OPENTEXT™

5 Best Practices for Designing Data-Driven Applications

Deliver applications that inform, connect, and motivate end users

Data-driven apps have become a major growth engine for the worldwide software market. Analysts predict that smart computing software will become a $48 billion market and have proclaimed that we are in an era of data-driven marketing and sales. From personalized portals to wearable devices, data-driven apps are all around us.

Yet designing compelling data-driven experiences remain as much of an art as it is a science, especially for customer facing apps with both a large number of users and large data sets. Fortunately, an emerging set of design principles inspired by consumer devices provides guidelines for delivering apps that inform, connect, and motivate end users.

1. Recognize How Data Impacts the Customer Journey

Understanding the customer journey and how to use it to deliver relevant data is a key business differentiator. Enabling customers to create a digital persona (such as managing their accounts, checking their usage, and personalizing their services) is a game changer.

Today's consumers are smart, connected and demanding, so delivering a great customer experience requires responsiveness, personalization and portability. A good application will:

- **Inform.** Customers pay attention when they're offered helpful and useful data. For example, a travel booking tool that analyzes historic data to advise customers on when to purchase travel.

- **Connect.** Data can build connections, especially when it meets customers at the right time. Data-driven apps and personalized experiences can connect users to brands. For example, an online shop that uses QR codes and a mobile app to blend advertising and online shopping.

- **Motivate.** The ultimate goal of data is to influence customer behavior. Together, data and context drive participation and engagement.

SUMMARY OF BRIEF

- *Five best practices (with examples) for designing scalable and personalized apps*
- *Why data is a differentiator in customer facing apps*
- *Why big data and mobile adoption create new challenges for developers*
- *How the "small data" design philosophy drives focus and agility*
- *Suggestions for creating compelling, high-scale data-driven apps and solutions*

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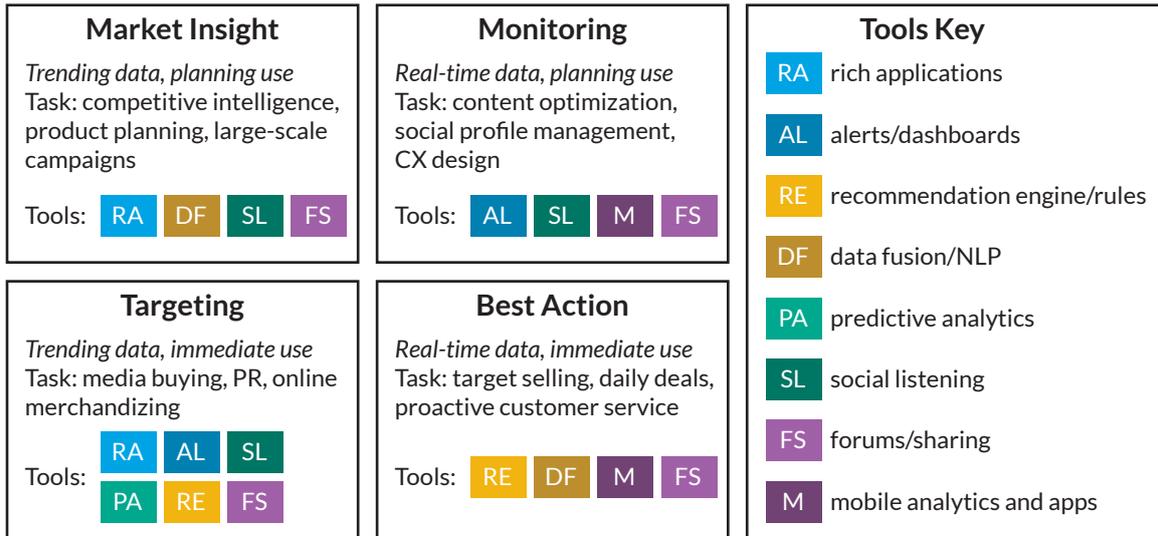| Market Insight	Monitoring	Tools Key
Trending data, planning use Task: competitive intelligence, product planning, large-scale campaigns	*Real-time data, planning use* Task: content optimization, social profile management, CX design	**RA** rich applications **AL** alerts/dashboards **RE** recommendation engine/rules
Tools: RA DF SL FS	Tools: AL SL M FS	**DF** data fusion/NLP
Targeting	**Best Action**	**PA** predictive analytics
Trending data, immediate use Task: media buying, PR, online merchandizing	*Real-time data, immediate use* Task: target selling, daily deals, proactive customer service	**SL** social listening **FS** forums/sharing
Tools: RA AL SL PA RE FS	Tools: RE DF M FS	**M** mobile analytics and apps

Figure: 1 Use Cases

For the customer, it's all about getting the data they want, when they want it and how they want it. With the rich mobile access available to users, this is increasingly a multi-channel, multi-device challenge that requires instantaneous responsiveness. Also, with the vast datasets collected by devices, from wearable wrist bands to the cars we drive, there is a greater need for a secure and scalable platform to access, manage and deliver personalized content.

2. Focus on the "Last Mile" of Big Data

The last mile of Big Data is where opinions are formed and actions are taken. For application designers, meeting the last mile challenge requires understanding self-service use cases and leveraging tools that turn Big Data into small data that helps people perform specific tasks. *Figure 1: Use Cases* shows four types of intelligent apps use cases:

- Market Insight
- Monitoring
- Targeting
- Best Action

A study by Digital Clarity Group, *Thinking Small: Bringing the Power of Big Data to the Masses*[1] , references use cases based on the last mile concept and the idea of immediate data access and consumption. Their recommendations include:

- Look to marketing to shape the future of big and small data
- Consider immediacy when defining data access and consumption needs
- Apply best practices to make apps simple, smart, responsive, and social
- Use data to drive smarter decisions and more responsive campaigns

The study defines a data funnel model that identifies sources and tools for collaboration, campaigns, and development. It also recommends a focus on highly consumable apps and dashboards, and the importance of pulling in data from many sources when building reports, visualizations and data-driven apps.

3. Build to Scale (Sources, Formats and Devices)

Even though we are surrounded by data-driven devices, it is a challenge to design compelling data-driven experiences. Access to large volumes of data, diverse sources of data, agile development with rapid time-to-value, and a highly branded, engaging personalized user interface that integrates with other corporate apps add to the challenge. The development platform must meet these design challenges:

- **Access Data.** Data volume and velocity are constantly increasing and data sources are becoming more diverse, encompassing RDBMS, NoSQL/NewSQL, Hadoop, cloud, social media, and document archives.
- **Manage Data and Applications.** Businesses want agile development, rapid time-to-value, controllable, predictable development, and management of costs.
- **Deliver Large-scale Applications.** Apps must be easy to use, engaging and delivered securely to web browsers and mobile devices. They also must integrate seamlessly with existing branding and appearance.

The applications in the upper right quadrant in *Figure 2: Customer Facing Applications* require a secure, scalable platform to meet those three design challenges.
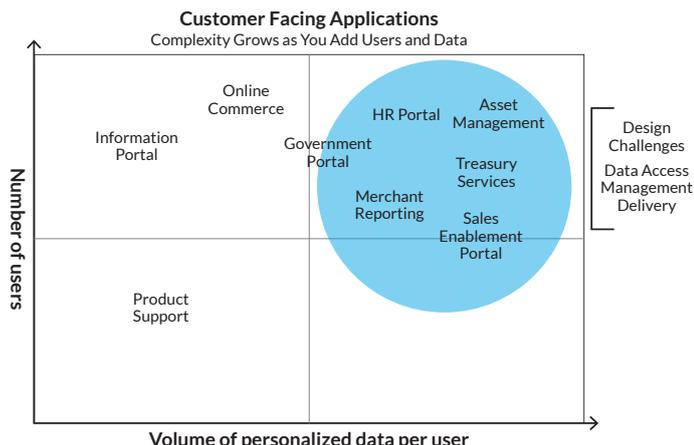
Customer Facing Applications
Complexity Grows as You Add Users and Data

Figure 2: Customer Facing Applications

Enterprises need to take a user-centric view, shift beyond Big Data, and focus on adding value. They must empower users with visual elements and engaging experiences, and make apps simple enough to enable users who aren't tech savvy to get the information they need. The dashboard in *Figure 3: Call Center Operations Analysis*, with several types of interactive data visualizations, is an example of such a design.

4. Listen to the Crowd (Open is Better)

For OpenText, this journey began when Actuate gave the crowd its core reporting engine in 2004. Since then, Actuate and OpenText have listened to the open source community, incorporated its feedback, and built a strong worldwide developer community. Our Integrated Development Environment (IDE), available today in both open source and commercial versions, enables developer productivity. The community gives our customers access to many resources to ensure that projects are delivered on time and with minimal risk.

5. Start Small, Then Think Big

Focus and agility are keys to designing data-driven apps quickly. Four principles enable focus and agility:

- **Make It Simple.** Apps should be straightforward and easy to use.

- **Make It Smart.** Apps should be smart enough to handle role-specific tasks.

- **Be Responsive.** Apps should deliver value on a variety of platforms.

- **Be Social.** Securely connect users and data to the larger world.

OpenText™ Analytics and Reporting products meet these design principles. OpenText provides a powerful analytics development environment and an enterprise-scale analytics deployment platform that can integrate many data sources; present data in familiar, web-centric formats; and embed analytic content in modular, maintainable apps. OpenText™ Information Hub (iHub) can support millions of users, provide instant interactivity with data, and operate in multi-tenant environments. It simplifies delivery of in-context insight, provides intelligence for thousands of apps, and enables delivery of data and insights to virtually any channel.

Figure 3: Call Center Operations Analysis

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