

Using Dashboard Design Principles to create Roambi Views

Cliff Alper -- August 24, 2010

Overview

Roambi visualizations certainly require no introduction but it may be useful to delve a bit deeper into their identity: what ARE these things, anyway?? Reports? Charts and graphs? Dashboards? Some combination of the above?? A look at Roambi.com reveals that Roambi is, "Your data, iphone style" as well as "The pulse of your business, in the palm of your hand." This doesn't quite answer the question; but does it really matter? Do Roambi views need to be categorized?? I think it matters a great deal, because different sorts of visualizations are useful for very different situations, contexts, and devices. It is important for Roambi designers to understand various types of visualization and to design the combinations that will prove most valuable and compelling for their users.

Roambi views are unique in many ways and of course include characteristics of all of the visualizations mentioned above. This may be over generalization, but most of the sample views are closer on the spectrum to reports and charts than they are to dashboards. Reports (as well as many poorly designed dashboards) require significant data mining; that is, clicking, drilling, searching, navigating, and generally hunting down numbers. Well-designed dashboards tell a story in a single screen and present the critical information to the user in a much more direct and concise manner. Which approach is preferable for uses of mobile devices? All users are in a hurry these days, even more so on mobile devices, which of course are far smaller than computers and a bit more difficult to navigate, making the dashboard approach valuable. This is especially true of high level execs who have neither the time, the patience, nor sometimes the technical understanding to sort through multiple charts and graphs to extract the answers to their questions; they want answers *right now*, with as little effort as possible.

The goal of this presentation is to demonstrate how to leverage the strategies and best practices of good dashboard design to create lists and tables that will complement the Roambi graphical views.

Dashboards vs. Reports

It's useful to review several key dashboard concepts that can be considered during Roambi design:

A dashboard is a visual display of the most important information needed to achieve one or more objectives; consolidated and arranged on a single screen so the information can be monitored at a glance. –Stephen Few, www.PerpetualEdge.com

Dashboards are meant to provide a quick indication as to the status of what is being measured – a snapshot, not a novel.

How do dashboards differ from reports?

- Dashboards are short and concise. Reports can be, but are usually longer in nature.

- Dashboards focus on specific KPIs. Reports include more background and data.
- Dashboards are meant to be monitored at a glance. Reports require more in-depth attention.

A single dashboard can:

- Display a high-level summary AND drill down to the most granular detail.
- Move both backward and forward in time, enabling the user to analyze the past and predict the future.
- Compare the same data with multiple KPIs.

A dashboard is actionable. To test a dashboard design, ask: “If the dashboard is successful, what will it enable the user to do . . . see . . . monitor . . . understand . . . identify . . . predict?”

Roambi views often “require more in-depth attention.” The goal of the case study below is to demonstrate Roambi designs that can be “monitored at a glance.” Together, these will provide a complete set of views that can “display high-level summary AND drill down to granular detail.” It's important to emphasize that these new views are not intended to *replace* the sample Roambi views; rather, they will *complement* them, providing the users with different levels of detail and drill-down.

Case Study Overview

This brief case study is based on the data in the Roambi sample CataList, *Sales by Store*. The goal is to illustrate several practical techniques for designing dashboard-style summary views for Roambi.

Designing Key Performance Indicators (KPIs)

The sample CataList template includes a number of measures and KPIs including sales, profit, visitors, and inventory. For the case study, I have selected a couple existing metrics and calculated several new ones in order to provide more insight into the business case. Each KPI is calculated for specific time period and for the increase/decrease between time periods, resulting in eight KPIs:

Sales by store

Sales per employee

Profit by store

Profit per employee

Sales by store – growth

Sales per employee – growth

Profit by store – growth

Profit per employee – growth

The KPIs are calculated for two timeframes, monthly and quarterly. Thus, 8 metrics and 2 time periods combine to produce 16 different reports that will provide a comprehensive look as sales and trends for the stores, products, and employees.

Designing Summary Views

How can 16 reports for 175 stores be summarized into a Cardex that can be “monitored at a glance?” The approach taken here is to filter the report to the outliers; our assumption is that users are most interested in the very high performers and very low performers. Thus, the data is filtered to display these groups by building ranking reports for each of the KPIs. The result is 16 top-20 ranking reports and 16 bottom-20 reports. These are published to two Cardex views: one for top-20 lists, the second for bottom-20. Here's an example of the Top-20 Cardex.

Cardex Categories (4)

Sales by Store

Sales by Employee

Profit by Store

Profit by Employee

Cardex Cards for each category/KPI (4)

KPI for current month

KPI for current quarter

KPI growth: month over month

KPI growth: quarter over quarter

The snapshot below shows that this organization of categories and cards provides the user with a high level menu for all the metrics and time periods and allows navigation to any card with two simple clicks. This is a summary view -- just the top 20, NOT all stores. If the user wants a more complete view, he simply goes to the CataList with the detailed visualizations for all KPIs.

Top-20 Cardex



The snapshots below show the four different card types that can be viewed within the KPI categories. Note that these cards have been taken from different categories. Each is a top-20 ranking report for a different metric and time period. These provide the user with key insights into the various KPIs and could be combined with the Bottom-20 Cardex, as well as the corresponding Catalist, to provide dashboard-style high level and detailed views.

Four Card views: 1) July Sales; 2) Q2 Sales Growth; 3) Jul Sales per Employee; 4) Q2 Sales Growth per employee

Close Jul Sales

Ranking Report

#1	Brooksville Outlets: \$57,153
#2	Celebration Outlets: \$56,268
#3	Coral Gables Mall: \$10,462
#4	Coral Springs Center: \$6,971
#5	Dania Beach Center: \$6,064
#6	Gainesville Outlets: \$6,054
#7	Green Cove Springs Outlets: \$6,010
#8	Kissimmee Center: \$6,006
#9	Lake Mary Square: \$5,899

Bottom navigation: Bar chart, People icon, Book icon, RB 123 CD 641 EF 910

Close Q2 Sales Gro...

Ranking Report

#1	Green Cove Springs Outlets: 6.7%
#2	Coral Springs Center: 6.4%
#3	Dania Beach Center: 6.3%
#4	Brooksville Outlets: 6.0%
#5	Coral Gables Mall: 5.7%
#6	Kissimmee Center: 5.5%
#7	Celebration Outlets: 5.1%
#8	Gainesville Outlets: 5.1%
#9	Lake Mary Square: 4.5%

Bottom navigation: Bar chart, People icon, Book icon, RB 123 CD 641 EF 910

Close Jul Sales per...

Ranking Report

#1	Kissimmee Center: \$26,006
#2	Lake Mary Square: \$25,899
#3	Lauderdale By The Sea Square: \$22,780
#4	Brooksville Outlets: \$21,153
#5	Coral Springs Center: \$19,971
#6	Celebration Outlets: \$17,268
#7	Coral Gables Mall: \$12,462
#8	Green Cove Springs Outlets: \$10,010
#9	Dania Beach Center: \$8,064

Bottom navigation: Bar chart, People icon, Book icon, RB 123 CD 641 EF 910

Close Q2 Sales per...

Ranking Report

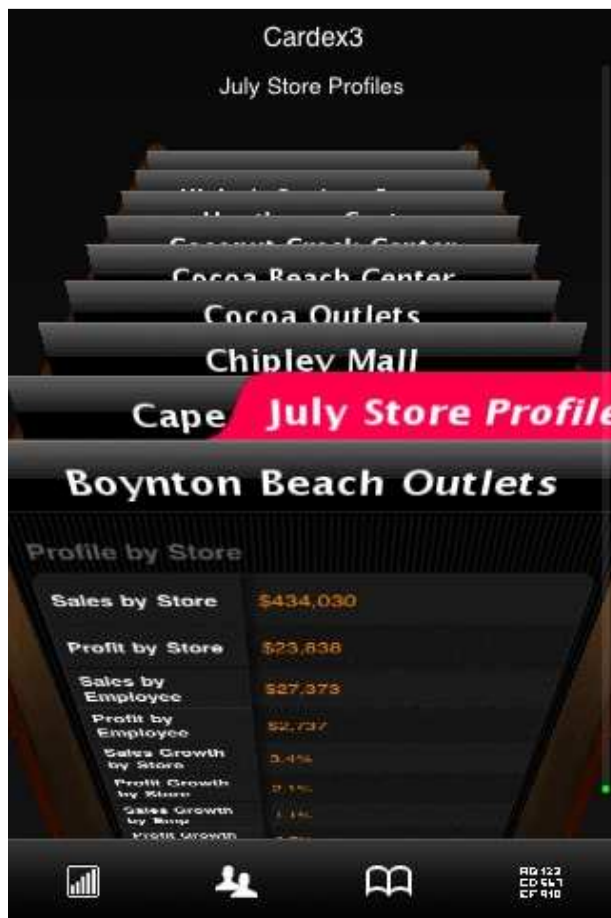
#1	Lake Mary Square: 2.5%
#2	Gainesville Outlets: 2.3%
#3	Coral Springs Center: 2.0%
#4	Kissimmee Center: 1.9%
#5	Lauderdale By The Sea Square: 1.9%
#6	Celebration Outlets: 1.7%
#7	Celebration Outlets: 1.4%
#8	Green Cove Springs Outlets: 1.1%
#9	Lake Mary Square: 1.0%

Bottom navigation: Bar chart, People icon, Book icon, RB 123 CD 641 EF 910

Show me the numbers

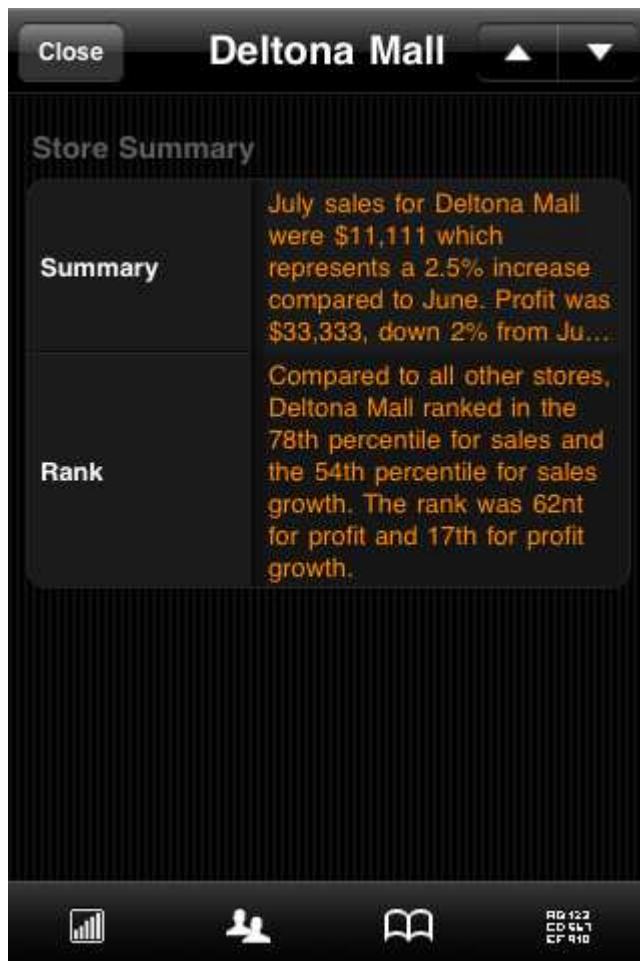
When designing dashboards, I generally design the charts and graphical visualizations first, and add corresponding data tables later. I used to ask the clients if they wished to see just the charts, or preferred both the charts and data tables, but I quit asking that question because the clients never, ever, wanted charts without the corresponding data. Roambi provides some really cool methods for displaying the data corresponding to charts, but some plain old data reports could provide valuable complements to the graphical presentations.

For this case study, a store-centric Cardex provides a good example. This is the equivalent of the Cardex Sales by Region, which presents sales organized around stores. This is a similar data report that summarizes all 8 metrics utilized above, providing all of the most important information at a glance.



Natural language reporting

There is certainly no question about the value and visual appeal of charts and graphs and colors and other visual design elements. However, it shouldn't be forgotten that the way that people communicate best is by plain, simple language: "July sales for Deltona Mall were \$211,111 which represents a 2.5% increase compared to June. Profit was \$33,333, down 2% from June." This conveys the most important information in a way that is easily understandable in just seconds. A similar overview is provided by this Cardex:



This is an ideal format for users of mobile devices who are in a hurry and on the go. It is especially useful for key information that is updated frequently, which after all, is most relevant for mobile BI. Monthly or weekly reports can be easily viewed on computers, but time sensitive information that changes regularly is the most relevant for mobile delivery. Summary updates and analysis, in plain, simple English (or Spanish or Chinese) can provide enormous value for mobile BI.