



Elegant MicroWeb
Delivering the Value of Technology

Case Study

Software Re-Engineering and Ux Improvement for ElegantJ BI Business Intelligence Suite



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Case Study

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The Company

ElegantJ BI is the flagship software solution of Elegant MicroWeb, a software products and services company, located in India. ElegantJ BI is a complete business intelligence suite with dashboards, OLAP analysis, ad-hoc reporting, KPI, interactive graphs and reporting and has its own MOLAP engine, and a 100% browser based interface. Company serves customer and partners across the globe with this business intelligence product and services.

The Objective

The Elegant MicroWeb product engineering and Ux team undertook this project to improve the usability and overall User Experience (Ux) for the ElegantJ BI product suite, and to execute overall product reengineering to ensure a sustained competitive position in the business intelligence market and provide state of the art products to partners and customers around the world. The project goal was twofold.

- Improve the Ux for its popular business intelligence product
- Reengineer product and migrate to new application architecture

Ux improvement was necessary in order to make the interface adaptable and responsive to the growing number of device screen resolutions and sizes. While the existing interface was 100% browser-based, the Ux elements did not provide support or flexibility for different devices and did not meet customer expectations for responsive, intuitive displays and interactive capabilities on popular tablet and mobile devices. With the growing importance of data visualization and user interactivity in the business intelligence market, these changes were imperative to sustain and improve competitive market advantage.

Software reengineering and migration was necessary to upgrade the product architecture. The existing product utilized an old version of application server and middle tier frameworks. As the size and usage of data, complexity of data analytical processing, and number of concurrent users increased, the ElegantJ BI management team wished to improve performance, interoperability, integration and support for large volumes of data. To accomplish this goal, it was necessary to implement distributed architecture and optimize middleware to improve scalability.



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The overall objective was to leverage the initial product investment while improving market advantage and product differentiation to retain existing customers and attract new customers and partners.

The Solution

Elegant MicroWeb studied the ElegantJ BI product and usage requirements, gathered feedback from key customers and partners, and compared requirements to market and competitor offerings, with supporting data from its ElegantJ BI implementation and customer support teams. The goal was to ensure market differentiation by creating a leading edge solution that would provide a unique user experience, and dependable, mobile accessibility, performance and scalability.

The team designed a product roadmap that would offer features and functionality, and a responsive UI that would be unique in the market and provide a competitive advantage for the ElegantJ BI and its partners and customers. The core team included product management, technical experts, Ux experts and selected members of implementation and support team.

The User Experience improvement team prepared a comprehensive plan to reengineer and redesign the software foundation and user interface and

ensure a responsive, intuitive interface that provides a unique user experience on all popular mobile and tablet devices.

The Software Reengineering team conducted feasibility studies for several frameworks and libraries, and prepared the technical architecture and roadmap. It utilized the existing underlying architecture of the application server and other frameworks and provided a path for migration to a new, cutting-edge architecture to create an environment that was designed to incorporate industry standard frameworks and improve scalability, performance, reliability and interoperability.

Elegant MicroWeb reengineered the product architecture and designed a completely new user interface with responsive interface design and compatibility with tablets, desktops and mobile devices. The solution provides numerous performance and scalability benefits and user-friendly features that improved user adoption, and user satisfaction and increased productivity and efficiency.



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Technology Benefits

- Ensure a responsive user interface to accommodate desktop, tablet and smart phones devices and resolutions
- Provide uniform UI controls and front-end frameworks
- Optimize front-end, client/user performance
- Provide efficient integration framework for integration with third party applications
- Ensure industry standards compliance
- Provide the most current frameworks to leverage up-to-date technology standards
- Improve performance and scalability to accommodate large data, more concurrent users, intensive processing, and distributed computing
- Protect and optimize technology investment in ElegantJ BI product by leveraging the existing code base rather than developing from scratch
- Improve performance, stability and interoperability
- Ensure protection of IT investment and provide scalability, maintenance and flexibility for future industry standards and interoperability requirements

User Benefits

- Optimize user learning curve
- Provide engaging, new Ux to improve user adoption and decrease training requirements
- Ensures a simple, easy to use, work-from-anywhere, responsive environment for mobile and desktop users alike

Business Benefits

- Provides leading edge, responsive UI technology for all business intelligence modules
- Protects and leverages initial product investment to avoid 'from scratch' development effort
- Offers competitive advantage and market positioning with responsive UI
- Ensures seamless data access across different devices
- Improves performance and scalability, and accommodates larger data volume and a greater number of concurrent users
- Ensures a market and competitive advantage and numerous product differentiators to retain existing customers and attract new customers and partners



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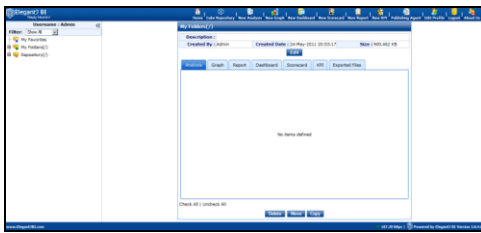
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Ux Improvement

The resulting Ux improvement provided numerous user and business benefits, as well as a distinct competitive advantage.

Home Page

v 3.x



v 4.x

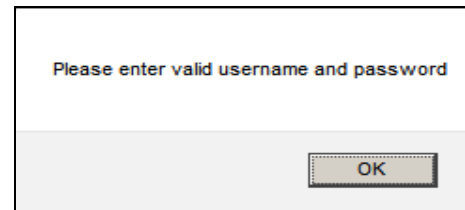


- New home screen with intuitive, user-friendly layout and look n' feel
- Ability to access Recently Used objects, My Favorites, Cubes, My Folder and Repository

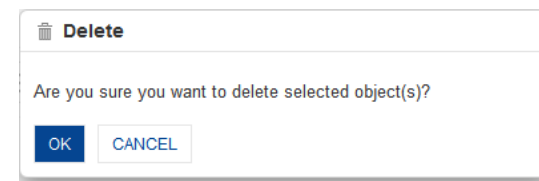
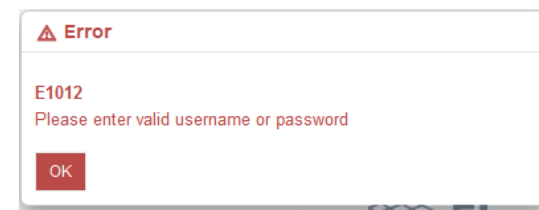
- More visibility of content and information on page by reducing header and footer height
- Other pages are accessible through menu dropdown on top, easy to navigate pages and functionalities
- Flexibility to manage content on a page through admin interface
- Admin can share company or any other information on home page

Labels, Messages & Error codes

v 3.x



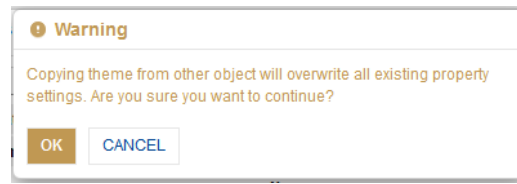
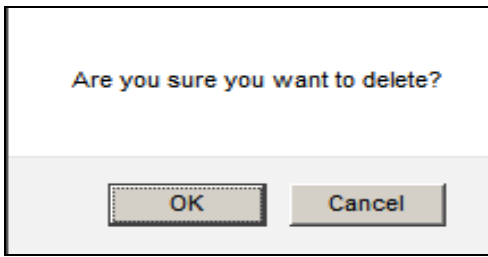
v 4.x





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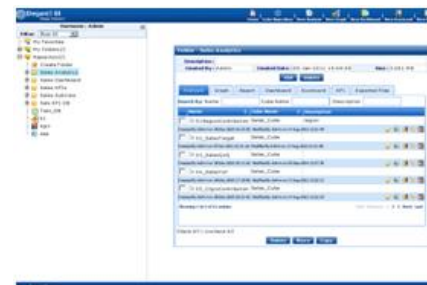
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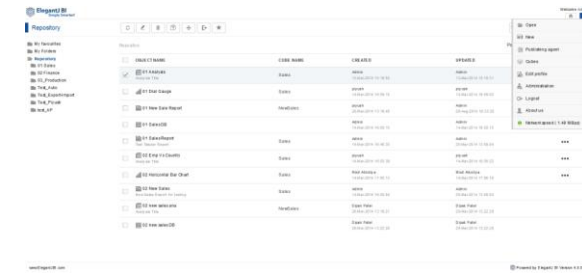
- Custom alert and message box for errors, warning and confirmation
- Descriptive message along with error code, allowing developer to debug and correct issue quickly
- Highlight message box actions with dark color
- Eliminate JavaScript alerts

Repository and Navigation

v 3.x



v 4.x



- Menu navigation on top right, allows users to click and access objects and functionalities easily
- Action buttons are in one place within repository, e.g., Refresh, Delete, Edit, My Favorite, Copy, Move
- List of objects with enough information on repository for user to navigate and access objects
- Improved tree traversal and accessing folders and objects
- Easy to sort and navigate objects across pages
- Ability to search object with all meta information



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Controls

v 3.x

A slider control labeled "Rank" with a range from 0 to 10. The slider is currently positioned at 2.

A list control titled "Product Name" with a scrollable list of items, each with a checkbox:

- ☐ Apple
- ☐ Beer
- ☐ Cake
- ☐ Chocolate
- ☐ Cola
- ☐ Cookies
- ☐ Ginger Tea
- ☐ Green Tea
- ☐ Macaroni

Two separate controls for date selection:

Year: 2010 | 2011 | 2012 | 2013 | 2014

Quarter: Q1 | Q2 | Q3 | Q4

Month: Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec

v 4.x

A complex "TimeSeries Filter" control with multiple tabs for Year, Half Year, Week, and Date. The Year tab is active, showing a range from 2003 to 2010.

A date range control showing a dropdown for the year (2010) and buttons for quarters (Q1, Q2, Q3, Q4) and months (Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec). A dropdown for the day of the week (Tue) is also present.

A slider control labeled "Rank" with a range from 0 to 10. The slider is currently positioned at 0. It includes "Top" and "Bottom" buttons.

A "Single Column" list control with a search bar and a list of items: Arizona, Arkansas, Ohio, and Washington. The list is currently empty.

A "Multi Column" list control with two rows of items, each with a search bar and a list of items:

State: London x Manchester x

City: Barnet x Harrow x



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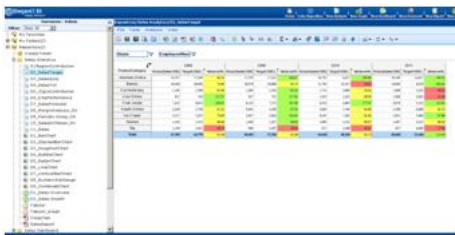
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- New design of controls with focus on usability and easy navigation
- Compatible across different devices, e.g., tables and mobile devices
- Different design method for controls, e.g., for time series, users have option to set options as dropdown or multi select
- Plenty of UI properties to style each control

- Clear view of analysis by removing additional navigation on left, and reducing title space
- Improved toolbar for action buttons
- Change in new default theme
- More properties for styling analysis, measures, columns and rows

Analysis

v 3.x



v 4.x



KPI

v 3.x



v 4.x





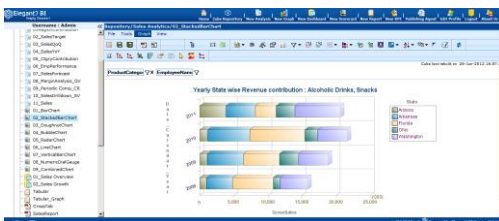
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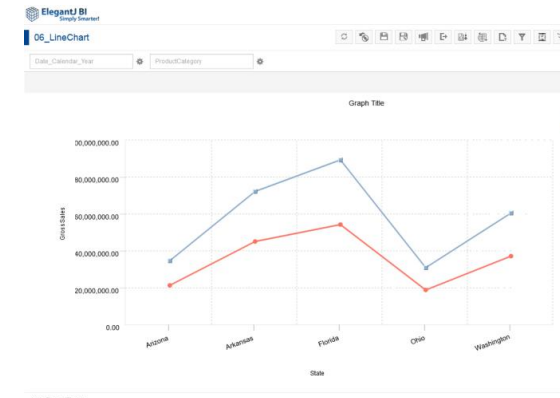
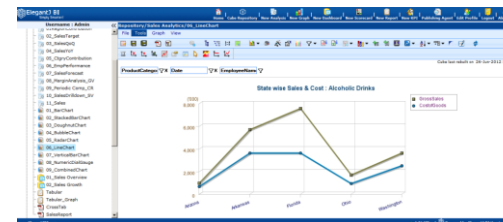
- Clear view of KPI by removing additional navigation on left, and reducing title space
- Easy navigation for Views, Frequency and Period
- Change in new default theme
- More properties for styling KPI, Gauges, Trend and Data

Graphs

v 3.x



v 4.x



- Clear view of Graphs by removing additional navigation on left, and reducing title space
- Change in new default theme
- Legend is now floatable, dockable, and scrollable so there is more area for graphs
- More properties for styling each type of Graphs

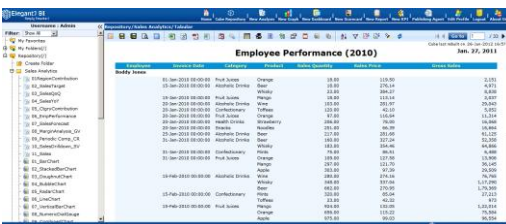


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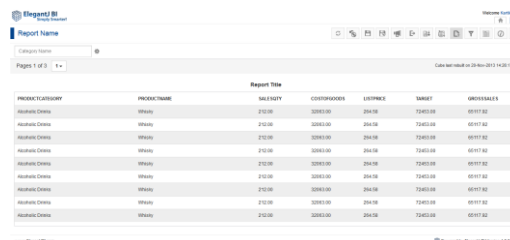
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Reports

v 3.x



v 4.x

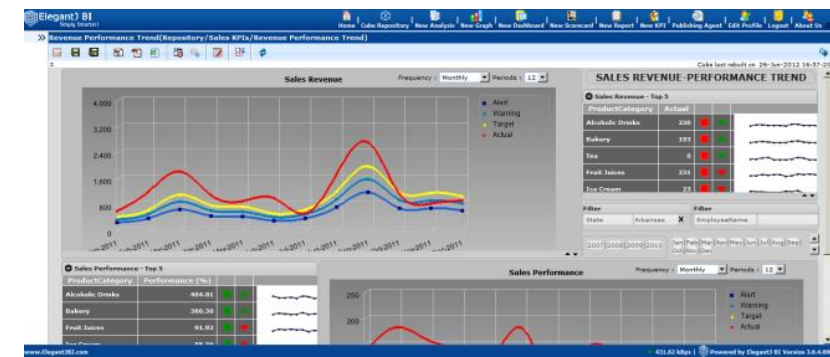


Dashboard

v 3.x



- Clear view of Report by removing additional navigation on left, and reducing title space
- Change in new default theme
- More properties for styling reports

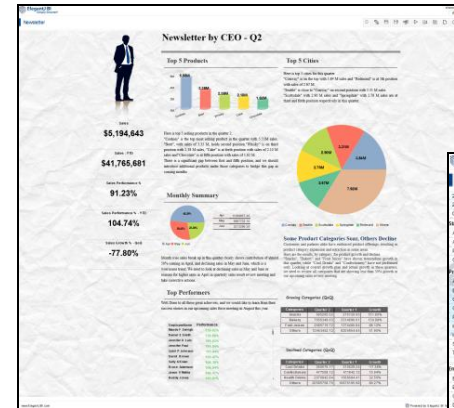
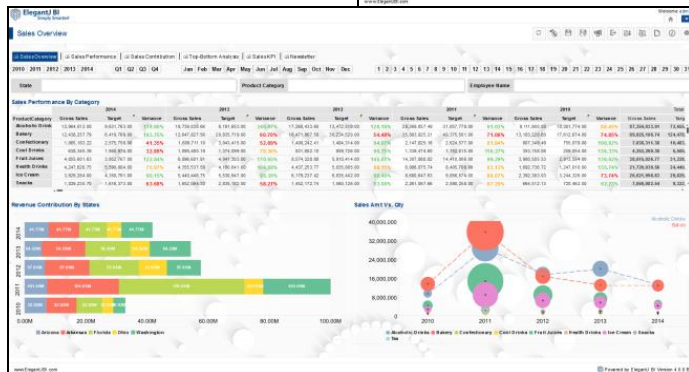
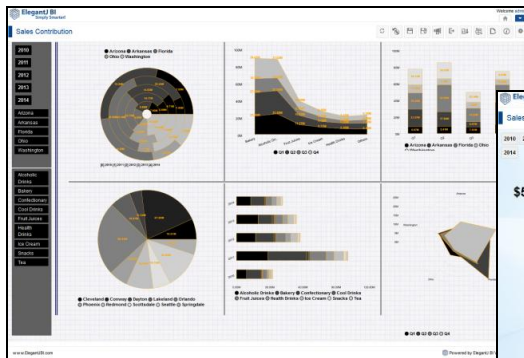




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v 4.x



- Ability to create more attractive dashboards with a few clicks
- More design capabilities and properties including background, fonts, height, width, colors etc., to make dashboards more attractive

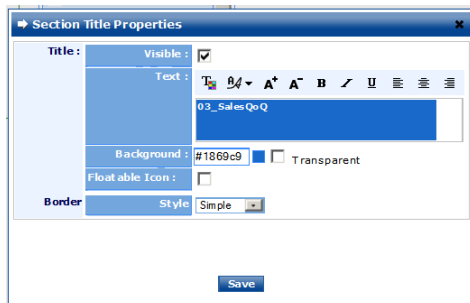


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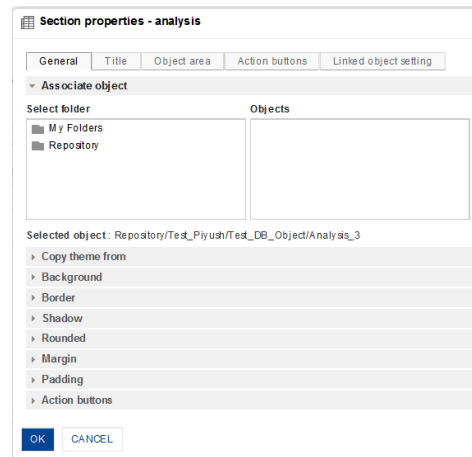
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Properties

v 3.x



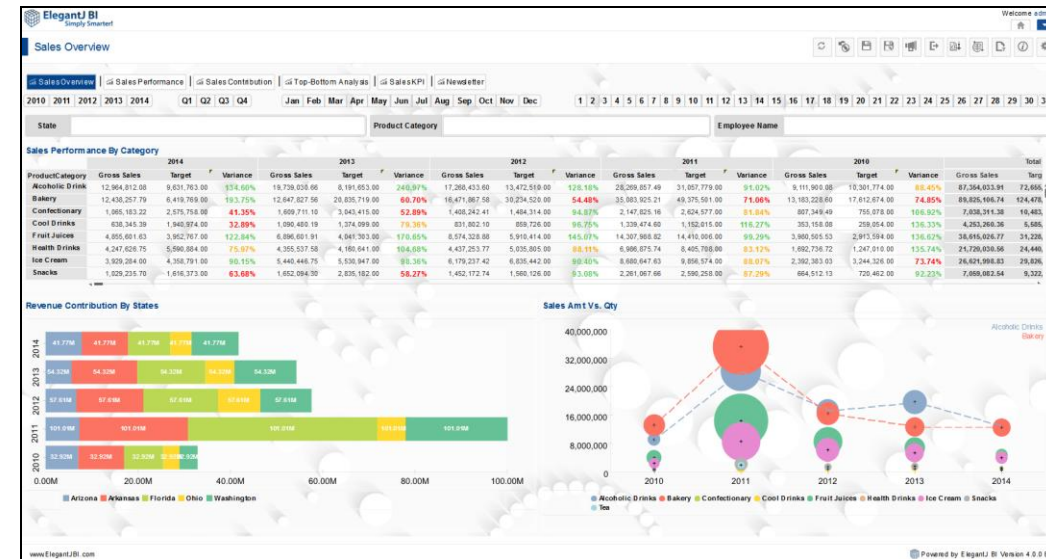
v 4.x



- Well-defined list of properties, and more options to design objects on front-end
- Neat, clean layout and sections with in-property dialog

Responsive Design

Dashboard Desktop View

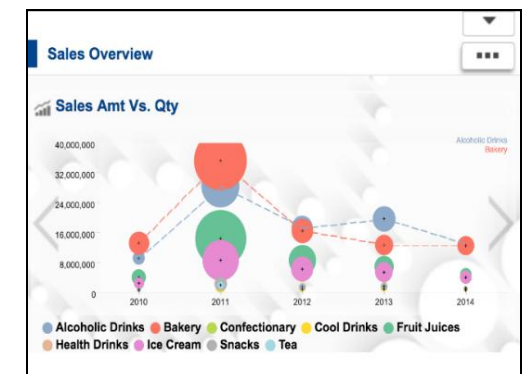
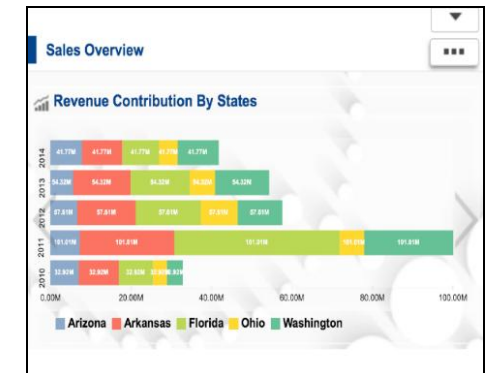
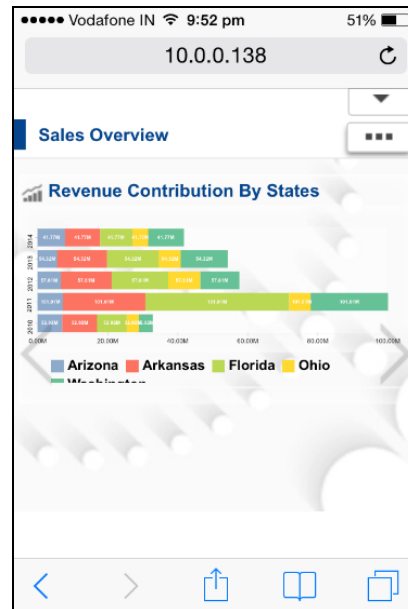
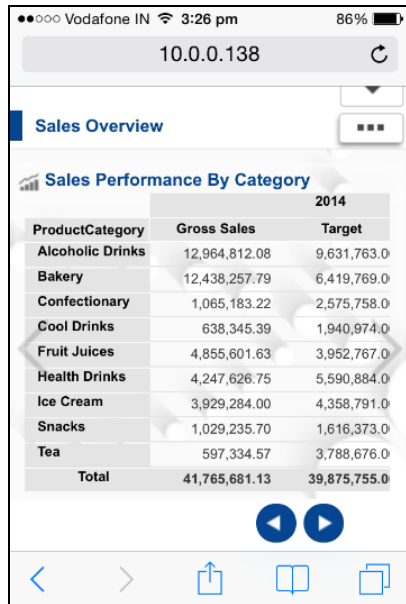




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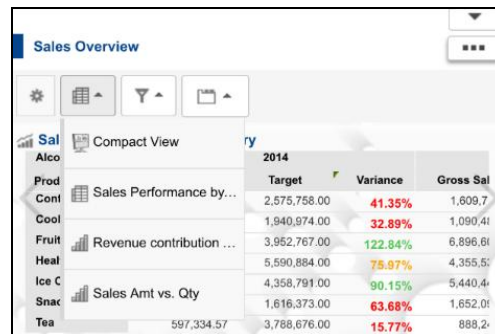
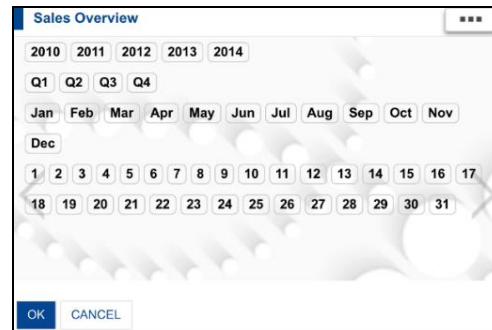
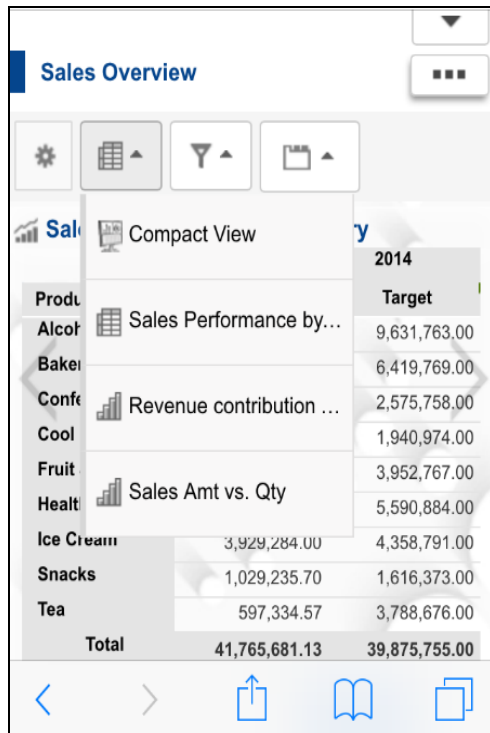
Dashboard Mobile View





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The Technology

- Implementation of Service Oriented Architecture (SOA) with modular business web services for easy integration and reuse to create a truly flexible, adaptable IT infrastructure
- Migration to Spring Framework for comprehensive application infrastructure support and non-invasive application of enterprise services to 'plain old Java objects' (POJOs)
- Spring MVC for clean division between controllers, JavaBeans models and views
- Spring security for comprehensive and extensible support for Authentication and Authorization
- Hibernate for implementation of Object-Relational Mapping (ORM) to create database independent data access layer for the application
- Implementation of Scheduling framework and Logging framework
- Improvement and enrichment in graphical engine
- Use of RDBMS for meta data management



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Elegant MicroWeb Role

Elegant MicroWeb worked closely with the ElegantJ BI implementation and customer support team throughout the life cycle of software re-engineering and Ux design.

Project Life Cycle

- Requirements and feasibility study
- Technical evaluation and roadmap
- Architectural and technical framework design
- Software Re-engineering, Ux design and development
- Beta testing
- User acceptance testing
- Documentation

Ux Design and Implementation Process

Elegant MicroWeb used the Agile Software Development Process to ensure success, rapid ROI and low TCO, as well as improved customer and stakeholder satisfaction.

Design - including functional requirements, user analysis, information flow design, branding and theme design, graphical sketches, and interface element controls, e.g., input controls, navigation components, informational components and containers.

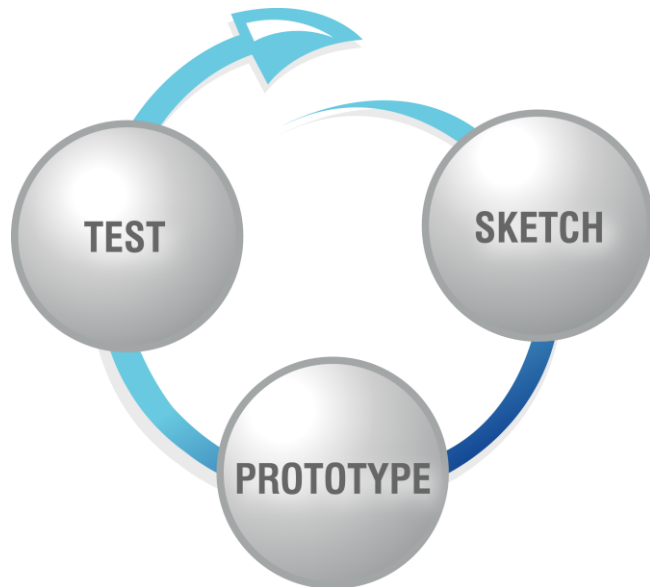
Implementation - including selection of design frameworks, prototyping, usability review, UI design, and UI design review with stakeholders.

Testing - including comprehensive testing phases and techniques for cross-browser and cross-device compatibility for target devices and platforms.



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The Agile Software Development Processes

Conclusion

The members of the Elegant MicroWeb team worked with the ElegantJ BI team to design a roadmap for usability improvement through UI design and reengineering of the product. The roadmap focused on responsive UI design, device interoperability, performance, and improvement and implementation of industry standard architecture. Using the latest technologies, standard frameworks and techniques, Elegant MicroWeb designed, developed and delivered a re-engineered software solution and new Ux design to satisfy all requirements, improve product performance and scalability, and provide numerous competitive and business advantages. This project resulted in improved user satisfaction and adoption and provided a solid foundation for future product growth and technical interoperability.



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