Contemporary Analysis
Work smart.

Dashboards:

Take a closer look at your data.

Get in touch. Call us at 1.866.963.6941 or write us at info@canworksmart.com.

A dashboard is a single visual display that presents information necessary to answer one or more *business questions.*

Dashboards should be presented on a single screen, *easy to understand* and capable of being monitored *at a glance.*

Focusing on data

Information is only valuable if you can make sense of it and put it to work.

Imagine starting your car and being bombarded with all the information available to you about the vehicle. Details on every non-essential system and every moving part, pressure, temperature, voltage, wear – everything you need to know and *everything you don't* – thrown at you all at once.

How would you sort out how fast the car was going? Or when you needed gas?

At Contemporary Analysis, we help companies focus on what data is *most important* to running their business. We sort out what information is most relevant and how it interacts with other important factors, then we present it in a way our clients can use *immediately*.

One of our most effective tools

A CAN dashboard works exactly how you'd expect it to – much like the dashboard in your car works – by visually presenting *only the most important information* in a way that can be easily absorbed.

The dashboard in your car is so intuitive, you're probably not even conscious of all the systems you're monitoring at once. We can create dashboards that display your business information *just as intuitively*.

Three types of dashboards

Strategic Dashboards

Strategic dashboard provides managers and executives at all levels of the organization the information they need to understand the *health of the organization* and help *identify potential opportunities* for expansion and improvement. Strategic dashboards do not provide all the detailed information needed to make complex decisions, but instead help executives identify opportunities for further analysis. A strategic dashboard should be *simple and contain aggregate metrics* that represent the over all health of the organization.

Analytical dashboards

Analytical dashboard provides users with the data they need to understand trends and *why certain things are happening* by making comparisons across time and multiple variables. Analytical dashboards *often contain more information per square inch* than both strategic and operational dashboards. Since *understanding is the goal*, analytical dashboards are more complex. Also, while analytical dashboards should facilitate interactions with the data, including *viewing the data in increasing detail*, it is important to maintain the ability to *compare data across time and multiple variables*. If you lose the ability to compare data then analytical dashboard is no longer able to accomplish the goal of allowing users to understand trends and why things are happening.

Operational dashboards

Operational dashboard is used to monitor *real time operations* and alert the users to *deviations from the norm*. This often means that operational dashboards need to be updated frequently if not in real time, contain less information than analytical or strategic dashboards, and make it nearly impossible to avoid or misunderstand an alert when something deviates from the acceptable standards. Operational dashboards should provide users with *specific alerts* and provide them with exactly what information they need to quickly *get operations back to normal*.

The types of information that can be expressed in a dashboard

Sales
Quotas
Leads to meetings
Open and closed proposals

Marketing
Open rates
Leads
Lead quality
Leads by source
Customer demographics by segment
Public relations and social media mentions.

Finance
Revenues
Expenses
Profits
Assets vs. utilization
Inventory

Technical support
Average wait time
Number of support calls
Call duration
Number of transfers
Customer satisfaction

Operations
Backlog
Inventory
Number of defects
Number of units manufactured

Human resources
Turnover
Openings
Employee satisfaction
Count of late performance reviews

Information technology
Unique visitors
Page hits
Visit durations
System usage
Threats blocked
Downtime
Patches and updates available

How dashboards work
When reading text people process information from left to right, top to bottom. They can't skip words or lines, if they do it becomes difficult to understand the text. The more their eyes wander the harder it is to get value from what they are reading.
Dashboards allow people to absorb information in a different way. Using the principles of visual perception, dashboards allow users to absorb a lot of information at once, compare multiple points of

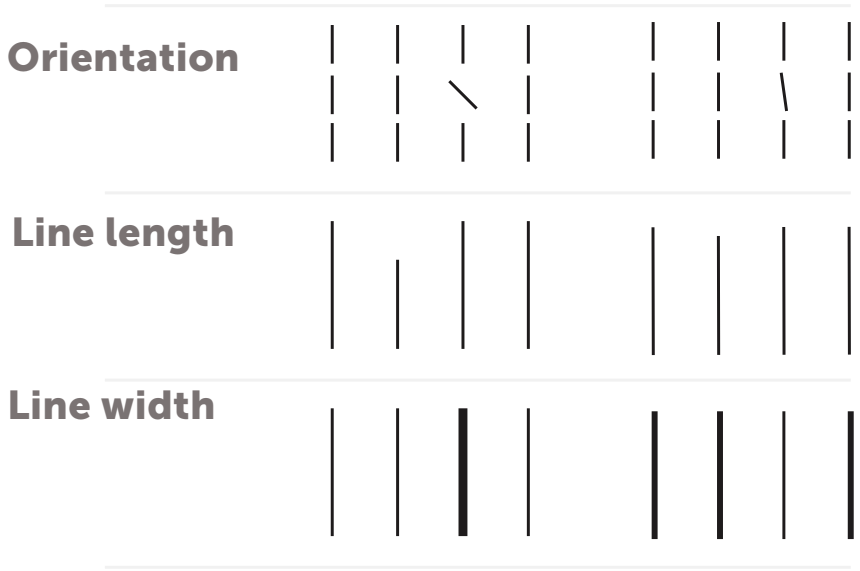
information to identify patterns and trends.

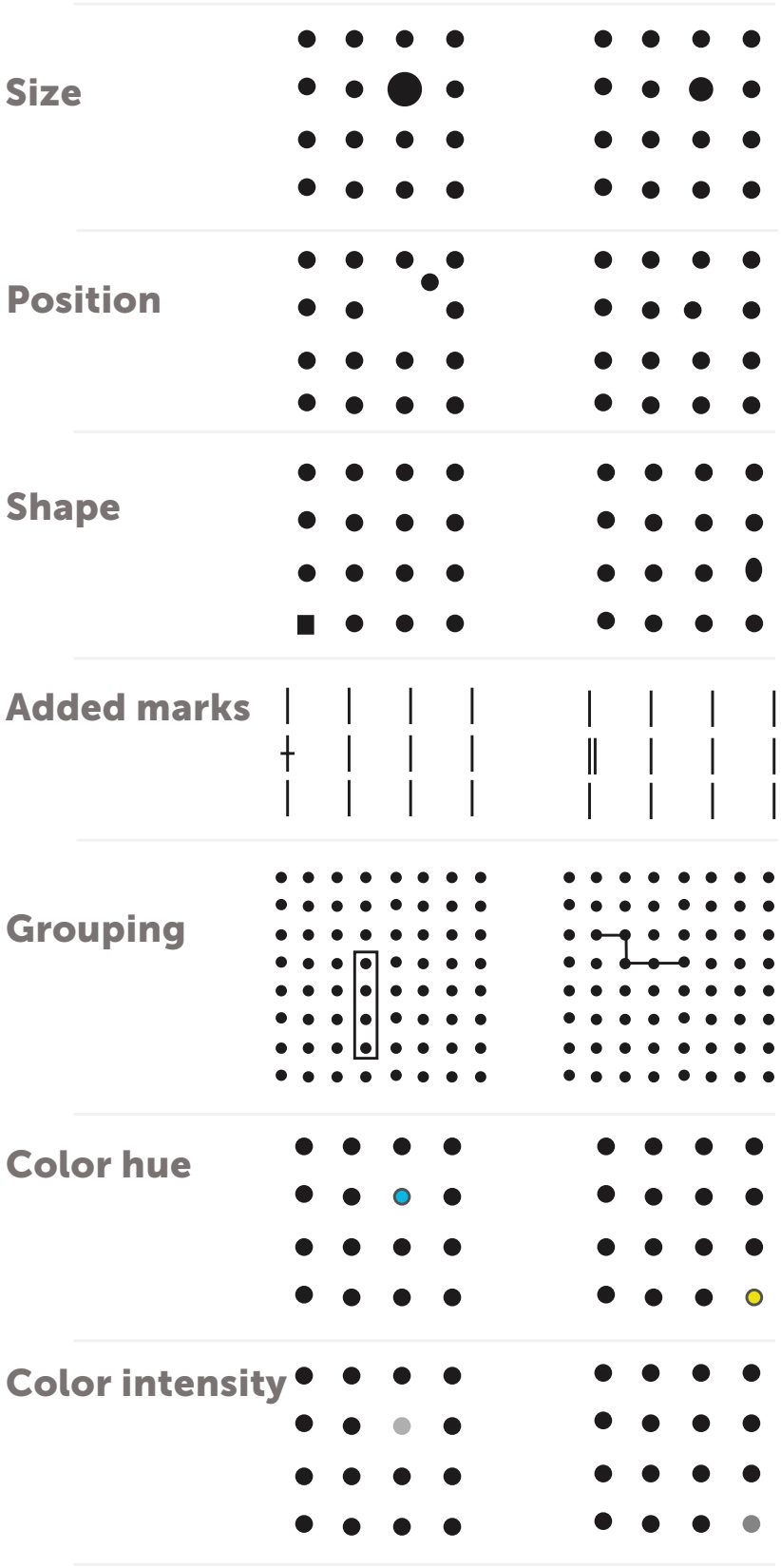
Well designed dashboards communicate information using characteristics such as shape, size, color, contrast, luminosity and motion. These characteristics are referred to as preattentive visual cues and help our brains categorize and filter information visually. Preattentive features are the information we gain from a visual scene before we direct attention to the salient features to extract deeper meaning. Preattentive processing is used while driving. Drivers will react to changes in contrast and motion before they know whether it was a squirrel, rabbit, or raccoon that ran in front of them.

Humans are very good at extracting meaning from complex visual environments, but this does not mean that we should be required to. This is certainly the case when designing dashboards. Focus should be on exploring the information, instead of interpreting the design of the dashboard. CAN's goal is to keep things simple. CAN designs dashboards that focus on using preattentive imagery. Our lives are complex enough. We deserve simple dashboards.

Preattentive visual cues

The following are examples of preattentive visual cues from Stephen Few's book "Information Dashboard Design". The basic principle is to keep design elements natural. Replace bright bold colors with neutral and natural hues, and pie charts, gauges and traffic lights with hue, intensity, location, orientation, line length, line width, size, shape, added marks, enclosure, and motion.




Size
Position
Shape
Added marks
Grouping
Color hue
Color intensity

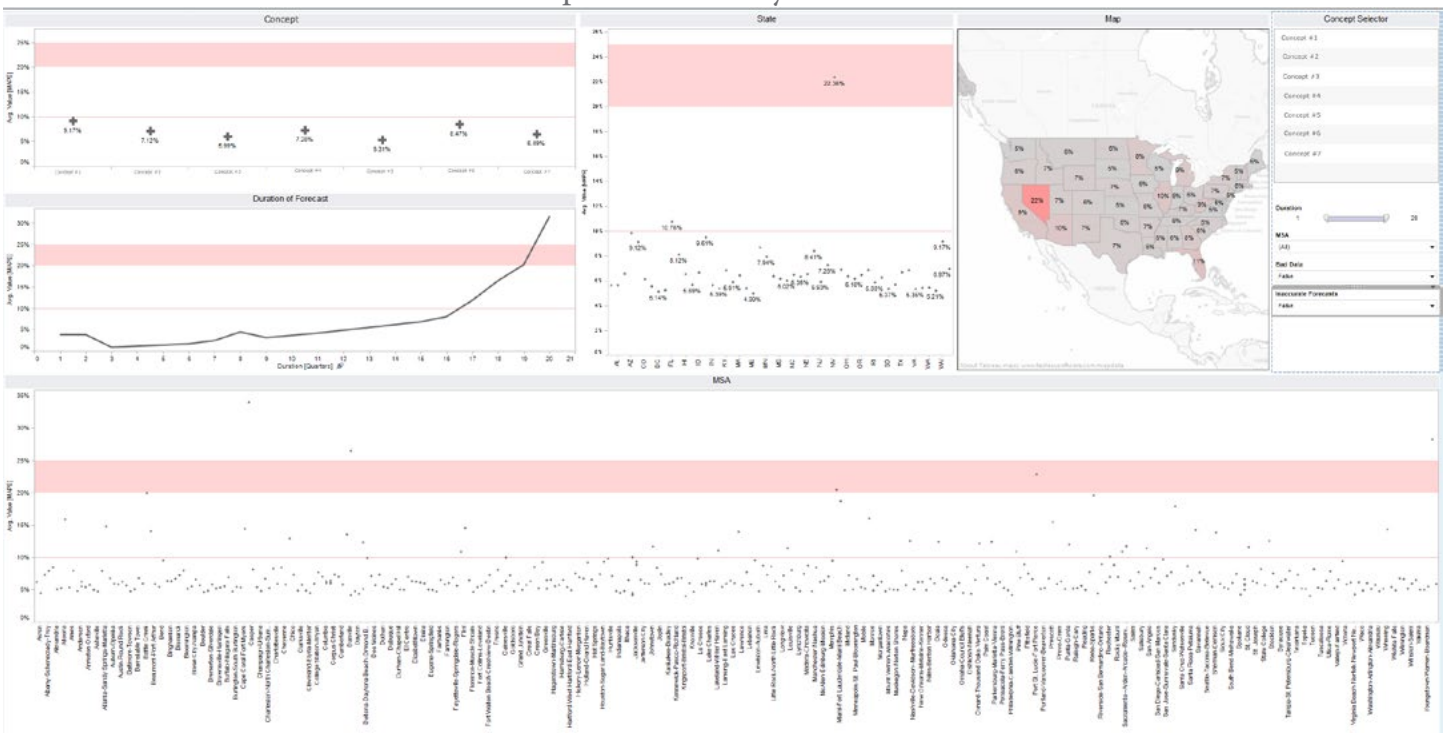
An example

CAN recently completed a project examining the accuracy of industry forecasts for every Metropolitan Statistical Area (MSA) in the United States. Our client, a construction company, was receiving a 600 page report with hundreds of forecasts about construction activity every month.

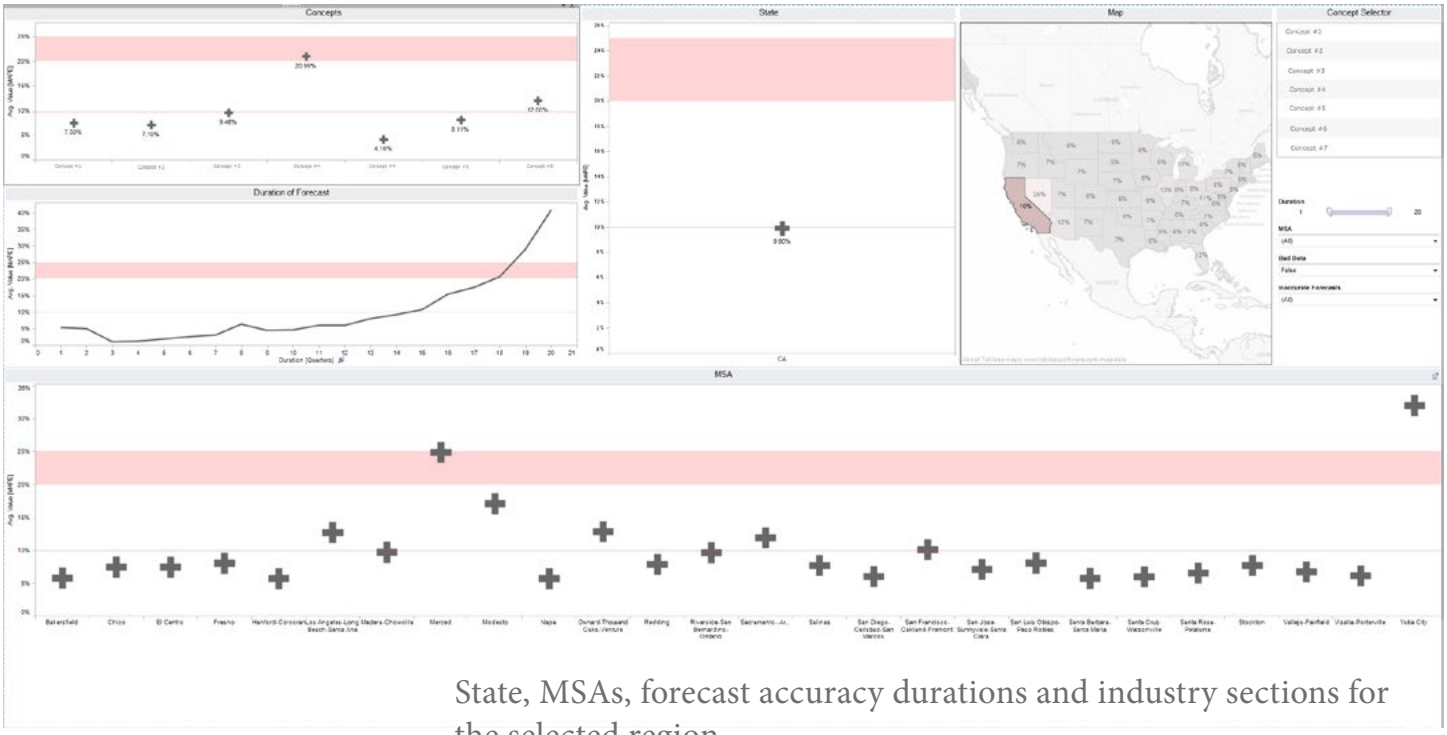
Our client was using the forecasts to manage equipment inventories, create hiring plans, and schedule investments in business development. The report contained forecasts for States, MSAs, and 7 different industries. While our client trusted the forecasts, they suspected that some forecasts were better than others. Experience had taught them that certain MSAs and industries are more predictable.

After evaluating every forecast by MSAs, State and industry, we created a dashboard. We decided that instead of publishing a report with hundreds of pages comparing the accuracy of hundreds of forecasts, we needed to create an analytical dashboard that would allow users to compare different forecasts.

Instead of an 600 page report, we developed a dashboard that presents the results of our analysis at a glance, and every forecast can be compared and analyzed with three clicks.

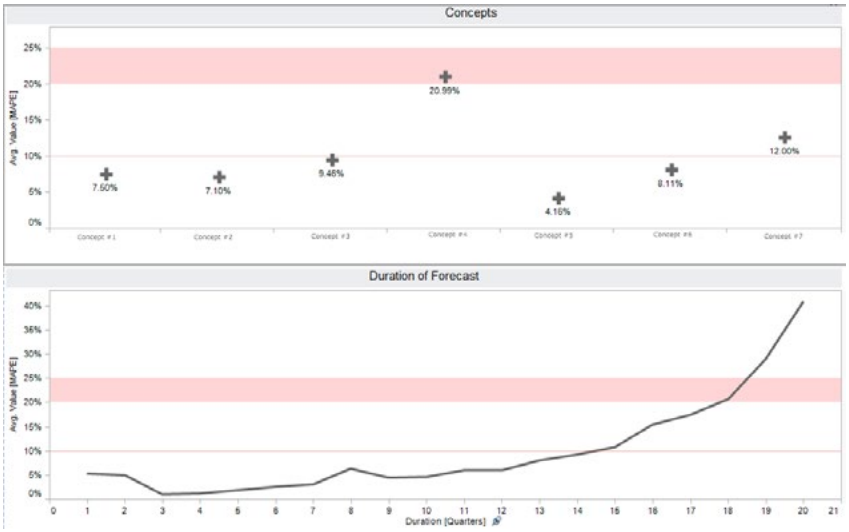


What was needed was a way for our client to explore and understand the meaning of our complex analysis at a glance. Our client needed to navigate forecast accuracies by geography, industry sector, and the duration. Users explore the data by selecting areas on the map, concepts or MSAs individually or in a group. This action updates the



State, MSAs, forecast accuracy durations and industry sections for the selected region.

For our client, forecasts with greater than 90% accuracy are deemed acceptable, and closer examination is needed for forecasts with 75 to 80% accuracy. We built these tolerances into our design. Notice the positioning of the grey crosses in each pane. The thin pink line shows 90% accuracy while the pink band shows 75 to 80% accuracy.



As users explore the dataset, these relationships allow users to quickly identify and focus on value that are below the tolerance range.

The graph above provides a summary of the forecasts accuracy for MSAs in California by industry or "concept", and the accuracy of the forecast by quarter. It is immediately clear that the forecast for industry concept #4 is "in the red". At this point end users who are experts in the data can ask questions about what is going on, and discuss how the lack of accuracy about this industry will impact future planning.

Conclusion

We invest a lot of time and energy communicating our research, because unless we can effectively communicate our findings they are useless. Dashboards allow us to communicate the most valuable information with the least about of ink that can be understood with the least amount of effort.

Contemporary Analysis
Work smart.

Since 2008, Contemporary Analysis has used predictive analytics and data science to help companies of all sizes work smart.

Our solutions use data to help our clients improve their sales, marketing, customer service, management, and strategic plans.

Our solutions are used by fast-growing technology companies, Fortune 500s, as well as small- and medium-sized organizations. Our clients are in a variety of industries including construction, insurance, education, healthcare, government, not-for-profit, software and engineering.

Our vision is to make predictive analytics simple and affordable because all companies, not just the largest, should be able to benefit from predictive analytics and data science.

Our principles:

1. We care about business.
Each business deserves a custom solution. Problems are our passion.

2. We solve core business problems.
We make a big impact quickly. Value is our focus.

3. We don't have all the answers.
We help our clients make better decisions. Less wrong is the goal.

4. We are technology agnostic.
We focus on the solution. Technology is just a tool.

5. Our job is to solve problems, not introduce complexity.
Our solutions are simple because our clients are busy.