Building Dashboards

Identifying needs and aligning with data, presentation and interactivity

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Why dashboards?

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- 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**

User contexts, motivations & needs

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?

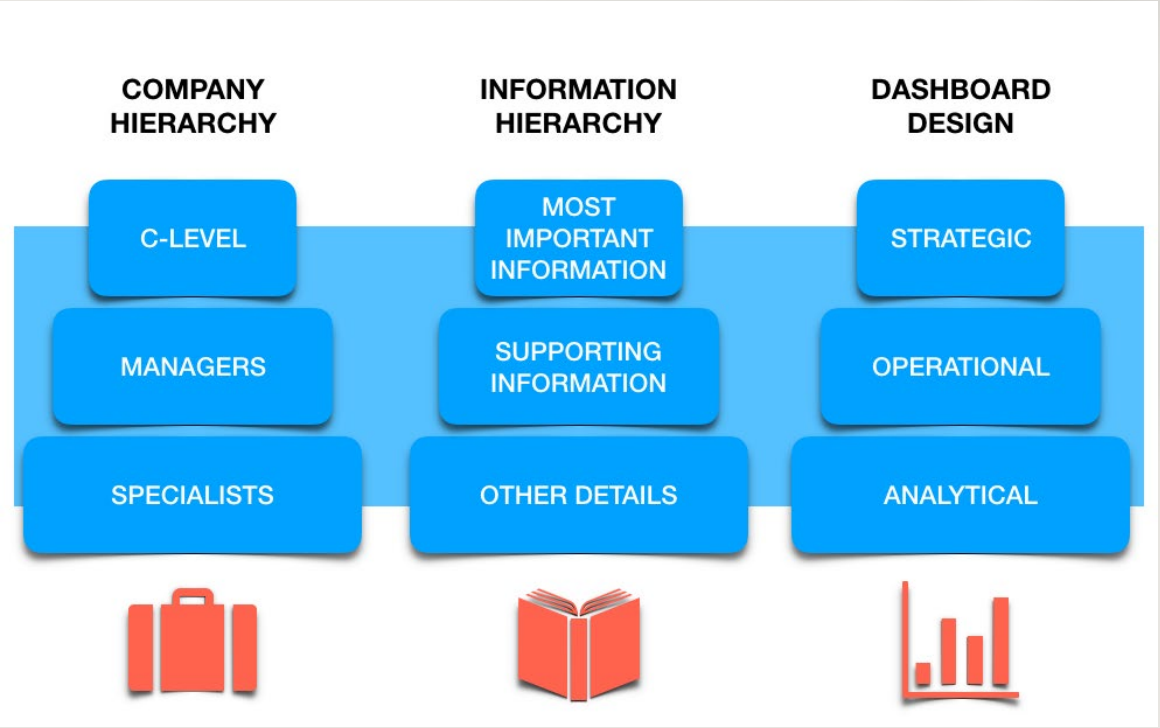
High level overview of performance

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



https://medium.com/nightingale/how-to-create-a-b2b-dashboard-b5a165075a95

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

Aligning needs with available datasets

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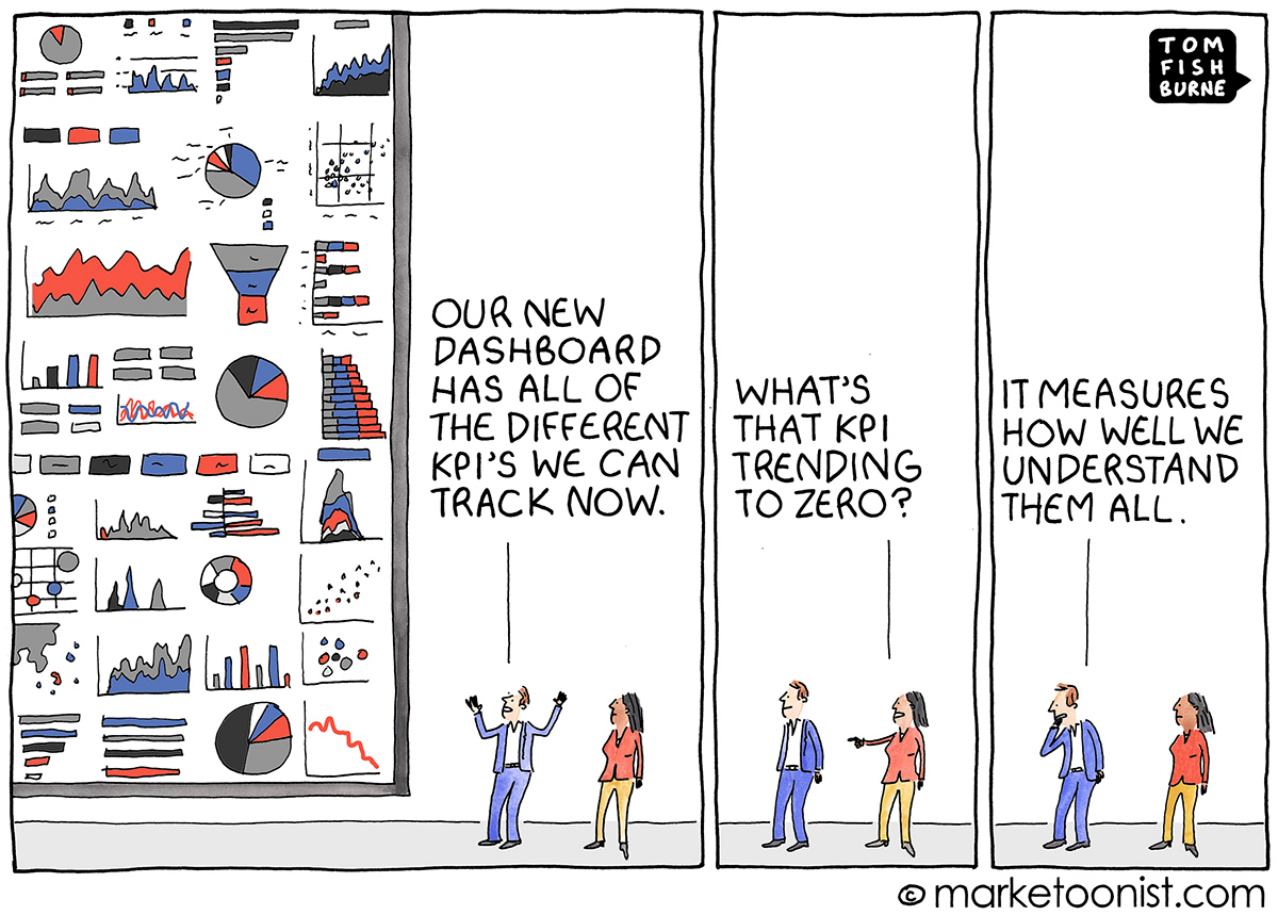
Select the indicators that meet identified needs

- 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

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- **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

GLASGOW CITY REGION ECONOMIC DASHBOARD

Single Local Authority Summary | Compare Glasgow City Region Local Authorities | Compare UK City Regions | About

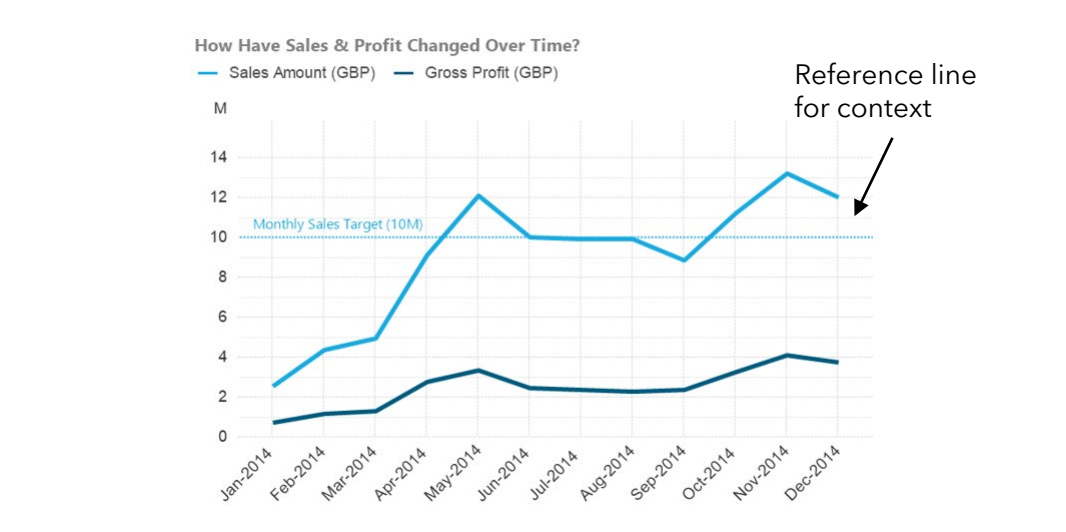
Welcome to the Glasgow City Region Tool

Leaflet

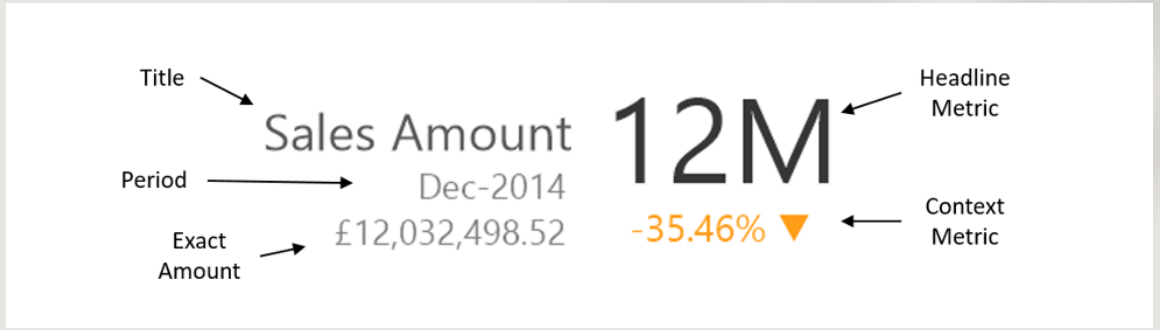
Please select an area on the map to get overall statistics for that area

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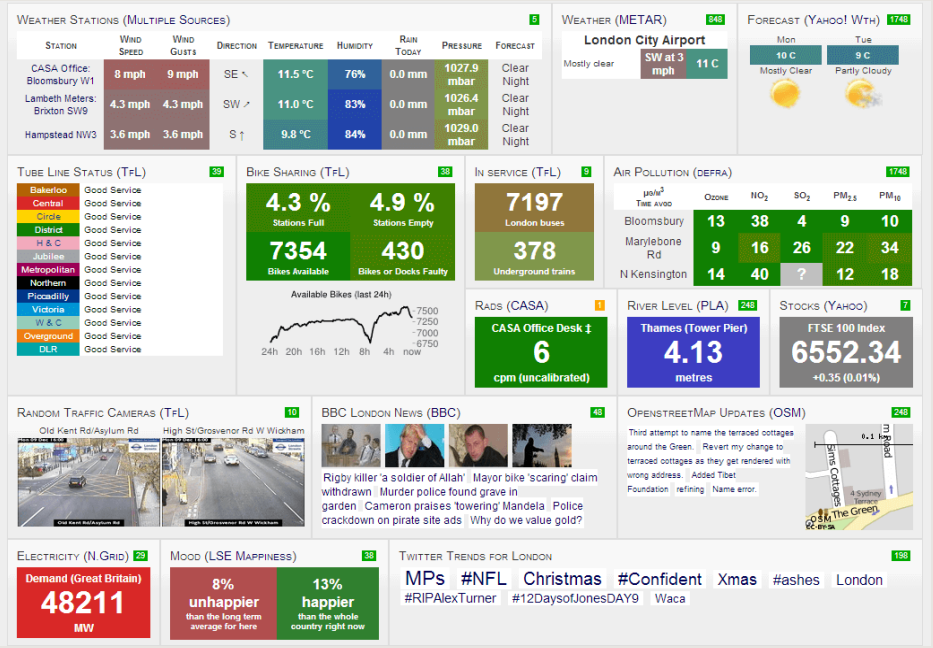
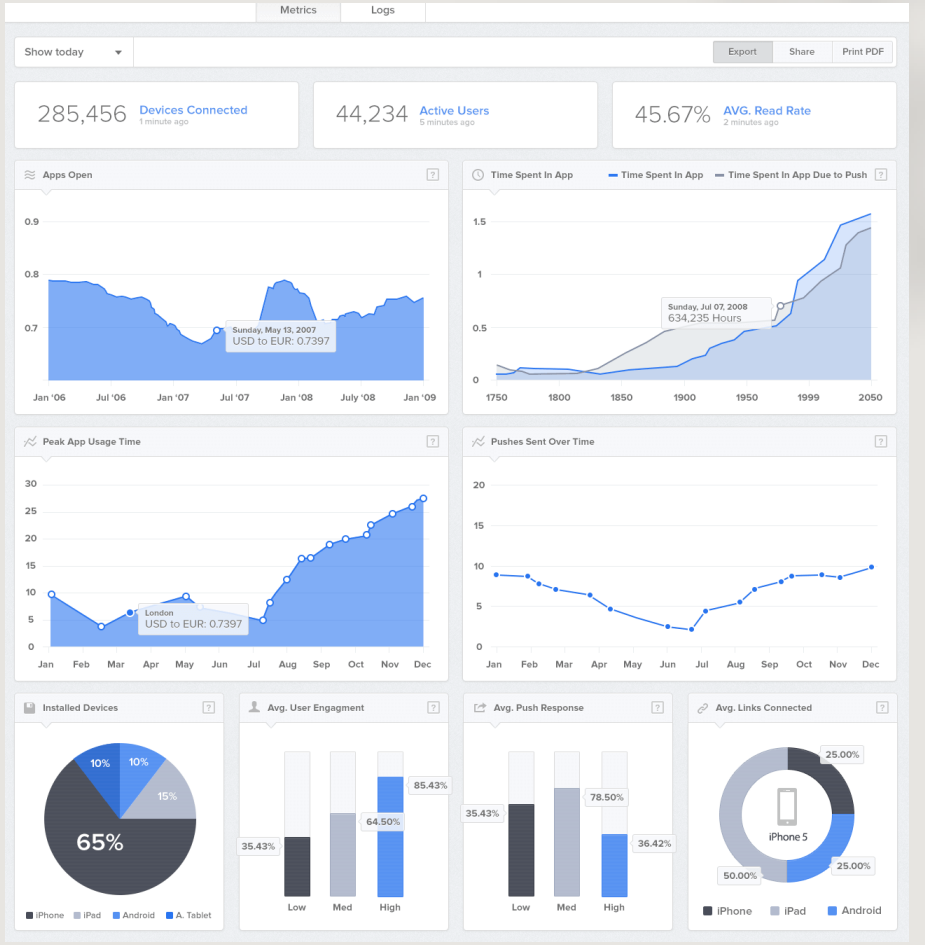
https://www.geckoboard.com/best-practice/dashboard-design/

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)

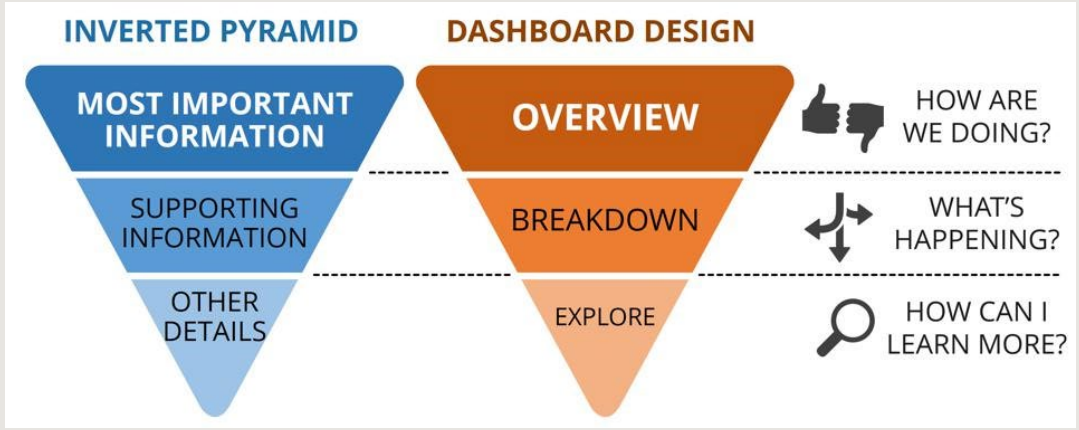




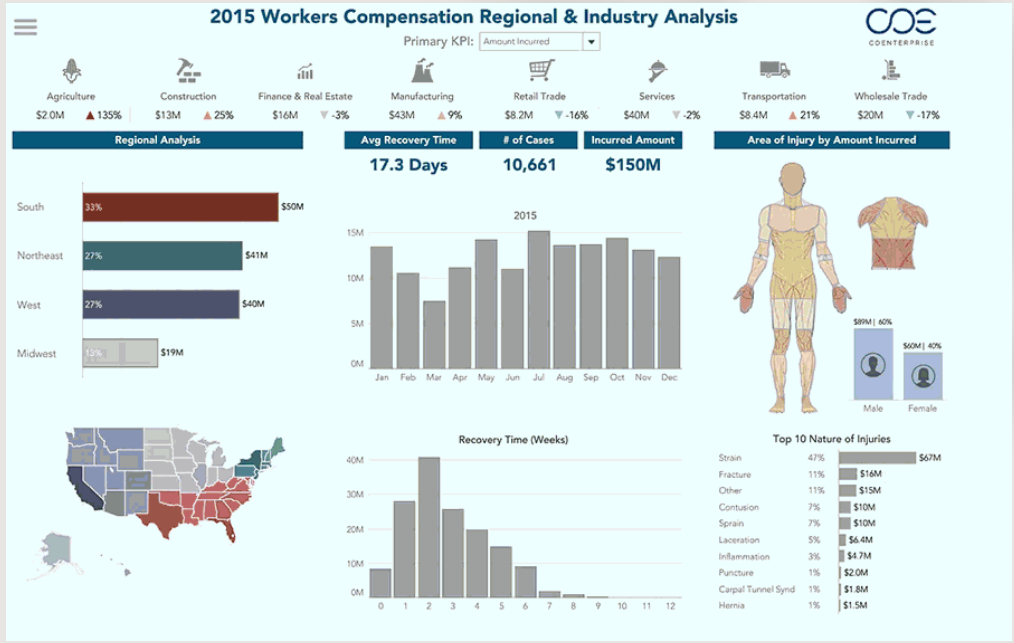
https://www.matillion.com/resources/blog/dashboard-examples-the-good-the-bad-and-the-ugly

Make design straightforward

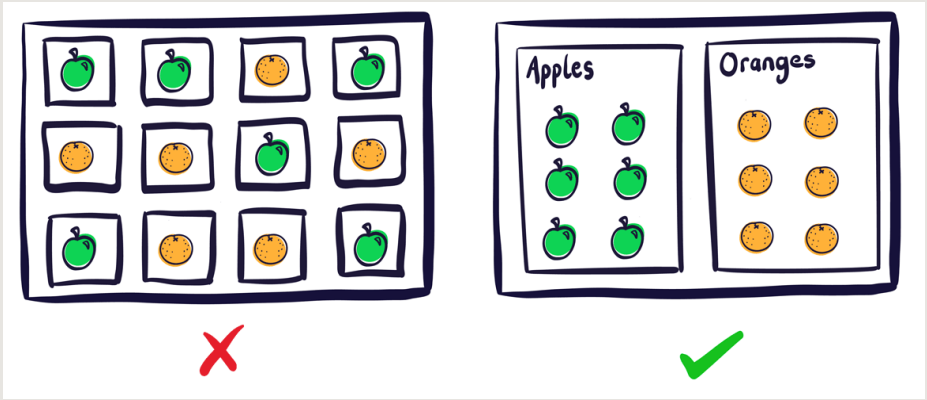
- **Ensure information being shown is clear**
- **Make dashboard user friendly and avoid clutter**
- **Use good visual organisation** to make it clear to the viewer what's most important (use size, position, grouping to show hierarchy)



https://www.forbes.com/sites/brentdykes/2019/09/12/10-ways-to-make-your-dashboards-more-actionable/?sh=26b7c58f53e3



https://www.tableau.com/resource/eye-tracking-study



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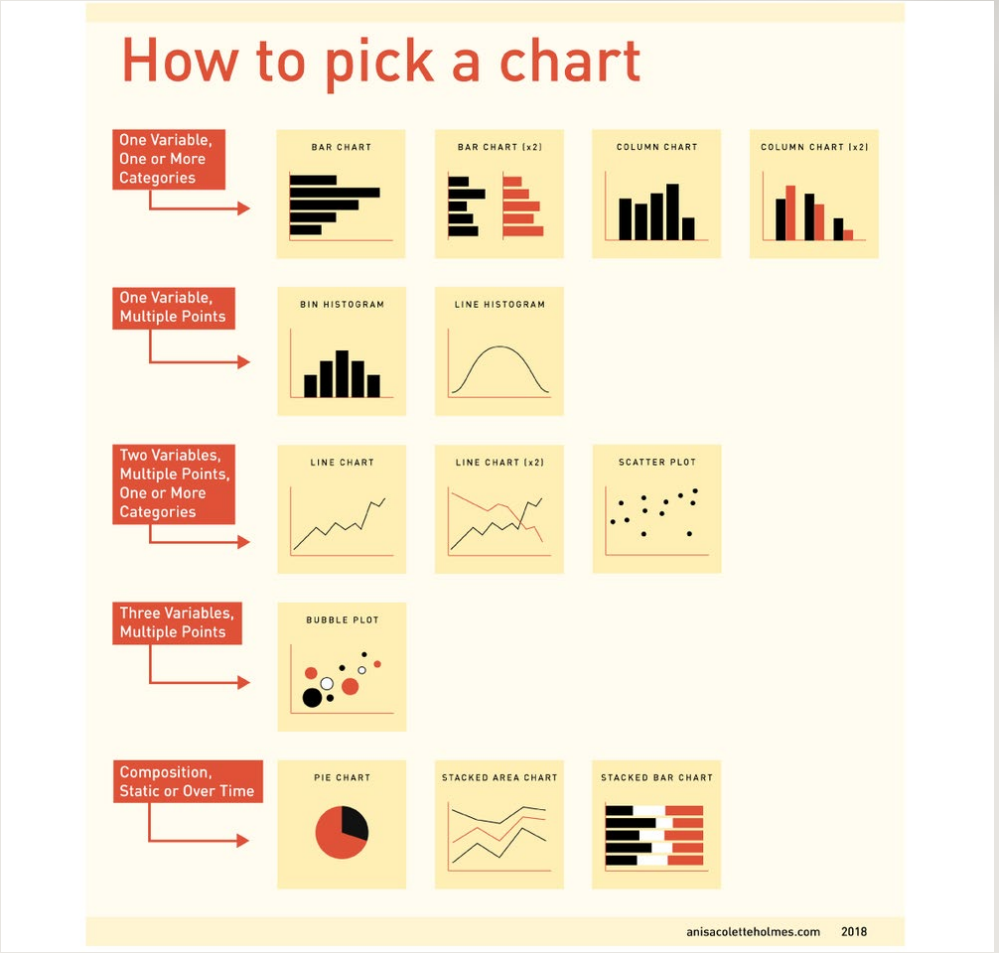
Make design straightforward

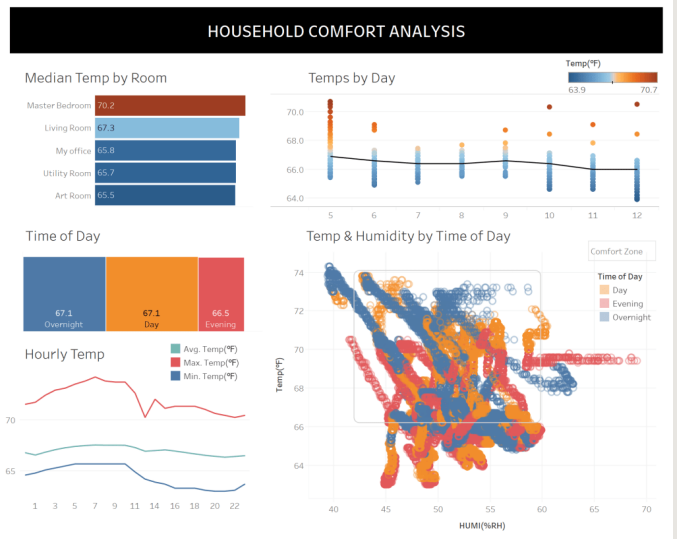
- **Ensure information being shown is clear**
- **Make dashboard user friendly and avoid clutter**
- **Use good visual organisation**
- **Use the right type of chart** to aid understanding

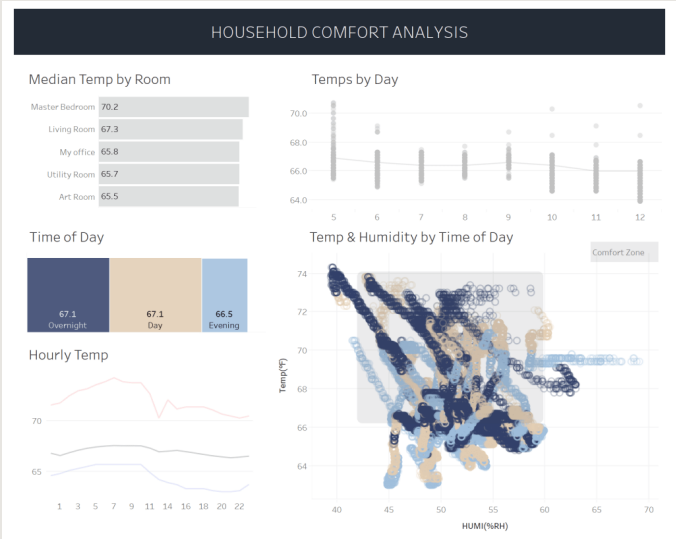


http://www.anisacoletteholmes.com/blog/tag/data+viz

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

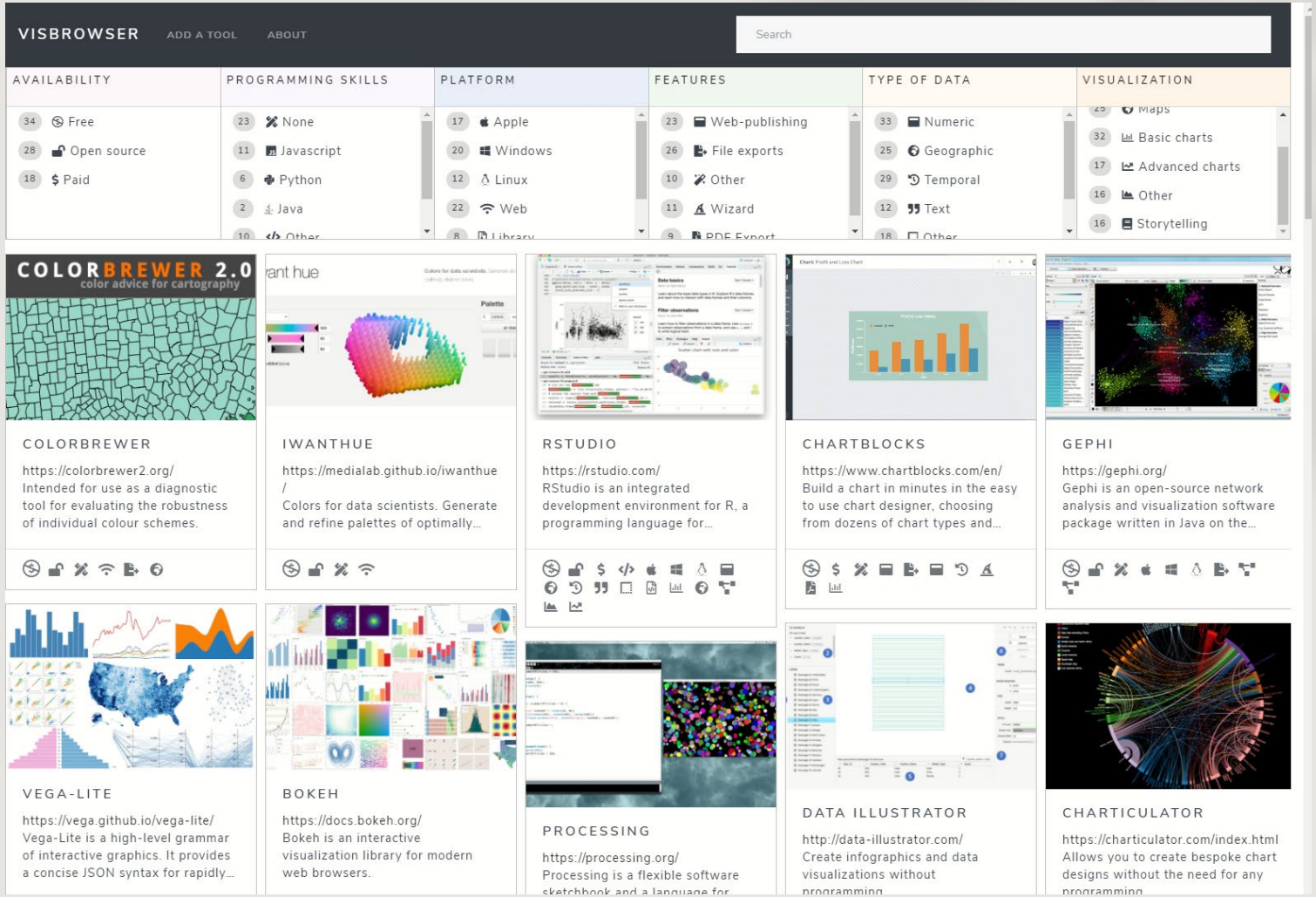




https://www.tableaufit.com/color-me-shocked-5-secrets-to-improve-color-use-in-your-tableau-dashboards/

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



https://vistools.net/

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!

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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

- Visual Hierarchy: Organizing content to follow natural eye movement patterns by Interaction Design - https://www.interaction-design.org/literature/article/visual-hierarchy-organizing-content-to-follow-natural-eye-movement-patterns
- 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
- Dashboard Design Mistake #5: Misuse of Colour by Mychelle Mollot - https://www.klipfolio.com/blog/dashboard-design-mistake-misuse-of-colour
- 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/