUCTION

Enterprises in specific vertical industry domains have evolved to be a complex nest of business critical information generated from their standard business processes. At present, enterprises with appropriate vision and orientation are trying to tame these silos of critical data to find directives to conduct their business effectively. In effect they have envisaged a need to deploy useful and usable enterprise applications for their business functions. These applications help business functions to forecast, plan, execute and track initiatives and the overall business. They can range from being specific legacy applications to best-of-breed function specific cutting edge tools.

Over a period, enterprises have also realized that collated data across these applications provide decision-aiding views of the business. To enable this they have integrated these silos to create portals that provide intelligent action-able views and behave as integrated business desktops. These applications are for varied proficiency of user groups across multiple locations and different business functions. So it is critical that they are designed to be user-centric and intuitive in their information architecture, design and interactivity.

For development teams, initiating an engagement on enterprise application involves detailed understanding of the users, critical tasks, business environment and the system itself. This demands usability designers

to understand the user perspective, technology architects to define the feasibility and domain experts to intelligently partake in capturing the requirements. For usability teams designing such applications, it is a challenge to understand the overall environment of the vertical industry domain and the enterprise business to create compliant intuitive user-facing layer. On the flipside, there is also a great demand for usability teams who effectively develop the user interfaces for these domain enterprise applications. Let us delve in the multiple aspects of being 'domain-intelligent'.

UNDERSTANDING ENTERPRISES

Industry verticals dictate the construct of any enterprises that conduct business in that domain. The 'best practices' are followed as the overall drivers to define the nature of the enterprise. There are clear demarcations between business functions with listed sets of roles and responsibilities to define the organization structure. Further, the employees or the potential users of the enterprise application are of typical profiles to be loosely collated as groups. This situation demands the usability team to deconstruct the organization and define sample user profiles that can illustrate the enterprise as closely as possible.

These exercises are done in a workshop format with all key stakeholders from the business functions in the enterprise. In case the exercise is done remote there is a representative of the usability team present onsite to collect the relevant information.

It is key to understand the business processes that drive the organization and is relevant to the enterprise application under question. Understanding the business processes demands a fair degree of domain knowledge or a generic idea of the corporate in that industry vertical. This takes us to the hidden information model and the taxonomy of a domain and an enterprise.

Devising an information model

An information model is a complex representation of any domain enterprise through information silos, the sources and their inter-relationships. It is necessary

to understand the standard usage of terms and the hierarchy of information in a business process to derive an information model. This is commonly known as industry taxonomy. The correctness of an information model depends on the research methods used and 'usable' representation of the findings.

The usability team should clearly adhere to a 'System Thinking' method of enquiry and collation to arrive at an appropriate model. They should devise parametric questionnaire that are relevant to the users of the system or the enterprise application, tasks that are involved in usage, the environment affecting the system and its usage and finally, the nuts and bolts of the system itself.

Eventually the team would have defined the construct of the enterprise through various elements of an information model:

- Organization Structure: The designations, roles and responsibilities of the personnel involved in developing and using this enterprise application
- User Model: Profiles, proficiency and roles of the users of the enterprise application
- Concept Models: This model defines the entities involved in business processes in the relevant functional area of the enterprise
- Process Models: Visual representations of the processes used in the relevant business function that are to be considered in the development of the enterprise application
- Taxonomy: The inherent architecture of information, hierarchies and inter-relationship between them across enterprise business functions and locations
- The Enterprise Information Model: A diligent documentation of all information in their hierarchy, relationship and offline transaction methods

This defines the information landscape of the system. The usability team presents these findings as easily decipherable visual representations in a meaningful manner. These representations are also used as tools to derive the software requirement specifications and use cases by the technology team.

DESIGNING THE INTERFACES

In a domain enterprise scenario it is important to present critical information for business function users upfront. This can further lead the users to detailed information. Usability designers create 'dashboard to drill-down' views of the application that is intuitive and cohesive. These views are personalized to present the information in personnel specific collation. For instance, a CIO in a company will get a unique collation of information in his page view from that of VP Marketing in the same enterprise. These views can

also be location specific with Regional Managers of a retail organization getting actionable dashboards of their region. These views are created by mapping the hierarchy of the users to what they need to view from the information model. The overall drivers of the usability designers are to create proactive interfaces that collate and present critical information in an actionable manner.

Proactive interfaces against reactive interfaces
User interfaces in enterprise applications have evolved into a new paradigm. Now, there are more choices to the front-end technology based on the complexity of information presented and the demands of interactivity from the enterprise users. These are hybrid interfaces are simple in information design and versatile in interactivity and presentation. Simple browser-based interfaces; interfaces that use components to mimic Microsoft Windows® interactions like right-click actions and interactive charting abilities; smart client interfaces that process critical information at the client-side on interaction; rich media interfaces like Macromedia Flex® and Macromedia Flash® serving rich content like animations and movies are a few samples of the new paradigm.

In this scenario, users expect enterprise applications and their interfaces to be proactive in collating, customizing and presenting critical information. Proactive interfaces also present decisive information like collated summations of a category of information at the dashboard pages with positive and negative indicators. This presentation aids the user to prioritize their task flows and not spend click streams in vain. Usability designers need to create presentation and interaction models that provide this critical information upfront rather than develop reactive interfaces that present information only on user interaction. These hybrid user interfaces result in enhanced productivity of the user and the enterprise.

BRAND AND INFORMATION DESIGN

Domains and the enterprises deploy best practices in brand communication. There are generic value propositions and personae that are typical within domains with a key differentiation added to any enterprise as a twist. For instance retail brands are more 'in the face' than a healthcare brand. Further all healthcare brands will come across as being compassionate and caring with a specific healthcare system projecting itself as being more personable than the others.

The enterprises believe that their applications are an extension of the brand. They should function, in their experience and visual expression, in adherence to

the overall brand story of the corporate enterprise. For usability teams, the challenge is to create a brand expression that is compliant through an appropriate color palette, typography, tone/voice and behavior. On the other hand, enterprise applications are high frequency of usage, high duration of interaction and is critical as a business tool for the enterprise. Considering this, the brand expression should not intimidate or create discomfort to the user. Usability teams need to balance between being brand compliant and not being non-ergonomic. The directive is to focus on unobtrusive information design that uses brand elements as devices to create clearer communication and increase usability. It should focus on presenting critical information on a constrained screen real estate with the right prioritization and effective design.

PROTOTYPING AND USABILITY EVALUATION

As we know, domain enterprises pose a challenge of users with varied proficiency of usage or knowledge of information technology concepts. Issues like inability to comprehend documentation on the solution or finding a suggested solution complex will crop up often in such situations. Usability teams rely on iterative prototyping of the solution to provide a near-to-real view of the application. These prototypes are evaluated for ease of use across user samples of varied function groups and proficiency. This also enables usability teams to architect solutions that are closer to user expectations. There are various levels of prototypes developed during the course of development:

- **Blind Prototype:** Blind prototype is used to indicate the intrinsic information architecture and the navigation of the application. They are a set of pages with headers and no page details to indicate the overall navigation model. This prototype is used to evaluate solutions' compliance to the information model.
- **Deep-slice Prototype:** A critical user task flow is detailed up to the last level of navigation to create a deep-slice prototype. This prototype is used to evaluate the navigation and the interaction model, page structure and information design.

- **Wire-frame Prototype:** This is an unbranded prototype of the entire application. Wire-frame prototypes are used to evaluate the appropriateness of a solution in its entirety. Technology teams use this prototype to derive or modify the requirements before initiating technical design and development.
- **Brand Expression Prototype:** Although not created in all enterprise application projects Brand Expression Prototypes create the simulation of the entire application in its information architecture, usability and brand expression. This prototype is used to evaluate brand based issues and overall feasibility of development and deployment of the enterprise application.

Usability teams need to evolve domain specific testing models. They also need to use appropriate mechanism to capture and analyze all user feedback from test sessions. This exercise of prototyping and testing is a watertight method to deliver user acceptable solutions to the technology team.

THE VERDICT

Usability designers need not have deep understanding of the industry vertical to create cohesive user-facing layer for any enterprise application. However, they need to have a fair degree of domain knowledge and understand all unique challenges that they will face in designing for domains. These challenges can be easily overcome if they follow the methods prescribed in this paper to understand enterprise, design interfaces, prototype and evaluate their solutions. In the long run, usability teams that have worked on applications in specific domains have a natural advantage over others on understanding the syntax relevant to that domain.

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