

# The Visual Organization

## Data Visualization, Big Data, and the Quest for Better Decisions

A HARVARD BUSINESS REVIEW WEBINAR FEATURING

**Phil Simon**

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# The Visual Organization

## DATA VISUALIZATION, BIG DATA, AND THE QUEST FOR BETTER DECISIONS

### OVERVIEW

Netflix is a highly successful organization with an extremely data-dependent business model; how the company thinks about and uses data enables its success. Data visualization is an important part of that mindset, as expressed in Netflix's data-focused credo.

Netflix exemplifies a "visual organization," reliant on data visualization tools to promote experimentation, discovery, and data-informed decision making among its people. An understanding of how visual organizations think about data is informative for any company hoping to leverage data to create value and make better business decisions.

### CONTEXT

Recapping points from his forthcoming book, *The Visual Organization*, Phil Simon discussed the importance of data visualization to leveraging big data and the characteristics of "visual organizations."

### KEY LEARNINGS

#### **Netflix's business model hinges on how effectively it leverages data.**

Netflix is a highly successful organization. With 48 million subscribers and a market cap of nearly \$26 billion, this single company is responsible for one third of all U.S. weeknight Internet traffic.



Netflix's success depends on how effectively it leverages the data it keeps on customers and content. With a subscriber business model and no long-term contracts, there is nothing to stop customers from subscribing for a month, getting caught up on whatever show had interested them, and cancelling their subscription. But the numbers who do so amount to a rounding error in the context of 48 million customers.

The only thing that keeps people subscribing to Netflix is the accessibility of content they like. Yet tastes in entertainment are highly personal, and the content universe is vast. Netflix's ability to hold onto subscribers month after month hinges on its ability to match individuals to relevant content based on a highly nuanced understanding of both content options and individuals' particular tastes. (One study found that Netflix's content data can yield 77,000 different subgenres, such as "Romantic Indian Crime Dramas" or "Gritty, Suspenseful Revenge Westerns.")

### CONTRIBUTORS

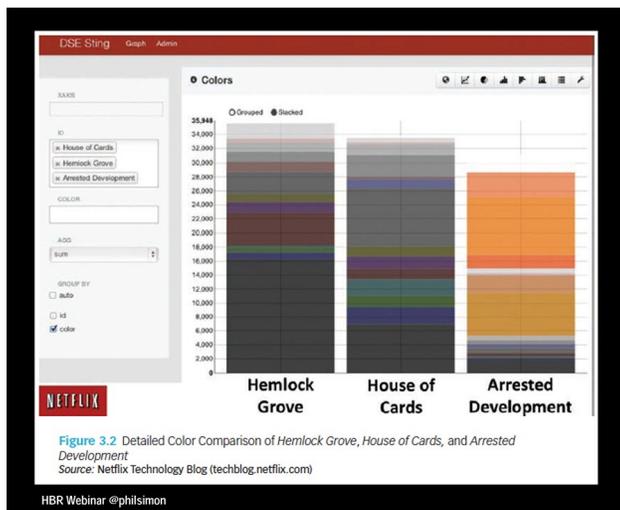
#### **Phil Simon**

Author, *The Visual Organization: Data Visualization, Big Data, and the Quest for Better Decisions*

#### **Julia Kirby (Moderator)**

Editor at Large, *Harvard Business Review*

Such a business model would be impossible to execute without algorithms tracking fine-tuned shades of content preference for all 48 million subscribers. Netflix collects and uses data not only on what each streaming customer watches, when, and on what devices, but also at what points shows are paused and resumed (or not) and even the color schemes of the marketing graphics to which individuals respond. Netflix tracks everything it can and asks how it might use everything that it tracks.



**Figure 1**  
Netflix's visualized representation of colors used in marketing three popular shows. Do favorite colors play a role in viewers' choices?

“At Netflix, data is very much a part of the culture. Data is like oxygen at Netflix.”

– PHIL SIMON

For example, the company knows how many people binge-watched the entire Season 4 of Breaking Bad the day before Season 5 came out (50,000 people). The company therefore can extrapolate viewing patterns for its original content produced to appeal to Breaking Bad fans. Moreover, Netflix markets the same show differently to different customers based on whether their viewing history suggests they like the director or one of the stars.

Netflix augments its massive volume of internal data with data (and metadata) that it buys from brokers and with even more that it pays to have generated, hiring and training people to watch movies critically. It all helps perfect the matching of content to customers as well as the creation of original content with mass appeal. Netflix can be confident that its original programming will be popular without needing to invest in 100 pilots to yield one well-liked show (as networks must) because it knows what customer segments will likely be watching.

Everyone at Netflix appreciates the value of data and thinks about it in a very particular way.

### **An important element of Netflix's formidable data capabilities is data visualization.**

Netflix is such an extremely data-centric company that its approach toward data is instructive for any organization wanting to leverage the power of big data. Whether large or small, with a data-dependent business model or not, any company can benefit from a better understanding of its data.

Netflix's data mindset is captured in its three-part credo:

1. **Data should be accessible, easy to discover, and easy to process for everyone.** Everyone at Netflix is encouraged to experiment with the company's data (no need to request it from IT). Whoever at Netflix had the idea of tracking correlations between shows' marketing color schemes and individuals' viewing choices certainly didn't know in advance whether there would be any meaningful correlation. Had none existed, that would not have been considered a failure. The attitude is that data is there to be experimented with; the more data and the more experimentation, the better—because only through experimentation does discovery happen at all.
2. **The longer you take to find the data, the less valuable it becomes.** Netflix tracks everything customers do on its site in real time, and uses that information to make decisions.
3. **Whether a dataset is large or small, being able to visualize it makes it easier to explain.** The human brain grasps information 60,000 times faster if it has been visualized. Data visualization allows non-IT people to spot meaning in data and encourages them to test their hypotheses and make decisions based on what the data reveals.

#### Netflix exemplifies a “visual organization,” understanding both the value of data visualization and its limitations.

A “visual organization” such as Netflix, Amazon, or Google recognizes that the visualization of data facilitates its broad use for better decision making company-wide. Not everyone can code, but anyone can do the clicking and dragging that it takes to use today's interactive visualization tools. Visualization can be thought of as the “front end” of big data, the first step to capturing its power.

#### Characteristics of Visual Organizations

Visual organizations:

- **Eschew “set it and forget it.”** They realize that the world is constantly changing and that a data visualization tool that worked five years ago may not be the most effective tool for today. They constantly evolve how they work with data.
- **Encourage data exploration and discovery.** Netflix is just one example of a firm that embraces data exploration and discovery. Amazon is another. Amazon is so confident in its depth of customer understanding that it is exploring “anticipatory shopping” involving business decisions and investments made based on expectations about individual customers' future purchasing.



“Netflix has incredible understanding of its customers in real time. It knows if this data is put in front of [employees], they'll make better business decisions.”

– PHIL SIMON

- **Recognize the limitations of reporting stalwarts.** Visual organizations still use Excel but realize that it is mainly reporting software; it doesn't encourage discovery as data visualization tools do.
- **Buy and build new tools as necessary.** These days, data visualization tools are not expensive; moreover, one can rent before buying. (Mentioned were [Coggle](#), [DataHero](#), and [Tableau](#).)

### Data Visualization Myths

Visual organizations also understand the limitations of data visualization. Some common “dataviz” myths that they don't buy into include:

- **All data must be visualized.** It is important not to overly rely on visualization; some data doesn't need visualization tools to uncover its messages.
- **Only good data should be visualized.** A quick and simple visualization can highlight something wrong with data just as it can help reveal interesting trends.
- **Visualization will always manifest the right action or decision.** Visualization is no replacement for critical thinking.
- **Visualization will lead to certainty.** Just because data is visualized doesn't mean it conveys an accurate picture of what is important. A visualization can be manipulated for different effects. (A good example is a stock chart: a volatile stock's performance can look smooth depending on axis parameters.)

### Tips for becoming a visual organization include encouraging experimentation through interactive visualization tools.

Some points of advice for becoming a visual organization include:

- **Look outside of the enterprise for relevant data.** An organization's own internally generated data will take it only so far; consider tapping open-sourced and purchased data as well.
- **Don't forget the metadata.** Data about data can be extremely revealing.
- **Visualize both small and big data.** Understanding who individual customers are (“small data”) can yield valuable insights just as big data can.
- **Walk before you run.** Netflix and Amazon gradually built their awesome capabilities; you can't expect to “go from zero to Google overnight.”
- **Participation matters.** Visualization tools should be interactive, and user engagement is important. Ask users what features would work for them; they'll be more likely not to eschew training on the tools if they've participated in the design.

“It's important to encourage people to play with the data using interactive tools. Static tools will only get you so far.”

—PHIL SIMON

- **Experimentation is paramount.** Discovery isn't a linear process; users need to play around with the data before it yields insights.
- **Avoid the “quarterly visualization mentality.”** ROIs can't be quantified in advance of discovery; that must simply be accepted.
- **Transparency is increasingly important.** The goal is to share, not hoard, data. The “security by silo” attitude has downside in the era of big data. The University of Texas so believes in data transparency that it posts its institutional data online in an interactive “system productivity dashboard” for anyone to explore.
- **All data is not required to begin.** There are all kinds of relevant data, including the unstructured data found in social media. Not having it all is no reason not to get started.
- **Encourage interactivity.** Static data tools don't lead to discovery as well as interactive tools do.
- **Iterate.** Learning from experiments is an iterative process.

## OTHER IMPORTANT POINTS

- **Visualize this.** Want to learn more? Phil Simon's [blog](#) is a good place to start.

“Data visualization is the front end of big data. Most people don't write code. Visualization allows people to use data.”

—PHIL SIMON

## BIOGRAPHIES

### Phil Simon

#### Author

Phil Simon is a frequent keynote speaker and recognized technology expert. He is the award-winning author of six management books, including the forthcoming *The Visual Organization: Data Visualization, Big Data, and the Quest for Better Decisions*. He consults organizations on matters related to strategy, data, and technology. His contributions have been featured in the *Harvard Business Review*, CNN, NBC, CNBC, *Inc. Magazine*, *BusinessWeek*, *The Huffington Post*, *Fast Company*, *The New York Times*, ReadWriteWeb, and many other sites.

### Julia Kirby (Moderator)

#### Editor at Large, Harvard Business Review

Julia Kirby is Editor at Large at *Harvard Business Review*. She produces articles for HBR's flagship magazine, edits books for Harvard Business Review Press, and contributes to the blog network. Across a decade with HBR, she has helped hundreds of expert authors present their ideas clearly and compellingly, on topics ranging from crisis leadership to organizational culture to social media strategy. She is also co-author of *Standing on the Sun: How the Explosion of Capitalism Abroad Will Change Business Everywhere*.

Before joining the Review in 2000, Julia worked in the management consulting industry, most recently at Accenture's Institute for Strategic Change. Earlier, at the Ernst & Young Center for Business Innovation, a management think tank, she directed all efforts to disseminate research, including launching a new journal of thought leadership, several major conferences, and one of the earliest management-focused websites.

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# Sponsor's Perspective

## TERADATA'S PERSPECTIVE ON BIG DATA

Remember the old saying, “*What you don't know won't hurt you*”? That sentiment has never been more wrong for your business than it is today. Every company wants to make the right decisions—for their customers, their employees and shareholders, and the environment—but what does “right” look like, and where do you find it? The answer is found in the transactional, operational, behavioral, and customer data that stream into departmental and corporate databases every day. Yet the intelligent enterprise recognizes that, while data hold the answers, analytics unlocks them.

As the world leader in analytic data platforms, marketing and analytic applications, and services, Teradata helps leading companies transform data into insights, which lead to actions that make a difference. By matching customized analytics with real-time business needs, Teradata helps organizations become more data-driven, enabling them to do amazing things:

- An automobile manufacturer builds safer, more energy-efficient cars.
- An Asian Internet brand develops a new system that accelerates response times by 200 to 250 percent.
- A beverage company analyzes the social media buzz from its Super Bowl ads minutes after halftime.
- A European telecommunications provider increases close rates on their offers by more than 200 percent.

Data can help you identify trends, tell you what your customers really think, and even predict outcomes. When you listen, you stop looking at business as usual and start seeing your business as exceptional.

At Teradata, we believe every business has the potential in its data and its people to be exceptional. Our goal is to help you unlock that potential sooner with unique and powerful analytics, and then apply your newfound knowledge in meaningful ways that strengthen your business and improve the lives of those touched by it. Teradata helps take the fear out of big data, so you see opportunities instead of obstacles.

The Teradata logo is displayed in a bold, orange, sans-serif font. The letters are closely spaced, and the 'T' is particularly prominent.

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