1. What is data visualization? Why is it needed?

Data visualization, perhaps more appropriately called "information visualization," is the use of visual representations to explore, make sense of, and communicate data. It is closely related to the fields of information graphics, scientific visualization, and statistical graphics. What is portrayed in visualizations is the information (aggregations, summarizations, and contextualization) and not the data. Companies and individuals increasingly rely on data to make good decisions. Because data is so voluminous, there is a need for visual tools that help people understand it.

2. What do you think the "next big thing" is in data visualization?

The future of data/information visualization is very hard to predict. We can only extrapolate from what has already been invented: more three-dimensional visualization, more immersive experience with multidimensional data in a virtual reality environment, and holographic visualization of information. There is a pretty good chance that we will see something that we have never seen in the information visualization realm invented before the end of this decade.

3. What are the reasons for the recent emergence of visual analytics?

The growth of visual analytics correlates with the growth of analytics in general. More BI and analytics vendors are becoming aware that their customers require quick and preferably interactive visualizations, not just for their normal reporting systems, but also to illustrate predictive and prescriptive decision-making information. Many of the information visualization vendors are adding the capabilities to call themselves visual analytics solution providers. Conversely, analytics solution providers such as SAS are embedding their analytics capabilities into a high-performance data visualization environment that they call visual analytics.

4. What is the difference between information visualization and visual analytics?

Visual analytics is the combination of visualization and predictive analytics. While information visualization is aimed at answering "what happened" and "what is happening" and is closely associated with business intelligence (routine reports, scorecards, and dashboards), visual analytics is aimed at answering "why is it happening," "what is more likely to happen," and is usually associated with business analytics (forecasting, segmentation, and correlation analysis).

5. Why should storytelling be a part of your reporting and data visualization?

The central idea of business reporting is to tell a story. Everyone who has data to analyze has stories to tell, whether it's diagnosing the reasons for manufacturing defects, selling a new idea in a way that captures the imagination of your target audience, or informing colleagues about a particular customer service improvement program. Stories bring life to data and facts. They can help you make sense and order out of a disparate collection of facts. They make it easier to remember key points and can paint a vivid picture of what the future can look like. Stories also create interactivity—people put themselves into stories and can relate to the situation. People will be much more engaged and receptive if information is presented to them in a story format.

6. Name three ways in which a scatter plot visualization can convey more information than a table

4508-748-875	South	0	20,869.00	486	0	0	103	0
1859-147-550	Atlantic	0	28,564.00	16	0	0	123	0
4826-514-117	Other	0	1,676.00	0	0	0	8	0
5751-996-396	Pacific NW	0	10.00	0	0	0	1	0
3329-391-452	California	0	602.00	35	0	0	3	0
2948-905-600	SW	0	228.00	198	0	0	4	0
2171-805-144	Plains	0	60.00	0	0	0	2	0
3230-594-168	South	0	19.00	19	0	0	1	0
2727-561-259	Atlantic	0	852.00	0	0	0	1	0
2974-651-819	Other	0	394.00	394	0	0	1	0
1889-391-379	Pacific NW	0	15,442.00	2379	0	0	63	0
3502-871-189	California	0	17,478.00	1719	0	0	73	0
1858-157-682	SW	0	35,605.00	2944	0	0	122	0
1286-535-266	Texas	0	10,337.00	767	0	0	32	0
4790-882-141	Mountain	0	2,136.00	0	0	0	8	0
1629-317-863	Plains	0	7,777.00	0	0	0	26	0
3082-404-314	Mid-west	0	5,478.00	10	0	0	18	0
2876-614-926	South	0	40,773.00	6349	0	0	160	0
5142-746-886	Atlantic	0	68,909.00	7291	0	0	225	0
1230-815-177	Other	0	3,841.00	134	0	0	14	0
2562-614-184	California	0	4,804.00	4111	0	0	41	0
1330-304-954	SW	0	40,426.00	28784	0	0	190	0
5171-968-684	Texas	0	31,545.00	19718	0	0	176	0
4278-989-632	Mountain	0	186,875.00	122178	0	0	1103	0
1042-513-364	Plains	0	32,805.00	20409	0	0	219	0
4319-446-804	Mid-west	0	113,247.00	69588	0	0	671	0
4800-526-911	Texas	0	40.00	40	0	0	1	0
5364-608-994	Mountain	0	37,110.00	30462	0	0	217	0
5688-325-356	Plains	0	1,305.00	1262	0	0	7	0

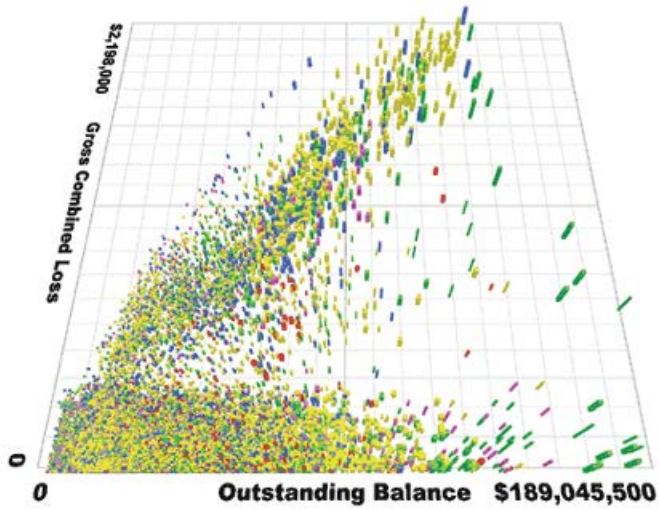

Figure 1: Table Versus Visualization Scatterplot. The table shows only 50 rows x 9 columns out of 80,000 rows of data. The visualization scatterplot shows 80,000 points with 5 attributes (x position, y position, height, size, color) - more than one hundred times what is visible in the table. Patterns invisible in the table are immediately obvious in the scatterplot.

From Information Visualization for Business – Past & Future by RICHARD BRATH and MICHAEL PETERS

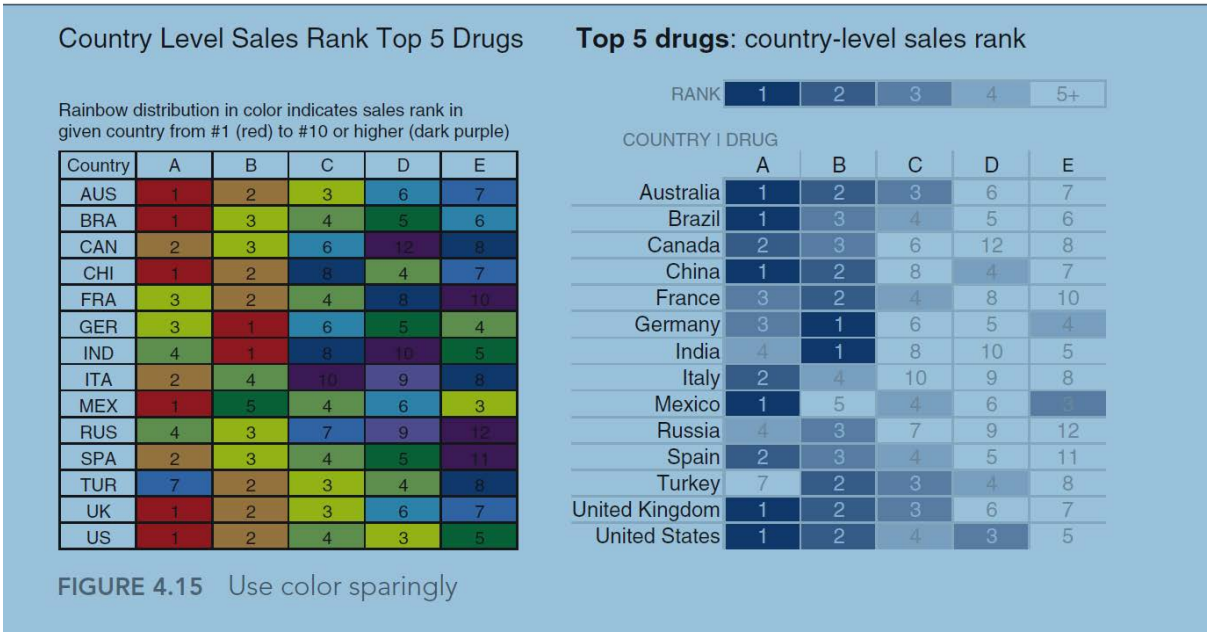

FIGURE 4.15 Use color sparingly

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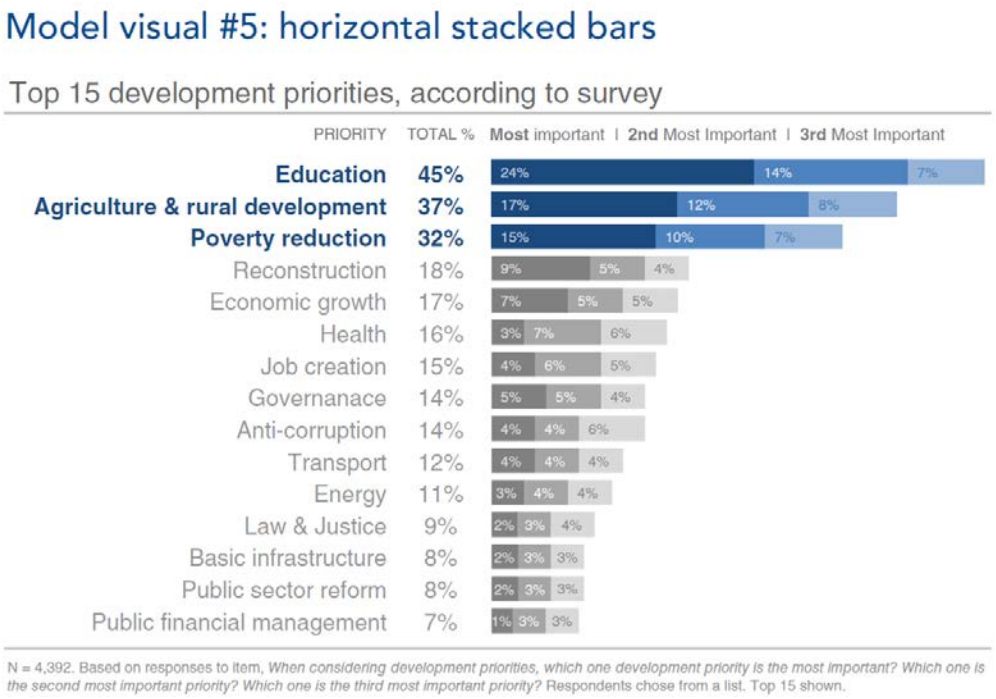

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