

User Interfaces for Visual Analysis and Monitoring in Business Intelligence

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Theme: Smart Interactions

Business intelligence is concerned with understanding and leveraging the vast amounts of information stored in the databases of modern enterprises. Visualization techniques have been used to make sense of this data for a long time, first in the form of simple charts, and nowadays in the form of interactive visualizations. By leveraging the strengths of the human perceptual system and incorporating user interaction, they support the flexible analysis of data as well as data monitoring by users. The recent progress in the fields of information and data visualization as well as new hardware developments and trends in business intelligence have led to several new challenges, which will be discussed in this workshop.

Visualization Interface Usability and Discoverability

Using visualization environments requires training and remains hard for business users. Often, specially trained analysts create reports that are consumed by managers. This disconnects the decision making from data exploration and understanding. With easier-to-use interfaces, a larger audience would be enabled to explore and create visualizations themselves. To achieve this goal, learning barriers in current tools need to be discovered and removed, which might require new user interfaces and interaction techniques.

Mashups for Business Intelligence

Understanding complex problems often requires mixing multiple data sources. This is typically done in the enterprise backend, i.e. data warehouses, but this data integration is resource- and time-consuming. Situational problems might be worth analyzing as they might lead to many improvements. Yet many of them remain uninvestigated, because the effort is too high, i.e. for integrating internal and external data sources. Enabling business users to perform such data integration on the fly could lead to an increased number of insights.

Monitoring & Dashboards

Dashboards are now commonly used and customized by business analysts to support monitoring and awareness of business activities. Dashboards are highly configurable and present information visually through graphics such as charts, maps or tables. Current research on dashboard aims at both dashboard developers and dashboard users: For one, it is challenging to design dashboards that are easy to configure and to extend. In addition, understanding how different groups of individuals use existing dashboards and what kind of information they are looking for is a pre-requisite for the success of any dashboard product.

Web-based Visualization for Business Intelligence

The web is becoming the platform of choice for an increasing number of business applications, especially since the advent of Web 2.0, cloud computing and service oriented architectures. However, web-based visualization remains a challenge, especially due to limitations of current web browsers. Technologies such as Flash and Silverlight enable advanced situations insight browsers, but they require additional development and integration efforts because different languages need to be bridged. Different approaches to web based visualization have different pros and cons, which were presented.

Collaboration on Business Intelligence Visualizations

Collaboration between different business users in problem solving activities is important, because they bring different perspectives and skills together. Business intelligence tools need to support such collabora-

tion in order to help users develop richer insights and make better decisions. Collaboration in business intelligence goes beyond presentations and distributing reports, it can, for example, be the interactive process of analyzing data together on a tabletop, or the re-purposing of mashups created by others. We need to understand communication in different settings such as collocated and remote settings, as well as synchronous and asynchronous settings. Investigation of different communication patterns and how they relate to different artifacts and user groups are also needed to facilitate more effective collaboration through creating more suitable user interfaces.

Visualizations and Reports on Mobile Devices for Business Intelligence

Smart mobile devices with internet access are turning into a platform for accessing business reports and information. The constraints of these devices on interaction and information display are different from desktop computers: the displays are typically much smaller and there is no mouse or full keyboard, but a couple of buttons and a touch screen. This poses a challenge to the presentation and interaction of reports and visualizations. We need to investigate how interaction with visualizations and reports needs to be adapted for mobile devices in order to achieve ubiquitous access to business information.

Using Large Screen Displays & Tabletops for Business Intelligence

Large screen displays and tabletops will most likely develop into common tools for collaborative visual data analysis due to the screen real estate and the interaction patterns they offer. In order to truly leverage these advantages, we need to understand how users work with such devices, and design user interfaces that support their interaction with the data and collaboration with each other.

In this workshop, current state-of-the-art user interfaces of business intelligence tools that address the above challenges were shown and new research developments were presented.