Building Dashboards
Identifying needs and aligning with data, presentation and interactivity

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Why dashboards?

• Dashboards have become a standard tool over the last decade in many sectors for communicating data and insights

• Useful in communicating data effectively, highlighting important information, starting guided conversations, driving action

• Poorly designed dashboards fail to engage users, convey insights and make data less comprehensible
Identify your target audience and their needs
Dashboards can have multiple audiences and they will want different levels of detail

- Who are they?
- What is their role?
- What do they already know?
- What do they need to know?

User contexts, motivations & needs
High level overview of performance
Drill down into data and explore historical data trends
Monitor specific indicators in real-time
Creating purpose-led designs

- **Purpose will inform design**, so need to be clear about what you're trying to achieve:
  - See the big picture
  - Focus on specific metrics or information that are of interest to users
  - Deep dive into the information to see what action needs to be taken

- Consider **what value it will be adding?**
- Consider **how end-users will use dashboard**: Prescriptive/Explanatory or Exploratory?

https://medium.com/nightingale/how-to-create-a-b2b-dashboard-b5a165075a95
Aligning needs with available datasets

Select the indicators that meet identified needs
- Only include what’s important and support the board’s intent

Choose data that:
- Translate into meaningful information
- Fit end-user needs
- Fit purpose of dashboard
Some key data considerations

• When deciding on data sources, consider:
  • Availability
  • Granularity
  • Quality – i.e. completeness, accuracy
  • Timeliness/Continuity

• Be careful of:
  • Data privacy
  • Data licensing
Case study:

Glasgow City Region Economic Dashboard

- **Audience:** Local authorities within the Glasgow City Region and other economic actors
- **Purpose:** Delivering a demonstrator dashboard that provides insights on economic activity at city region level and meets local policy and operational needs.
- **Data:** Given a dataset in advance collated from openly shared data
- **Specific Needs:**
  - Overview at the level of local authorities within Glasgow City Region, comparisons between each other and across different city regions within the UK
  - Simple interface/user-friendly
  - Be able to create reports or export visualisations
Welcome to the Glasgow City Region Tool

Please select an area on the map to get overall statistics for that area.
Make design straightforward

- **Ensure information being shown is clear** – most relevant information should be clear at a glance (i.e. make it simple and use context if required)

http://blog.keyrus.co.uk/dashboard_design_tips_and_principles.html

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https://www.geckoboard.com/best-practice/dashboard-design/
Make design straightforward

- Ensure information being shown is clear
- Make dashboard user friendly and avoid clutter to avoid detracting from what’s important (use interactivity)

Make design straightforward

- Ensure information being shown is clear
- Make dashboard user friendly and avoid clutter
- Use good visual organisation to make it clear to the viewer what’s most important (use size, position, grouping to show hierarchy)

https://www.forbes.com/sites/brentdykes/2019/09/12/10-ways-to-make-your-dashboards-more-actionable/?sh=26b7c5853a3
https://www.geckoboard.com/best-practice/dashboard-design/
https://www.tableau.com/resource/eye-tracking-study
Make design straightforward

- Ensure information being shown is clear
- Make dashboard user friendly and avoid clutter
- Use good visual organisation
- Use the right type of chart to aid understanding

http://www.anisacoletteholmes.com/blog/tag/data+viz
Make design straightforward

- Ensure information being shown is clear
- Make dashboard user friendly and avoid clutter
- Use good visual organisation
- Use the right type of chart
- Keep design clean and consistent, use colours sparingly, but think about accessibility

Picking the right tool

• Lots of great data visualisation tools out there...

• Some things to consider when choosing:
  • Cost
  • Level of expertise required for creation/maintenance
  • Ability to have key features (i.e. downloadable reports)
  • Accessibility through other devices/offline viewing
  • User preference and familiarity
Future proofing your app

- Consider how users will **engage with your dashboard** long term
- Who will **maintain & manage the solution** after deployment?
  - How frequently does the data need to be updated?
  - Does it need to connect to live data sources?
  - Version updates?
Keep evolving your dashboards!

**Purpose**
What are their needs/requirements?

**Access**
How to make sure message is accessible and clear to all?

**Ease**
How can we make it easy for them?
Resources

Tools
• https://vistools.net/ - for helping to decide what visualisation tool to use
• http://www.vischeck.com/ - check accessibility of images/webpages through by simulating colour-blind vision
• https://colorbrewer2.org - color schemes that have been tested for color blindness and contrast

Blog articles
• Eye-tracking study: 5 key learnings for data designers everywhere by Tableau https://www.tableau.com/about/blog/2017/6/eye-tracking-study-5-key-learnings-data-designers-everywhere-72395
• How I built an accessible IoT dashboard by Jason Webb: https://medium.com/@jason.webb/building-an-accessible-iot-dashboard-67a1633398a3

More
• Data Visualization Society resources - https://www.datavisualizationsociety.com/resources
• Edinburgh Data Visualisation Meetup group - https://www.meetup.com/meetup-group-vBHBcmgh/