



White Paper

10 Emerging Trends in Dashboard Design

Abstract

Dashboards have evolved a lot since their inception. From interfaces requiring you to be a wizard to today's simple and sleek designs, a lot has changed in the way users interact and make sense of the data in them. From responsive layouts, interactive charts and innovative color palettes to labeled icons for navigation and metro-based designs, today's dashboards are setting new standards in usability and interaction design. This paper covers the emerging trends in dashboard design.

From the classes to the masses

The modern day information dashboard traces its origins from the Executive Information Systems (EIS) of the 1970s, which were typically used to package a company's data into a single window to satisfy the information needs of the senior executives. Although their static interfaces and inability to assimilate data from varied sources limited their adoption, nonetheless, they brought about a revolution in the decision support space.

With the rise of the web in the 1990s, digital dashboards as we know them today started to appear. With their simple interfaces, they democratized the consumption of data and made it available to all stakeholders. This new decision support tool not only made it easier to comprehend data but also broadened its scope by making it possible to collect and synthesize data from all relevant sources.

The modern day dashboard is not just restricted to business use but finds usage in a number of apps used by common people to perform their day to day tasks like personal finance management (Mint) and fitness tracking (Fitbit).

Without further ado, here are the trends that are defining dashboard designs today.

1. Responsive layout for a better viewing experience across multiple browsers and devices

Ethan Marcotte first coined the term Responsive Web Design (RWD) in a May 2010 article in *A List Apart*^a. He uses responsive architecture as a reference, where architects are experimenting with embedded robotics and tensile materials to make it possible for art installations to bend, flex and expand as crowds approach them. Motion sensors with climate control systems adjust a room's temperature automatically and smart glass technology adjusts a room's opacity.

Similarly, he suggests that "rather than tailoring disconnected designs to each of an ever-increasing number of web devices, we can treat them as facets of the same experience." Put simply, responsive designs get rendered across all devices and browsers with a minimum of resizing, panning, and scrolling.

The basic idea behind such a layout is to "design for an optimal viewing experience, but embed standards-based technologies into our designs to make them not only more flexible, but more adaptive to the media that renders them."



The Boston Globe website, one of the first few responsive websites.

With smartphones, tablets and the plethora of other mobile devices becoming mainstream, users need information on the move, ushering in the trend to design dashboards that are responsive and adapt to the viewing media. SproutSocial and Mint's dashboards are great examples of responsive dashboard layouts that offer the same experience across all devices and browsers.



SproutSocial's responsive dashboard.



Mint's responsive dashboard.

2. Metro/modular layout to make content the focal point

Popularized by Windows 8, the metro/modular layout draws its inspiration from the International design style (or the Swiss style) of the 1950s. Max Huber, Emil Ruder, Josef Müller-Brockman and Armin Hofman were the pioneers of this design style. This design style finds its application in arts, architecture, culture, and now even in web design.

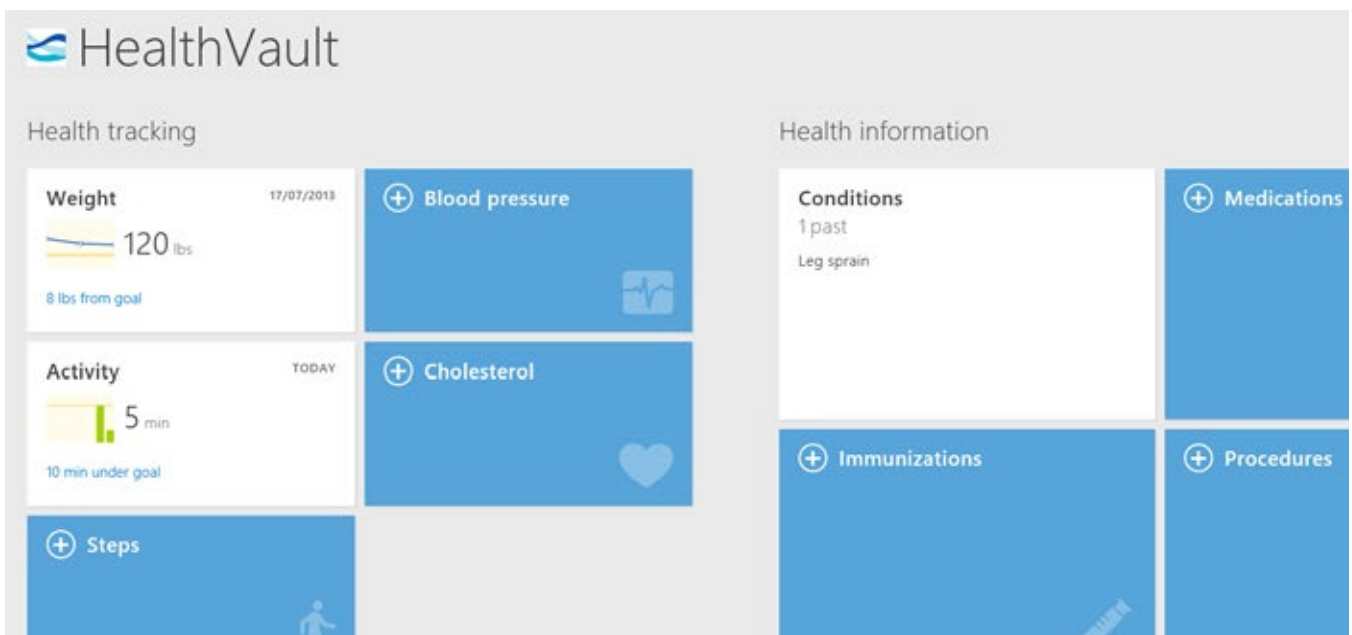


Poster for the seventh CIAM congress, Max Huber, 1949.

Key characteristics that mark this style of dashboard design are grid-based layout, good use of white-space, more dependency on typography and minimalist graphics. In a dashboard, this design style works superbly well because it lays emphasis on the content and ensures that the story is communicated in a clear and concise manner.



Runner's Studio's tile-based metro layout.



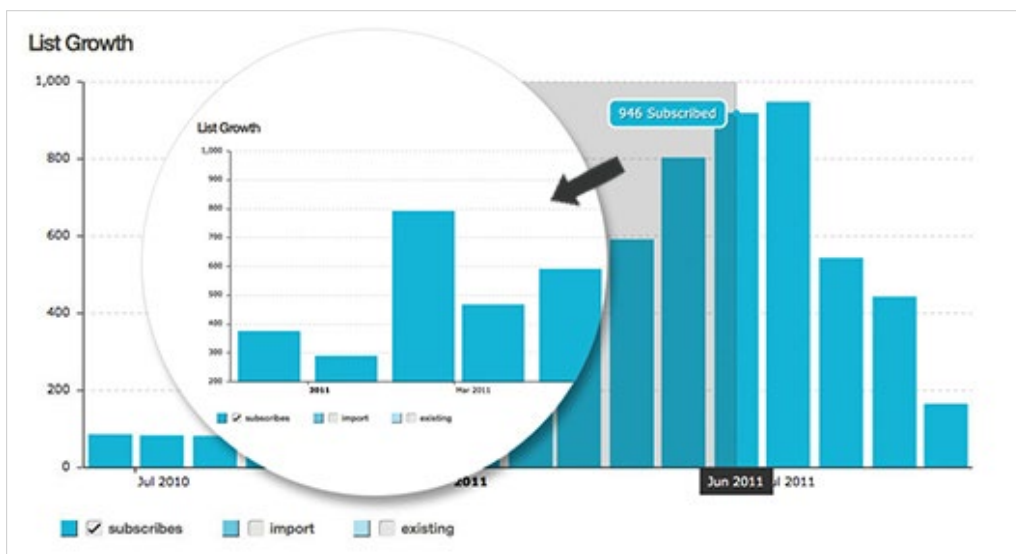
HealthVault's metro layout with simple and minimalist graphics.

3. Rich interactivity with drill-down and zooming capabilities

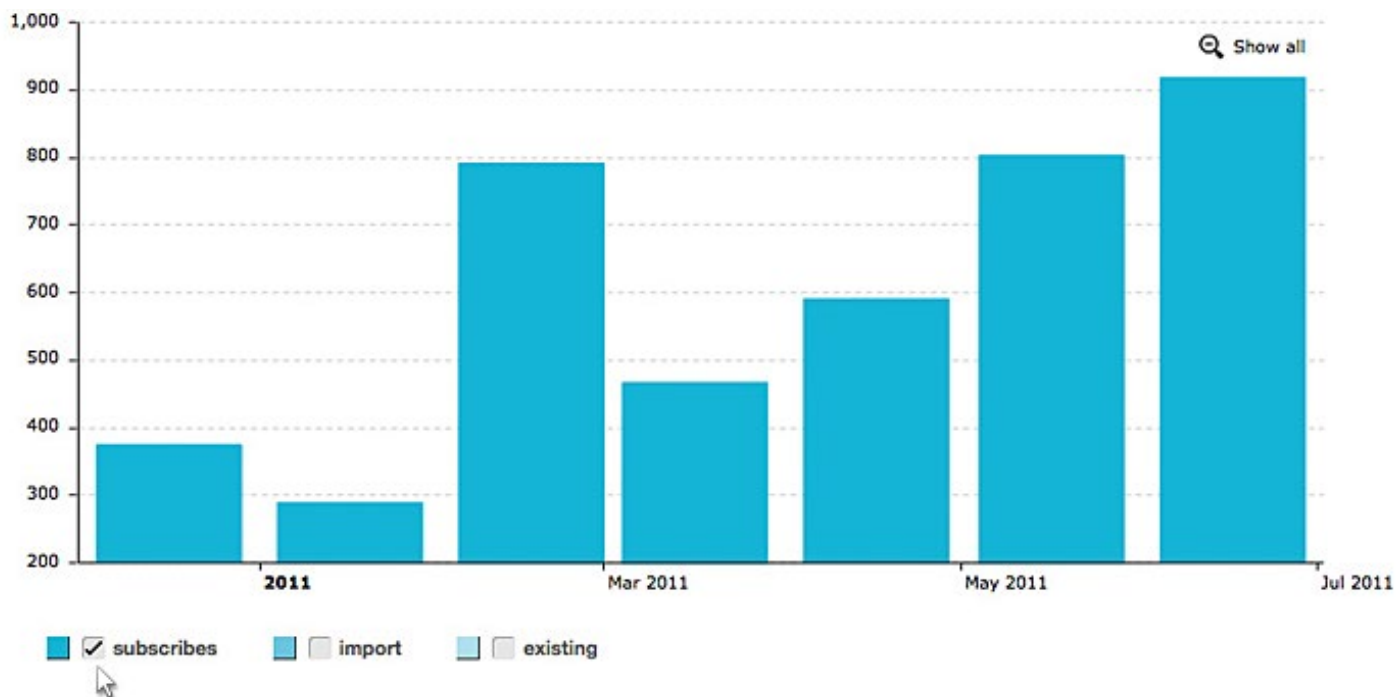
One of the major limitations of the EIS of the 1970s was their lack of interactivity. The user had no option to explore the data beyond the single-window view, and thus their understanding of data was limited to the macro picture. Today's dashboards on the other hand, are equipped with capabilities to drill down into data, zoom into it, and even slice and dice it to enable the users to take their analysis to a whole new level.



Mint's charts can be directly edited by a tap or drag option. They do not require the user to tamper with the source code for minor edits.



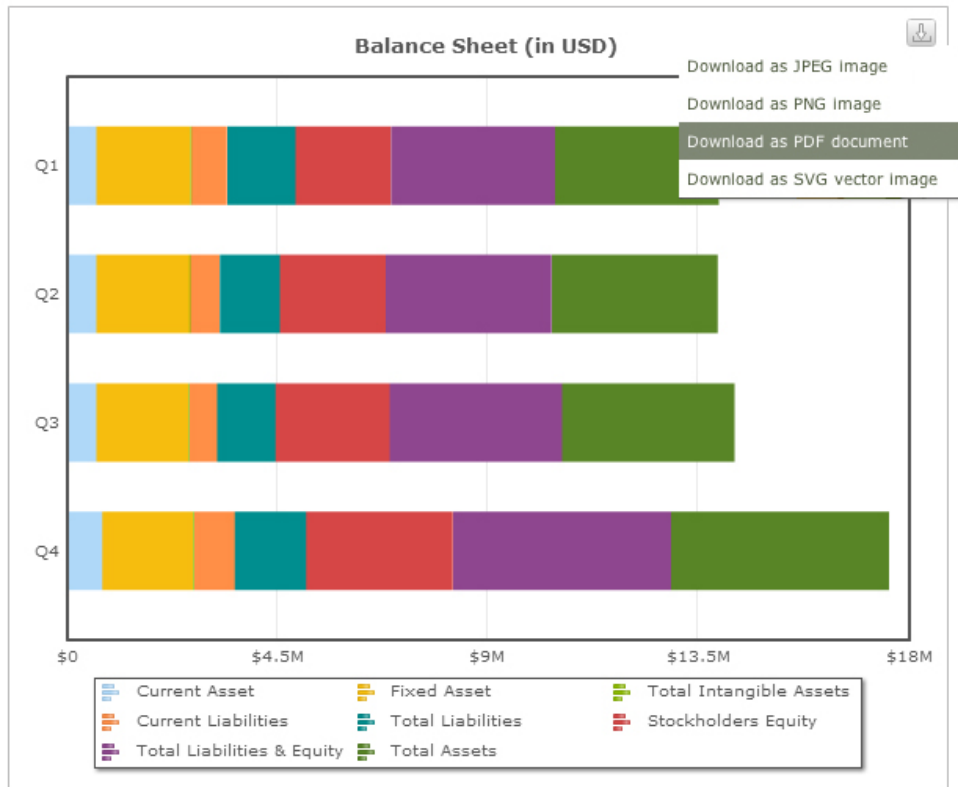
MailChimp uses charts which can be zoomed in for a detailed view.



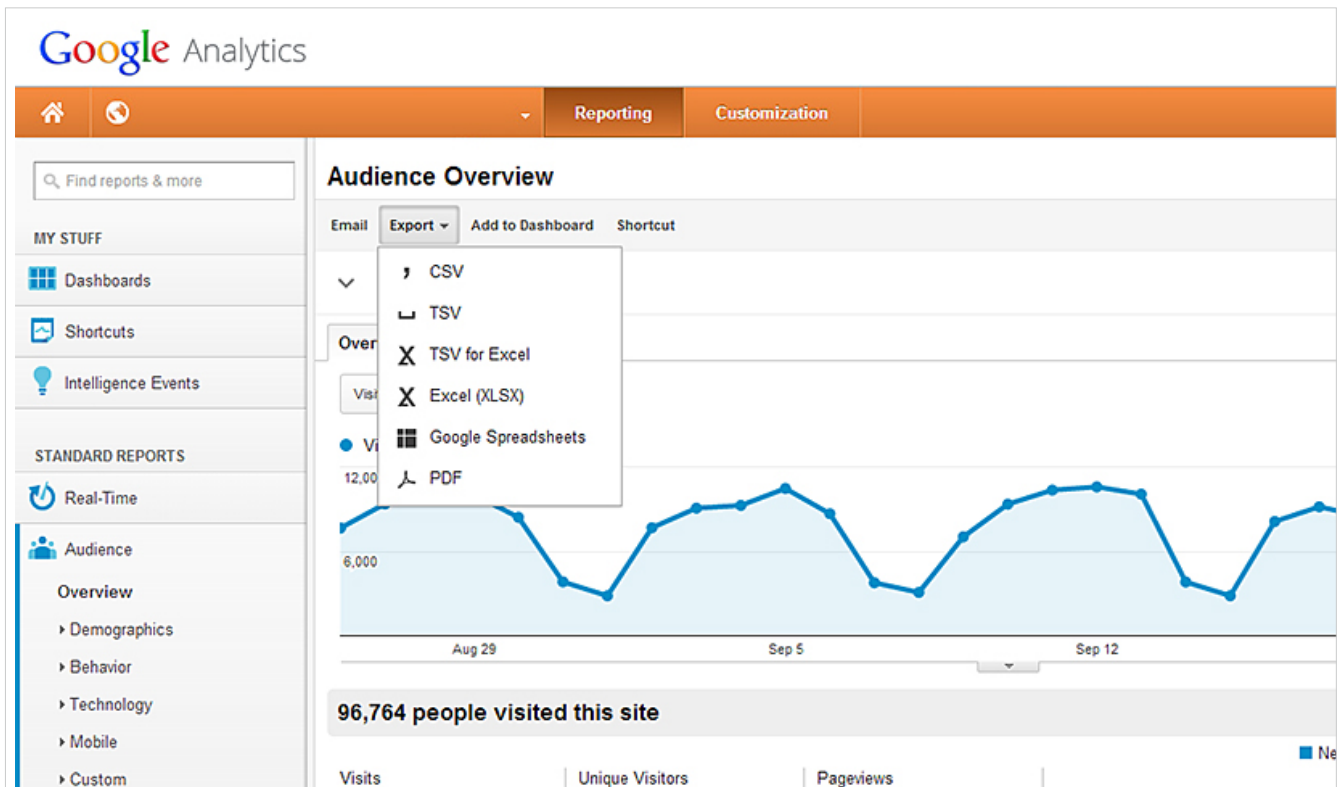
MailChimp also provides users with checkboxes to focus only on the data series they want to see.

Omron provides filters to select specific data series.

Increasingly, dashboards are also allowing their users to export the individual charts or consolidated reports as images for use in presentations or as email attachments.



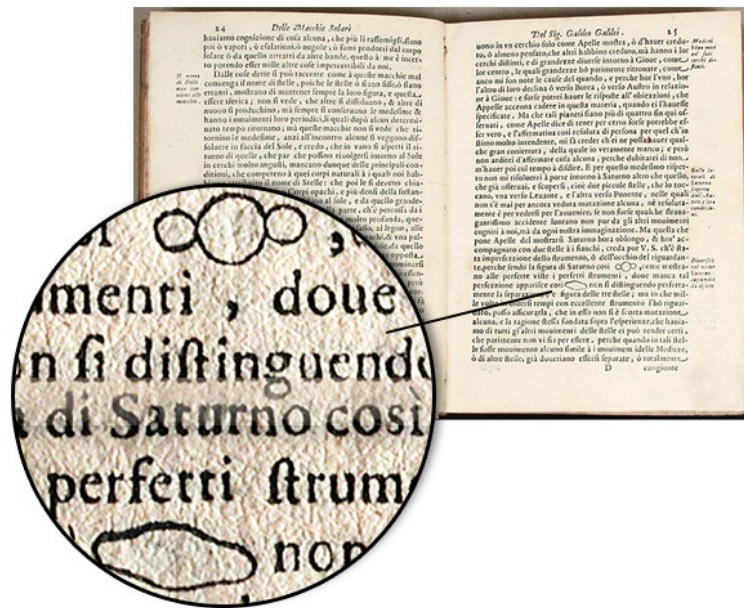
End users can export the chart as JPEG, PNG, PDF and SVG.



Exporting Google Analytics reports.

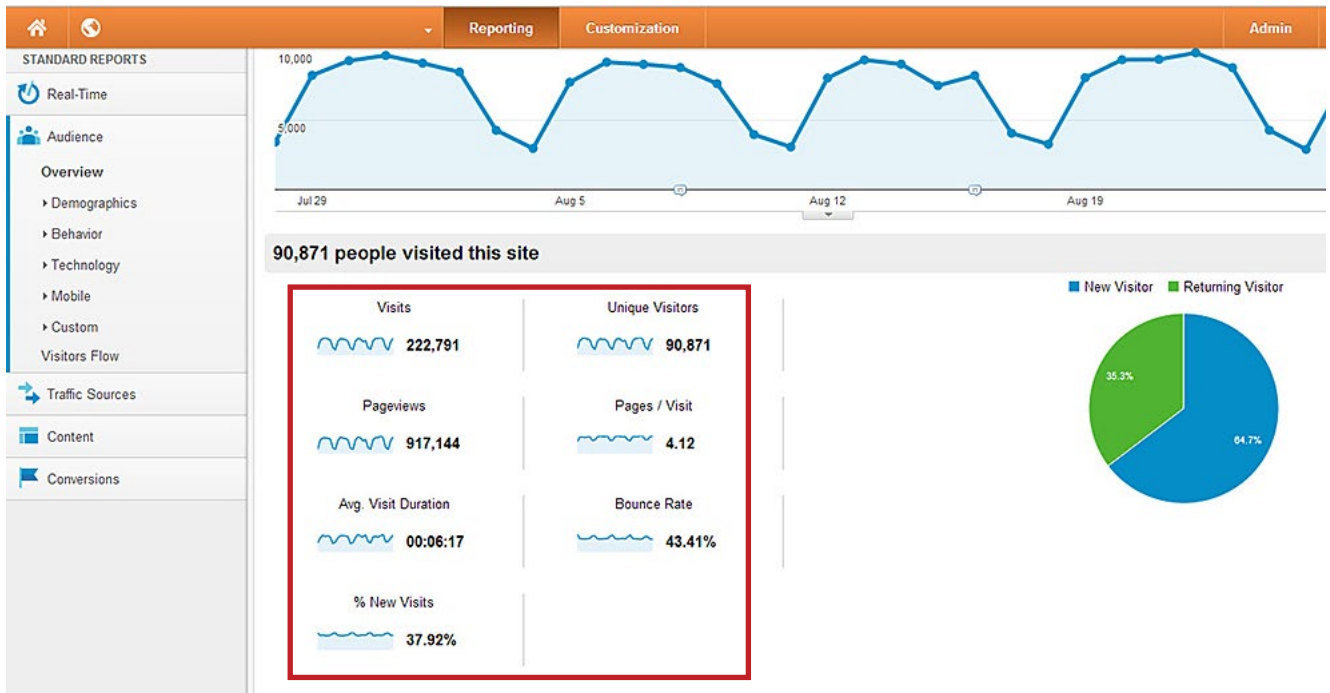
4. Sparklines and other word-sized charts for quick historical context

Word-sized graphics inserted within the content are not a new concept. Back in 1613, words and images appeared together in Galileo's *Istoria e dimostrazioni intorno alle macchie solari* to explain the shape of Saturn.

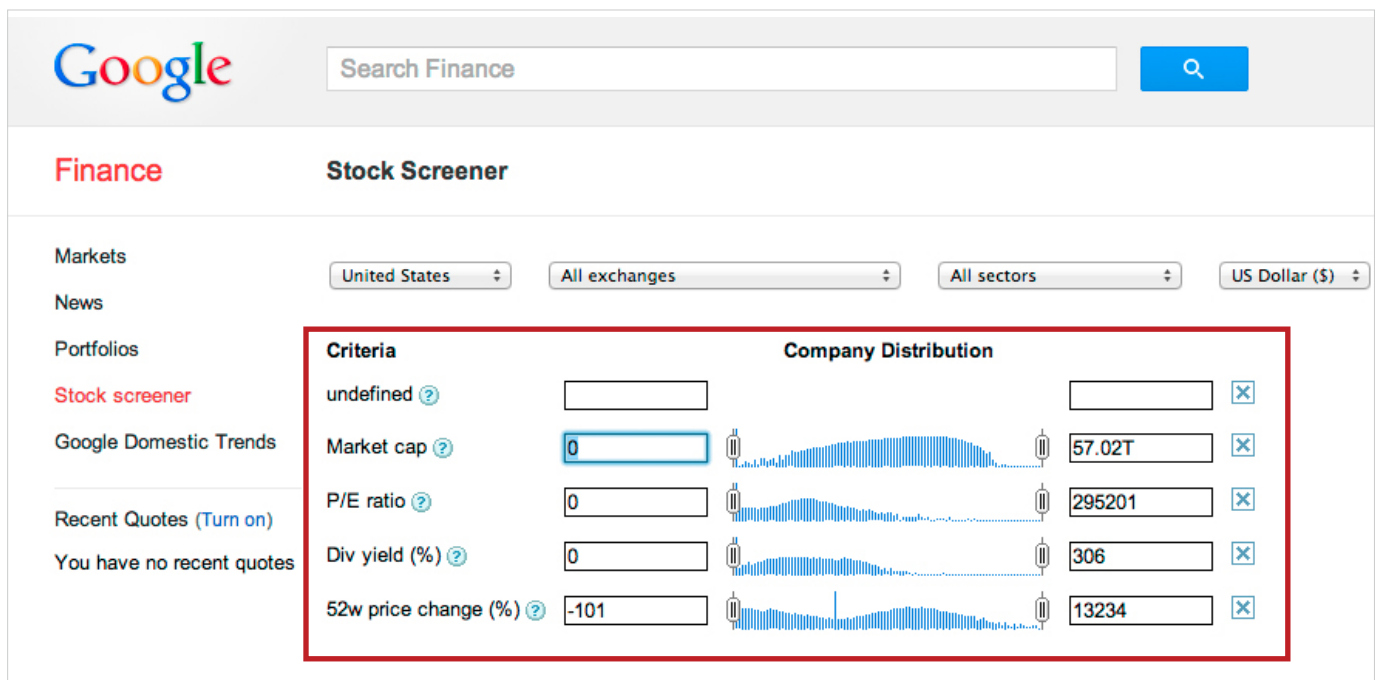


Galileo's word-sized graphics embedded within content.

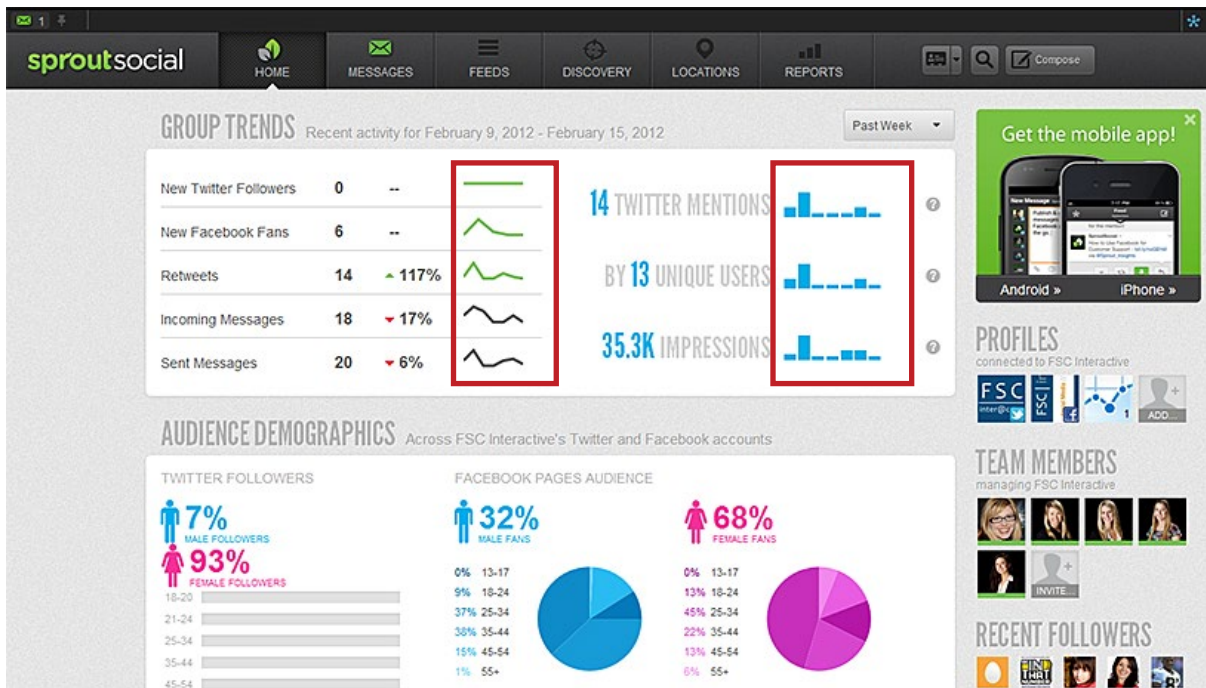
These word-sized graphics have found a new place in data visualization as Edward Tufte's sparklines. These "data-intense, design-simple, word-sized graphics" provide a quick sense of historical context to enrich the meaning of the measure. In a dashboard, where real estate is always an issue, sparklines use less space but at the same time, they are a powerful construct to disseminate instant information.



Google Analytics uses sparklines to summarize the variation in metrics like Visits, Pageviews, Avg. Visit Duration, etc. Users get an overall picture in a single screen and have the option to drill down for more details.



Google Finance's Stock screener uses Spark Columns to help users choose stocks within a specified range of Market Cap, P/E ratio, Div yield, etc.



SproutSocial uses color coded sparklines to visualize the variation in metrics like New Twitter Followers, New Facebook Fans and Incoming Messages

5. Adding context to data with trendlines and progress bars

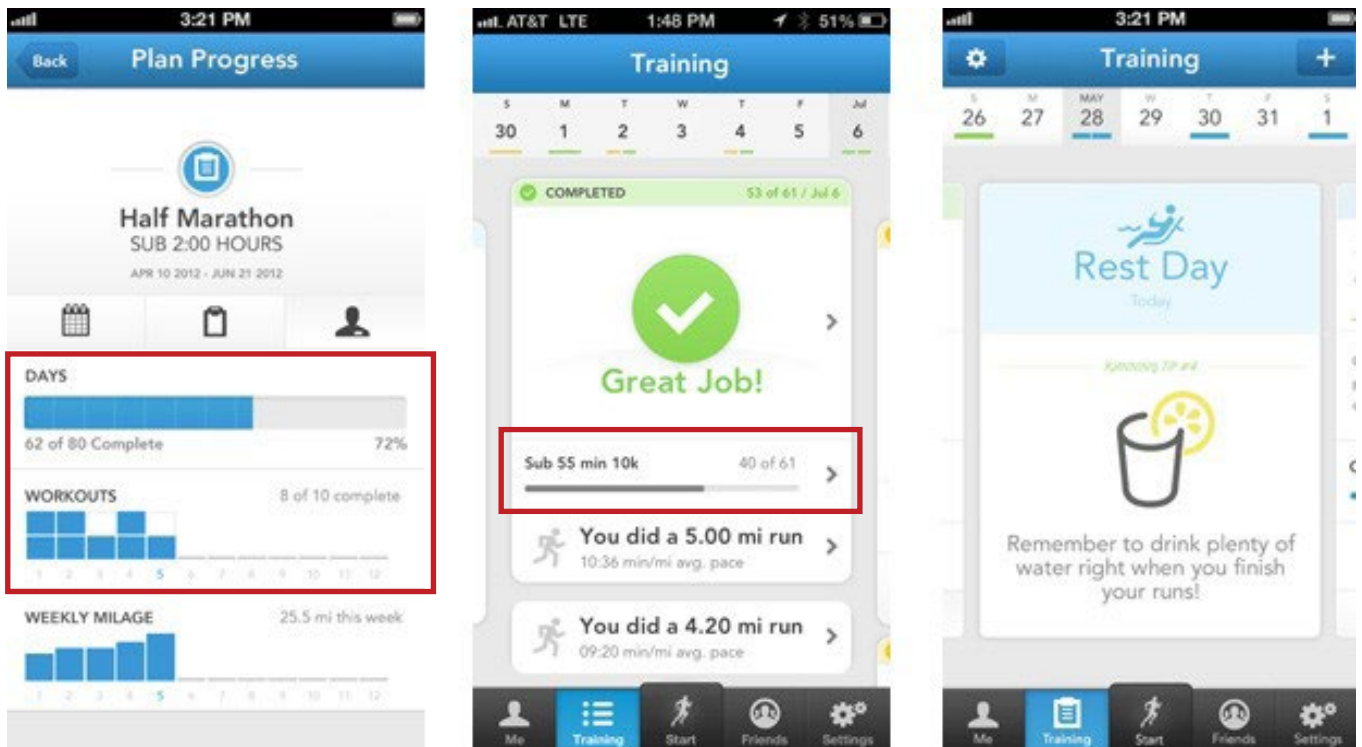
Data when put in the right context help users find answers to questions like how far is the latest measure from achieving the target or is the current measure better compared to the previous one. Let's say you are a sales manager and your dashboard tells you that overall sales for this quarter is \$25K. But if the dashboard also told you if that was better than last quarter's, or if it met the target, the data instantly becomes more meaningful. In addition to using Spark Charts, today's dashboards are employing multiple other ways to provide this context and relevancy to its users.



Nike+ Fuelband uses trendlines to help users map their performance against a set goal



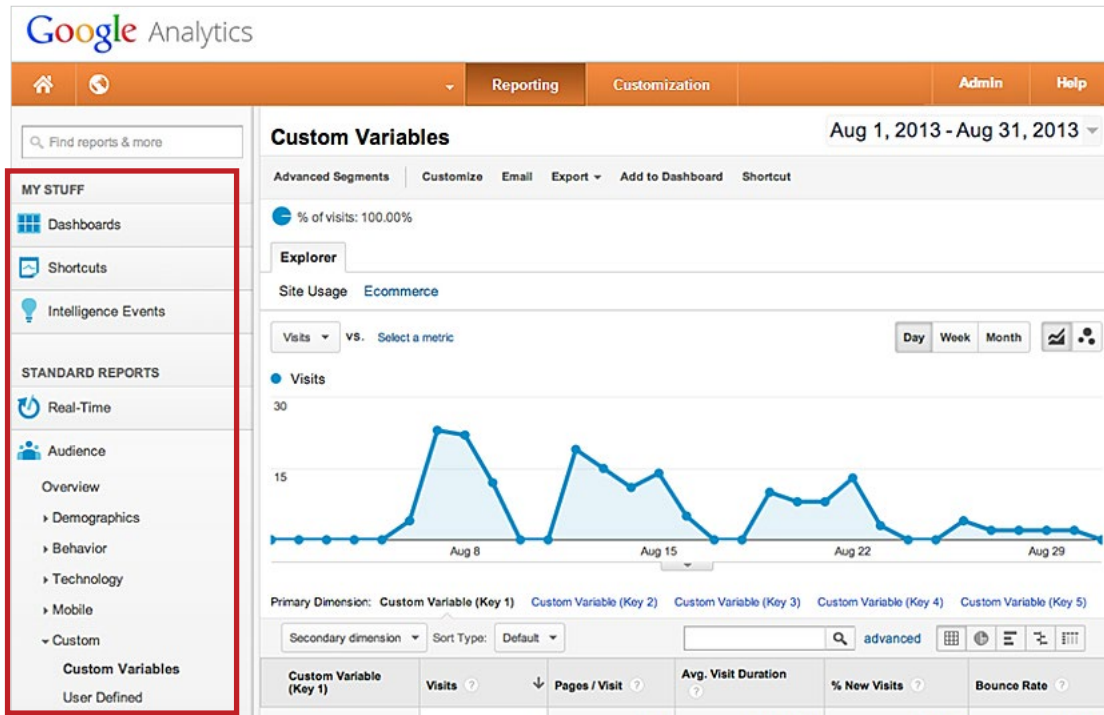
Stock Market HD: Stocks & Shares uses a newsfeed to inform users about the latest news regarding a particular stock.



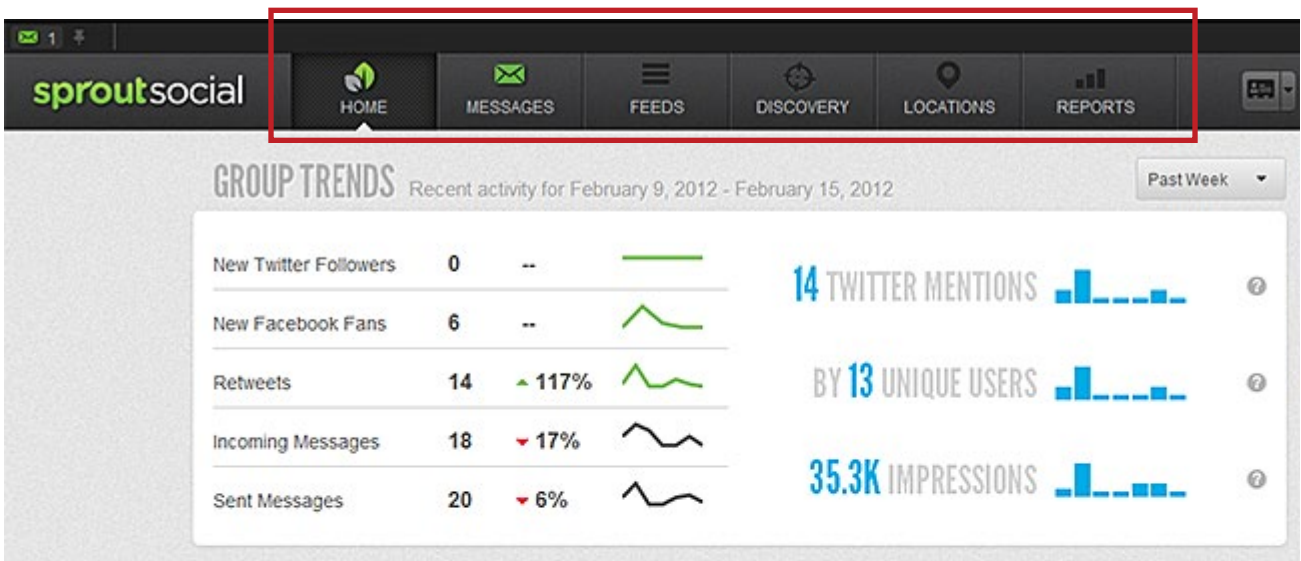
RunKeeper uses progress bars to indicate where one stands with respect to a set goal.

6. Labeled icons for navigation

Designers prefer using icons for navigation but at times these graphics can create confusion for a first time user. To overcome this problem, designers are increasingly using labeled icons for navigation — a small icon followed by a 1-2 word description which ensures that new users are not left guessing.



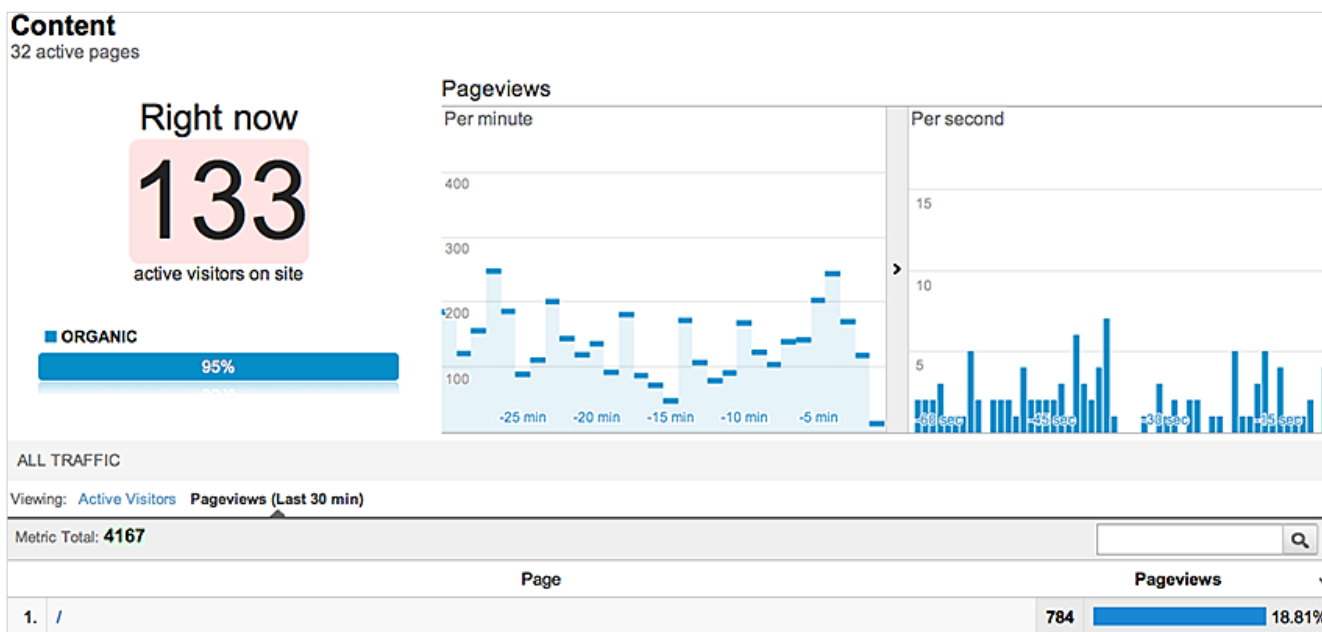
Google Analytics uses labeled icons in the left-hand navigation panel



SproutSocial uses labeled icons in the top navigation

7. Real-time updates and alerts

Due to technological developments in both in-stream and ad-hoc processing, it's much easier now to get real-time updates on the dashboard directly. Though real-time information is not essential for many tasks but for functions like Web Traffic Monitoring during an A/B test or in a Stock Ticker app, real-time information can go a long way in picking the winners from the losers.

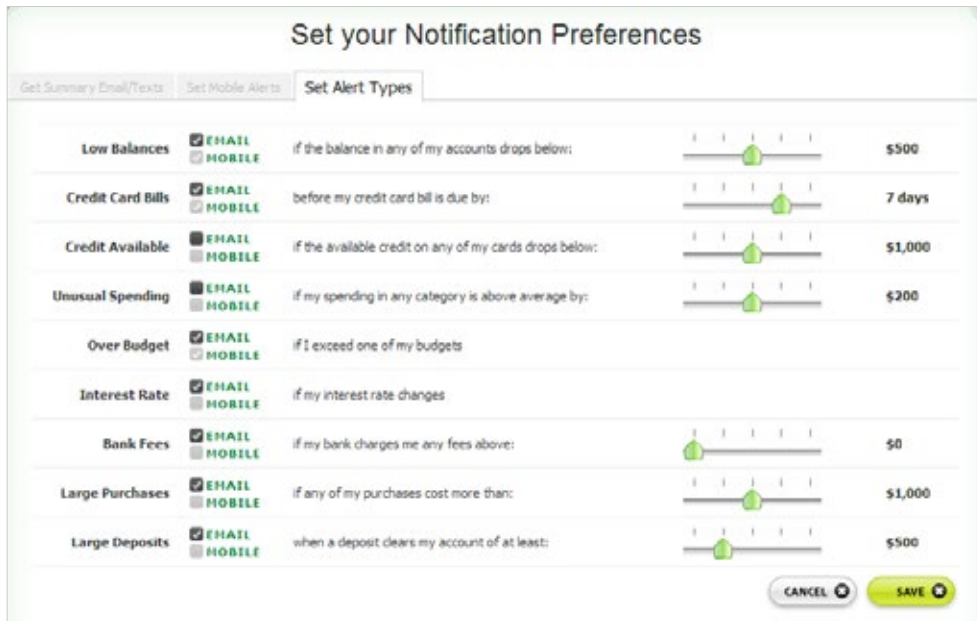


Google Analytics' real-time reports help you understand what is happening on your website right now.



Stocks-Realtime Stock Quotes help you analyze real-time share prices.

Many dashboards also allow end users to set up alerts so they can be notified when a metric reaches a certain threshold value.



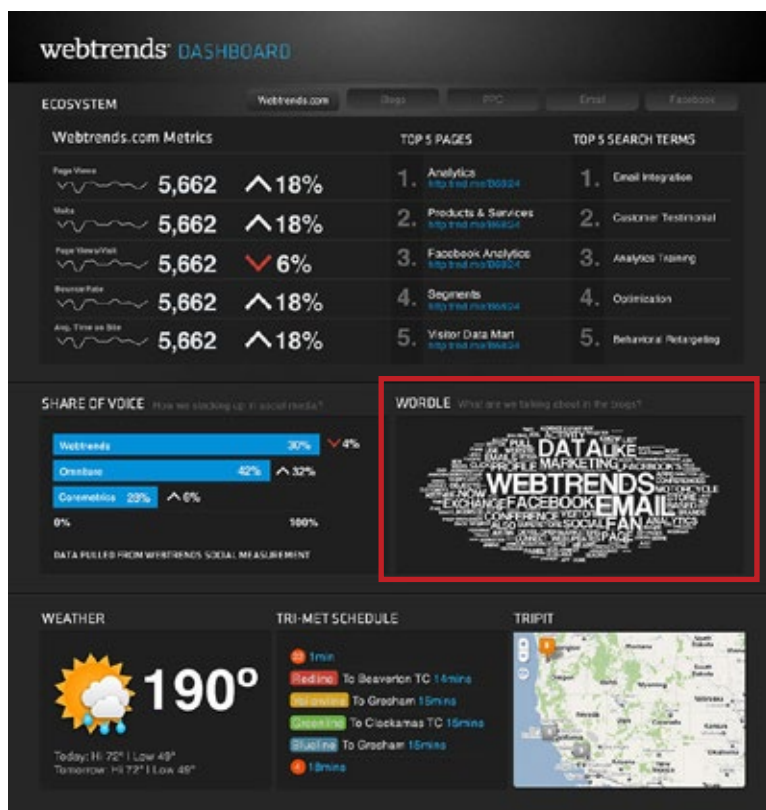
Mint lets you set alerts for low balance, credit card bill due date, over budgets, etc. Users get notifications either via email or SMS.

8. Tag bubbles and tag clouds are back in action

While this design element may be considered passé by some, tag bubbles and tag clouds are finding their way back in dashboards.



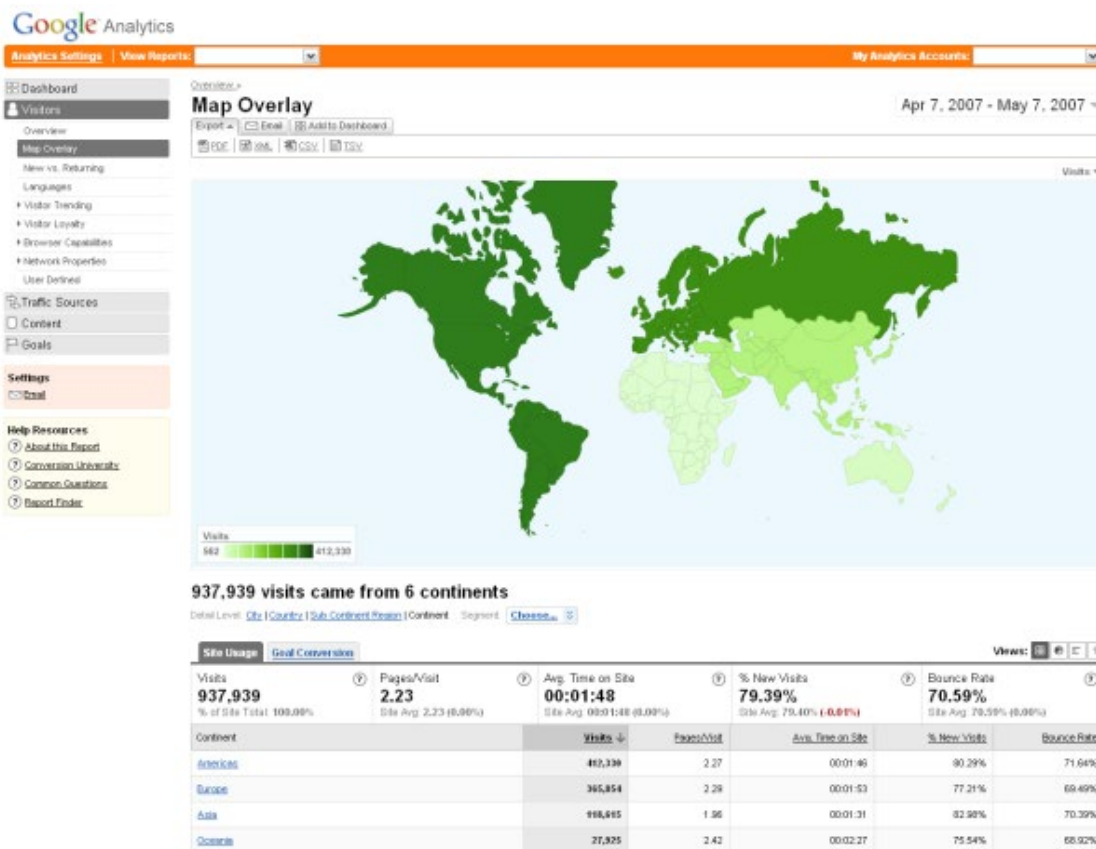
Toshl, a personal finance and expense tracking app, uses a multi-color tag bubble to visualize the various heads under which you spend your hard earned money.



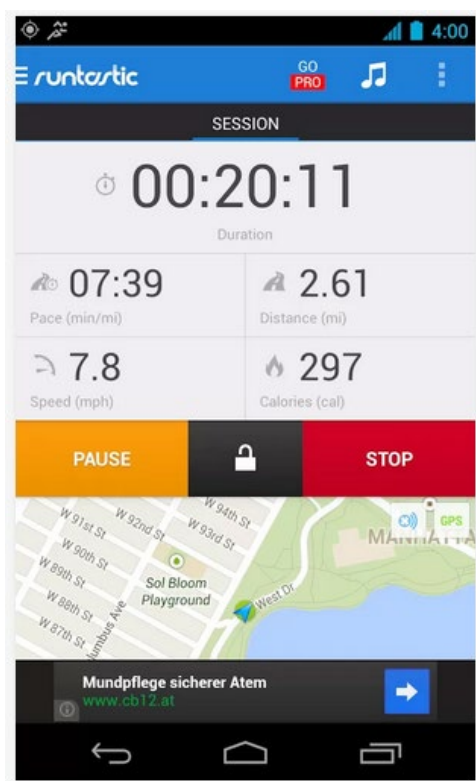
The Webtrends dashboard uses the tag cloud to visualize the trending topics in the blog

9. Maps for visualizing location-specific data

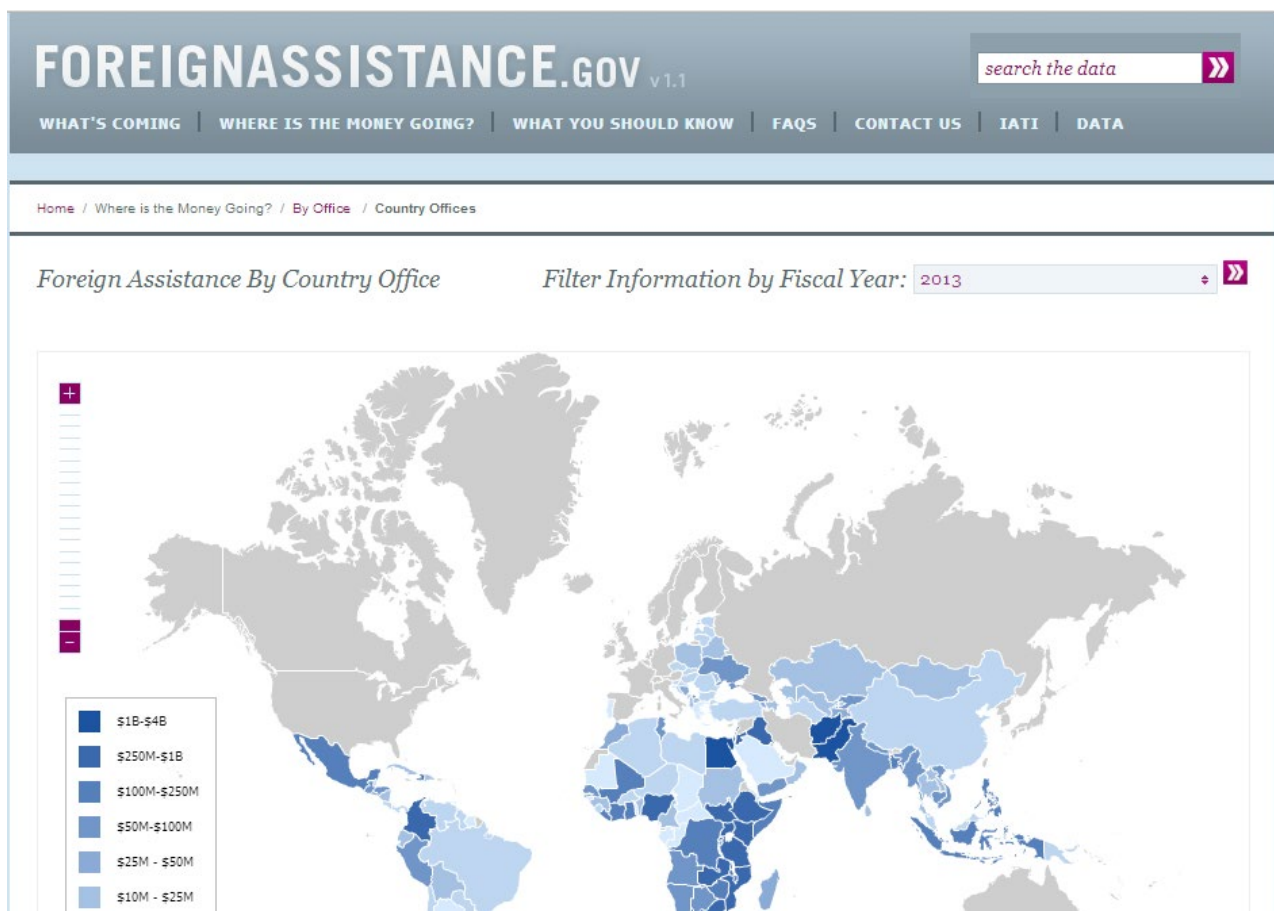
The demand for location-based mapping of problems and opportunities is seeing a rise due to businesses setting up shops across the globe. Popularity of technologies like GPS, RFID and other location-aware wireless devices have further led to the need of monitoring location-based metrics. It is not uncommon today to see dashboards equipped with maps that allow visualization of location-specific data.



Google Analytics' Map Overlay helps you understand which geographies are sending you the most traffic.



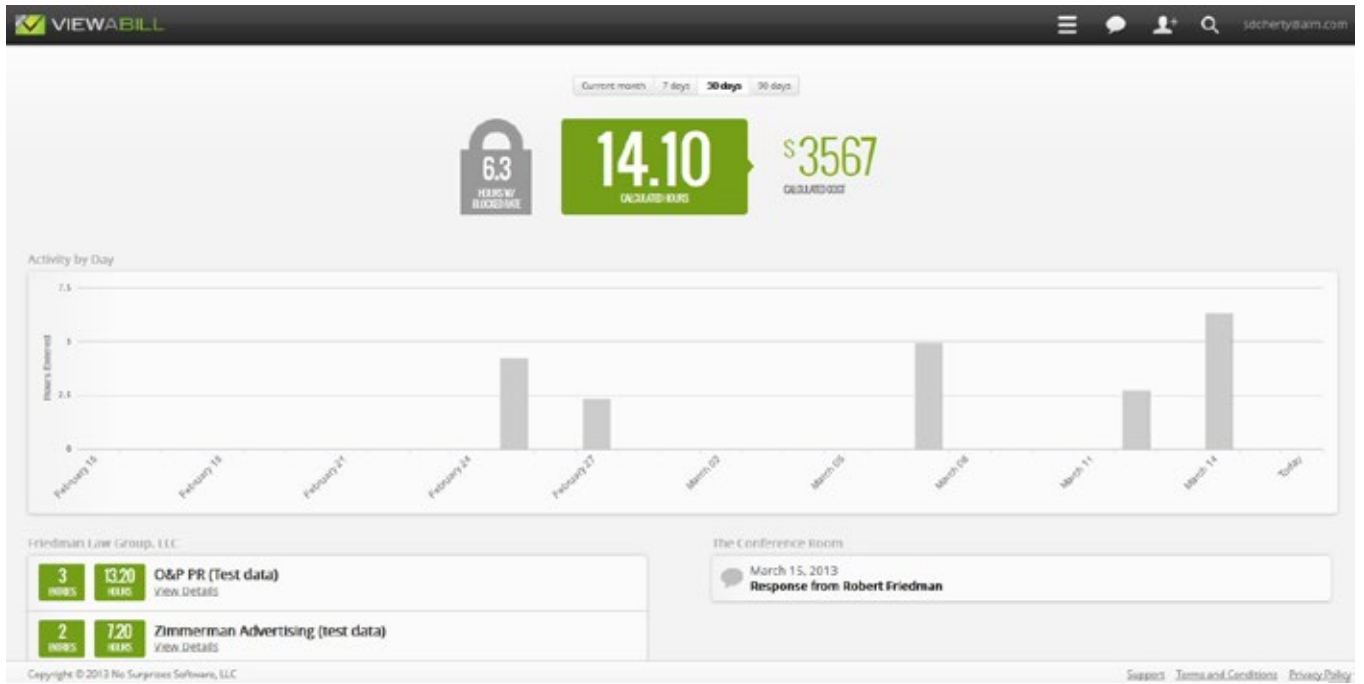
Runtastic uses the Google Maps API to help users keep track of their location while running.



The U.S Foreign Assistance dashboard uses maps to allow users to track the U.S Government's financial assistance to various geographies.

10. Broader color palette

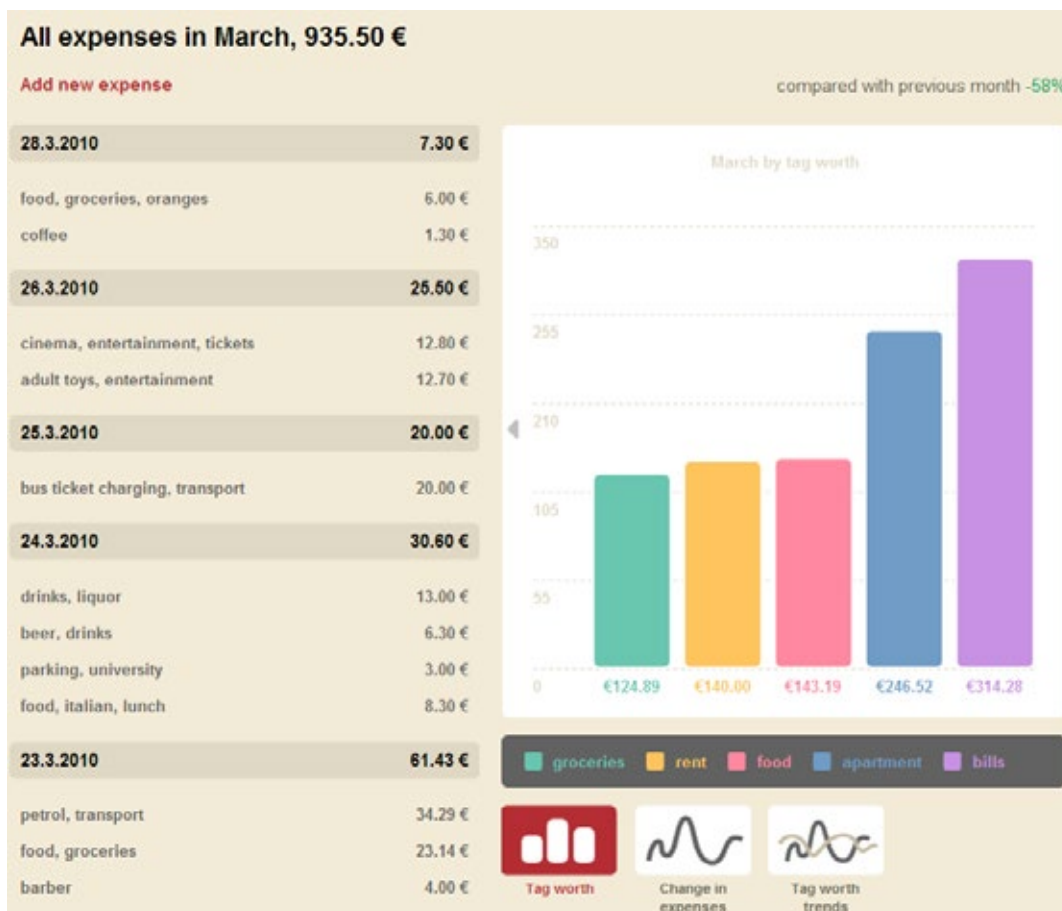
While traditionally data purists would have stuck to 2-3 colors at the maximum, today's dashboards are seeing skillful use of a broader color palette. Another influence of the Swiss style of design which propagates the use of bold and bright colors, we are seeing various permutation and combination of colors being used in dashboards. On the one hand we have dashboards which use shades of gray as their core color with a few bright colors as accents. On the other hand there are dashboards with bold and uncommon color combinations. And somewhere in between are the dashboards which use bright pastel colors against a muted background.



Viewbill's dashboard uses light gray with a few color accents



Expense Tracker uses bold colors in uncommon combinations.

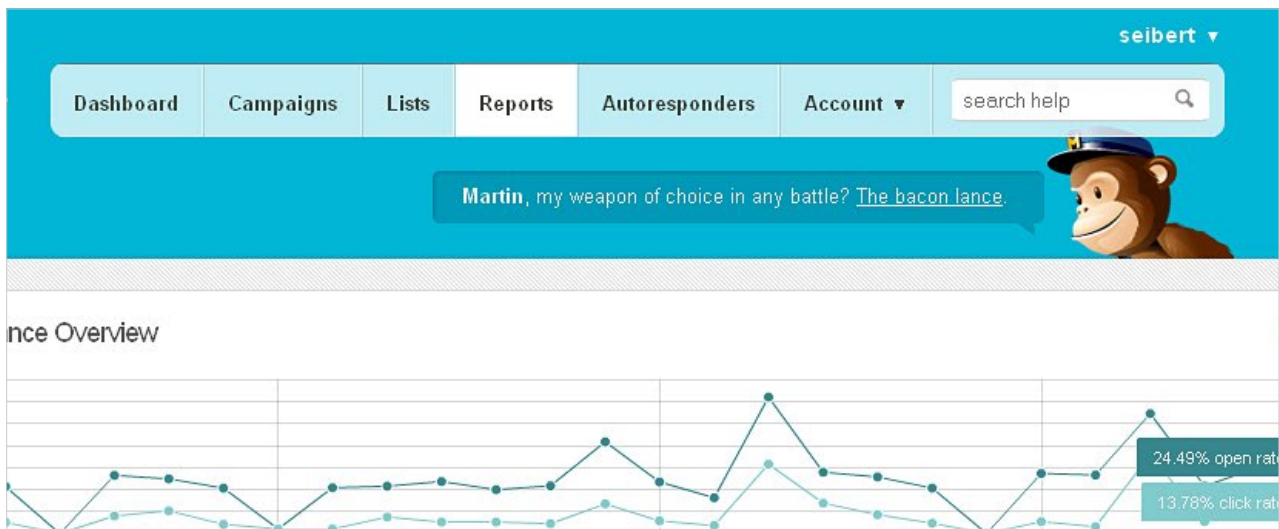


Toshl uses bright pastel colors against a muted background

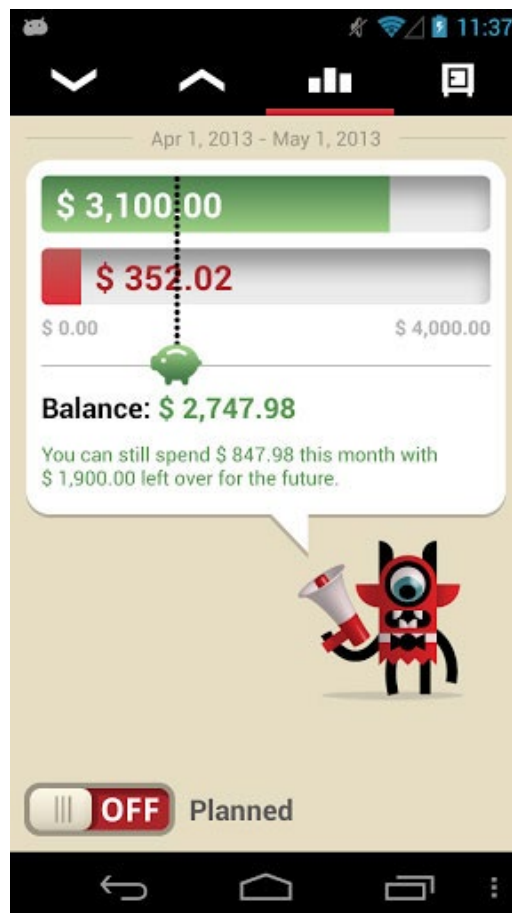
To Trend or Not To Trend: Mascots

Though we are not sure about the future of this trend, but brand mascots are gradually finding their way into dashboards too.

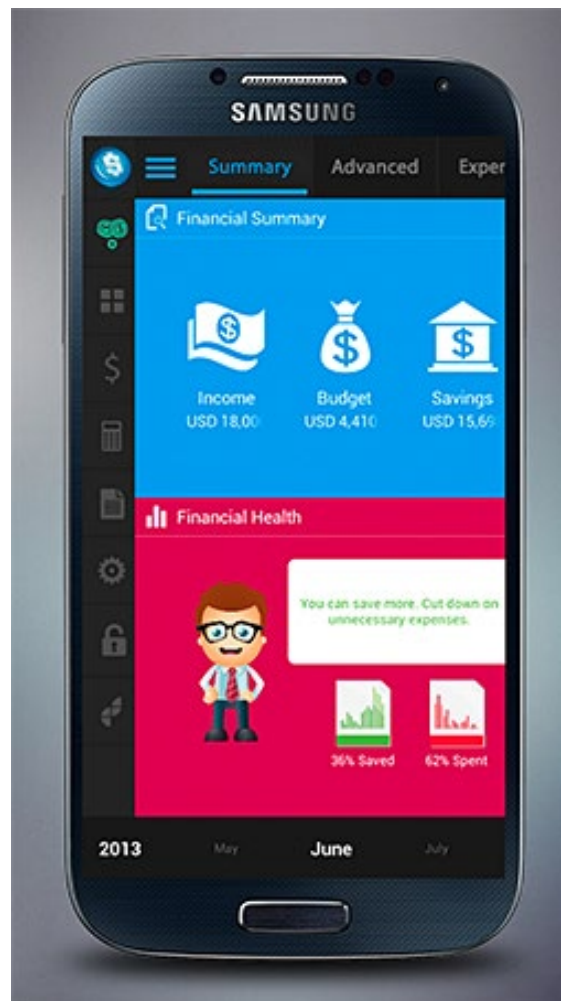
Be it Freddie of MailChimp or the Monsters of Toshl or the Financial Assistant of Expense Tracker, these mascots are changing the way we look at dashboards. Adding a dash of humor with their random banana talks (as it is done in MailChimp) or sharing their pearls of wisdom (as in Toshl and Expense Tracker), will they be employed by other dashboards in future? Or will they be discarded as yet another piece of chartjunk? Only time shall tell.



Freddie (MailChimp's mascot) with his banana talks.



Toshl Monsters giving some quick financial tips.



Expense Tracker's Financial Assistant asking us to cut down on unnecessary expenses.

The way forward

We live in a big data world and data-driven decisions are gradually becoming the norm in every walk of life. The user is no longer happy in just getting a visibility of key metrics and analyzing historical data. She wants insights that would help her predict the future too.

With the evolving needs of users, dashboard design is bound to evolve as well. New developments in mobile, big data and the web in general, along with the changing tastes and preferences of the users will decide how the dashboards of the future will look like.

About FusionCharts

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Reference:

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- d. Rocheleau, Jake. User Experience Trends for Admin Dashboards, Speckyboy