ITI0209: User Interfaces

12. Visualizations Continued. Dashboards

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Spring 2021

Data are facts.

Information is the meaning that human being assigns to these facts.

Let's Recap:

Good graphs should **tell a story** and **be memorable**, but also have a **low information to ink ratio** and **not mislead** the viewer.

Choice of colour when designing charts and graphs is also important to allow for colour blindness and black and white printing.

Friendly vs Unfriendly Data Graphics

(Tufte. p183)

More Tips. Friendly Graphs

- Words are spelled out

- Words run from left to right

- Little messages help explain data

- Shadings, hatches and colors are avoided. - Labels are placed on graphics itself, so no legend is required

- Graphics attract viewers

- Colors are chosen so color blind can read them

- Type is clear and precise

- Type is upper and lowercase
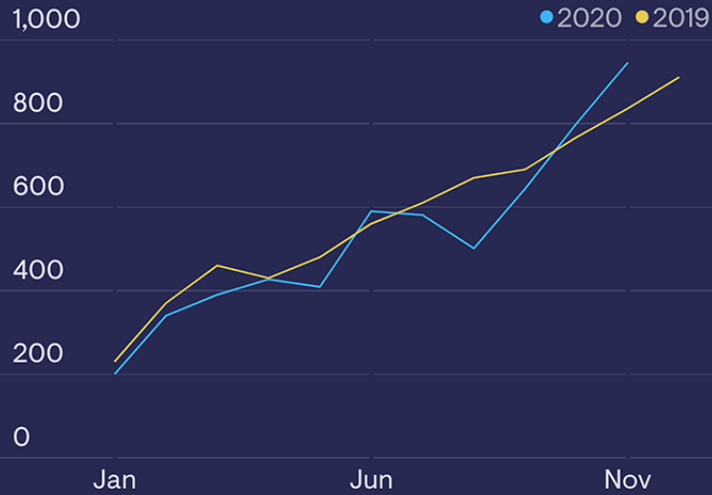
More tips. Unfriendly Graphs

- Use of abbreviations

- Words run vertically, particularily along y-axis. Words run in differnet directions

- Graphic is cryptic and needs repeated references to scattered text

- Obscure codings need to go back to legend and graphic

- Chartjunk

- Design insensitive to color defunct

- Type is overbearing

- Type is all capitals

Data Visualization Workflow

1. Understand the context

2. Choose an appropriate visual display

3. Eliminate clutter

4. Focus attention where you want it

5. Think like a designer
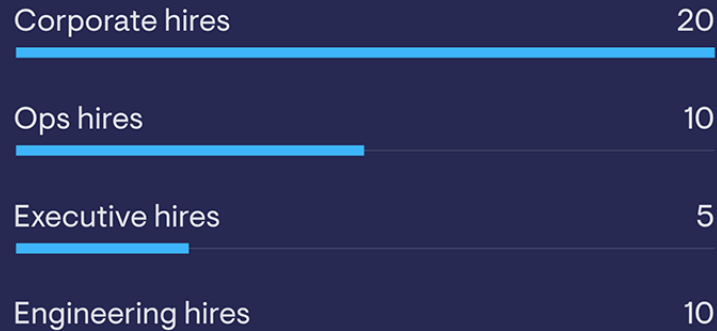
6. Tell a story

(Nussbaumer, p36)

New customers

● 2020   ● 2019

1,000
800
600
400
200
0

Jan   Jun   Nov

$1,773
New MRR today

▲ $827 Vs yesterday

Customers

Recent orders

Category	Destination	Cost	Gross margin
Biological	Europa	$1,407.00	$169.40
Mineral	Triton	$65.70	$1.30
Biological	Triton	$173.20	$14.80
Biological	Mars	$310.90	$3.70
Biological	Mercury	$296.90	$57.70
Mineral	Europa	$526.40	$161.70
Mineral	Triton	$17.70	$2.30
Equipment	Moon	$26.10	$4.90
Equipment	Mars	$37.40	$1.10
Mineral	Moon	$10.80	$4.10
Mineral	Titan	$71.40	$12.00

Latest customer
Union Aerospace Corporation

Satisfaction

0   100
77

HR this month

Corporate hires   20

Ops hires   10

Executive hires   5

Engineering hires   10

14:04

Source: https://www.geckoboard.com/dashboard-examples/company/excel-dashboard/

Dashboards often provide at-a-glance views of key performance indicators (KPIs) relevant to a particular objective or business process. For example, a manufacturing dashboard may show numbers related to productivity. Similarly, a human resources dashboard may show numbers related to staff recruitment, retention and composition.

The term dashboard originates from the automobile dashboard where drivers monitor the major functions at a glance via the instrument cluster.

10 Steps for Building the Dashboard

1. Ask questions

2. Follow the design basics (we go over the principles on next slides)

3. Choose the right tools

4. Determine the audience

5. Develop the metrics

6. Determine the levels of data

7. Design the display

8. Delivery, training and feedback

An Effective Dashboard Shoud

- Be viewed on a single one-page display screen (no scrolling required).

- Feature three to seven metrics.

- Present data that is as close to real as possible.

- Include metrics that can be affected by users of the system.

- Be simple and easy to read with minimal text.

- Eliminate the need for paper reports.

An Effective Dashboard Should Not

- Be everything to everyone.

- Have more than seven metrics.

- Require scrolling to view the main metrics.

- Contain a lot of text.

- Remove the need for detail reports.

Inspiration

- Data is Beautiful Subreddit. https://www.reddit.com/r/dataisbeautiful/

- Data is Ugly Subreddit. https://www.reddit.com/r/dataisugly/

- Information is Beautiful. https://informationisbeautiful.net/

- ChartSnacks. https://chartsnacks.com/stories/

Books

- Edward R. Tufte. The Visual Display of Quantitative Information. Graphics 2001. https://www.goodreads.com/book/show/17744.The_Visual_Display_of_Quantitative_Information?ac=1&from_search=true&qid=cMoP2LwLen&rank=1

- Cole Nussbaumer Knaflic. Storytelling with Data: A Data Visualization Guide for Business Professionals. Wiley 2015. https://www.goodreads.com/book/show/26535513-storytelling-with-data

References

- The beauty of data visualization - David McCandless. https://www.youtube.com/watch?v=5Zg-C8AAIGg

- The Gospel According to Tufte. http://www-personal.umich.edu/~jpboyd/eng403_chap2_tuftegospel.pdf

- 30 Handpicked Excellent Dashboards. https://medium.muz.li/30-handpicked-excellent-dashboards-347e2407a057

- Big Book of Dashboards: http://www.bigbookofdashboards.com/dashboards.html

- Graphical Integrity and Redesign. http://jcsites.juniata.edu/faculty/rhodes/ida/graphicalIntRedes.html

Thank you!