Introduction to **Power BI**

ธัญญ์ธนวัชร์ ปรางค์อมรกุล (ซู)

Director Data&MIS

AutoX, SCB Group

Education

- DPU CITE
  Ph.D. Information Technology
- NIDA
  Mini Business Analysis & Data Science
- THAMMASAT
  M.Sc. Management Information System
- KMUTT
  B.Sc.. Computer Science

Exprirence

- CJ Express Group, (TILDI)
  Product Owner, Data & AI
- Deloitte
  Assoc. Director Financial Advisory
- SCB
  AVP, Analytics Development Manager & Data Coach
- DTAC
  Data Analyst, Customer Insight
- AIS
  Programmer Analyst

Data Types

Quantitative - Anything that has exact numbers or measurement.

For example, Effort in points: 0, 1, 2, 3, 5, 8, 13.
Duration in days: 1, 4, 666.

Qualitative

- Ordered - Anything that can be compared and ordered.

User Story Priority: Must Have, Great, Good, Not Sure.
Days: Mon, Tue, Wed, Thu, Fri, Sat, Sun.

- Qualitative / Categorical - Everything else.

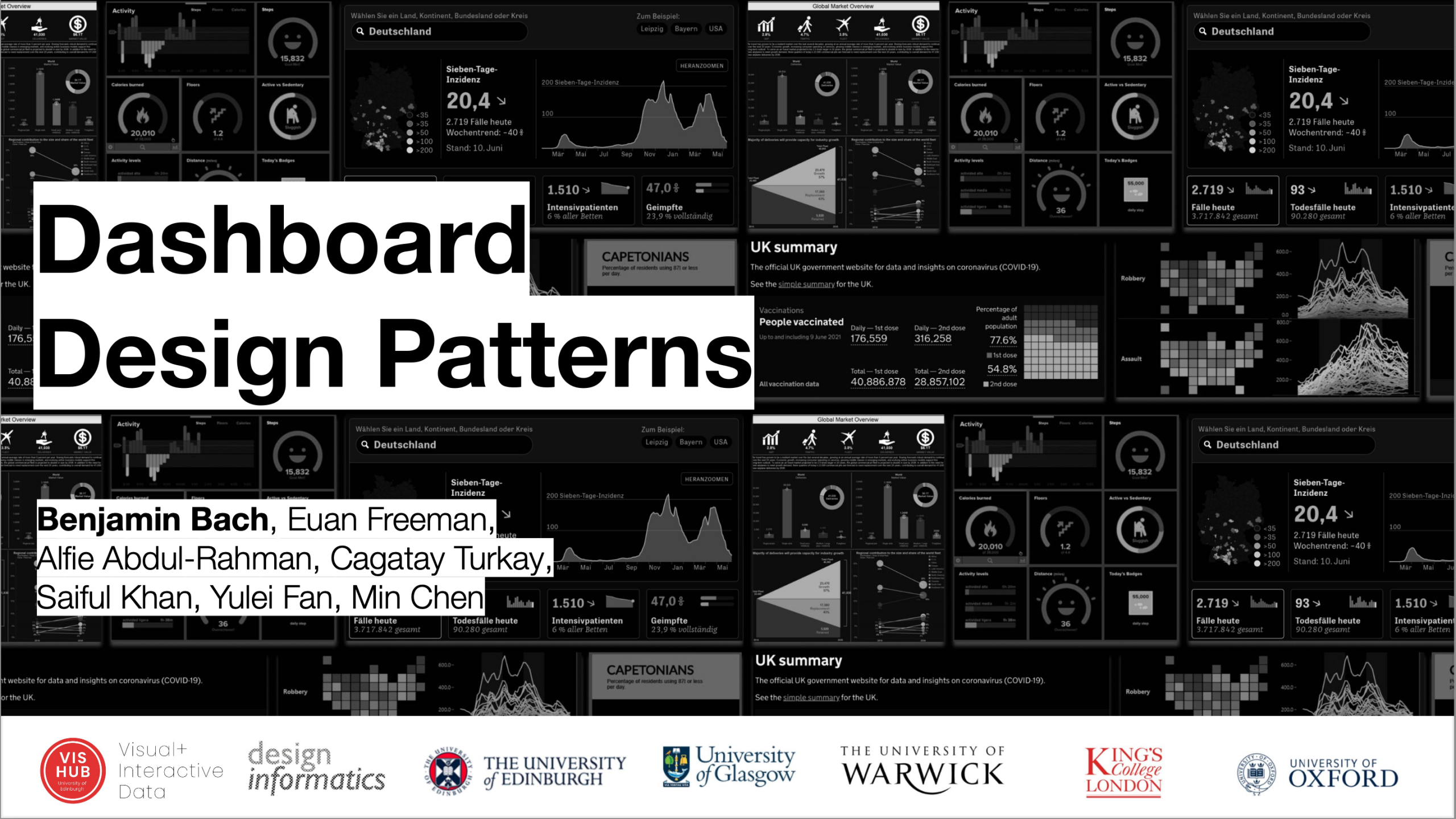
Entity types: Bugs, Stories, Features, Test Cases.
Fruits: Apples, Oranges, Plums.

Dimension & Measurement

Fact Row →
Fact Row →
Fact Row →
.
.
.

Dimension | **Measurement** | **Measurement**

Category	Sales	Profit
Appliances	1,380,025.62	190,138.91
Binders and Binder Accessories	2,069,940.09	463,321.64
Bookcases	1,238,471.60	-50,614.13
Chairs & Chairmats	2,974,242.23	211,188.01
Computer Peripherals	1,746,036.45	166,603.07
Copiers and Fax	2,255,437.19	314,610.14
Envelopes	288,668.60	59,707.80
Labels	64,716.32	16,211.12
Office Furnishings	1,174,637.73	197,218.55
Office Machines	3,650,587.36	385,906.40
Paper	928,997.06	60,214.44
Pens & Art Supplies	318,489.07	21,680.74
Rubber Bands	43,513.44	322.49
Scissors, Rulers and Trimmers	117,802.18	-10,590.34
Storage & Organization	1,866,441.74	9,420.00
Tables	3,395,153.29	-127,160.04
Telephones and Communication	3,555,295.50	640,058.07



Dashboard Design Patterns

Benjamin Bach, Euan Freeman, Alfie Abdul-Rahman, Cagatay Turkay, Saiful Khan, Yulei Fan, Min Chen

VIS HUB University of Edinburgh Visual+ Interactive Data
design informatics
THE UNIVERSITY of EDINBURGH
University of Glasgow
THE UNIVERSITY OF WARWICK
KING'S College LONDON
UNIVERSITY OF OXFORD

What Do We Talk About When We Talk About Dashboards?

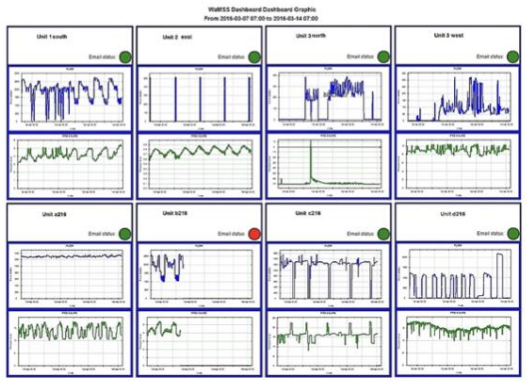
Alper Sarikaya, Michael Correll, Lyn Bartram, Melanie Tory, and Danyel Fisher

			Purpose				Audience			Visual Features					Data Semantics		
Goal	Cluster	# Examples	Strategic	Tactical	Operational	Learning	Audience	Vis Literacy	Domain Expertise	Construction	Interactivity	Modify Data/World	Highlighting	Multipage	Alerting+Notification	Benchmarks	Updateable
Decision-Making	1 Strategic Decision-Making	16	Y	Y	-	N	O	-	-	-	Y	N	N	Y	-	-	Y
	5 Operational Decision-Making	14	N	Y	Y	N	O	-	-	-	Y	N	N	Y	-	Y	Y
Awareness	3 Static Operational	10	N	N	Y	N	O	L	-	-	-	N	N	N	-	Y	Y
	4 Static Organizational	8	-	-	N	N	O	M	-	N	N	N	-	N	N	-	Y
Motivation and Learning	2 Quantified Self	7	N	N	Y	N	I	H	N	N	Y	N	-	Y	-	-	Y
	6 Communication	13	-	-	-	Y	P	M	N	N	-	N	-	-	N	N	Y
	7 Dashboards Evolved	15	-	-	-	-	P	H	-	-	-	-	-	-	-	-	Y

Sarikaya, A., Correll, M., Bartram, L., Tory, M. and Fisher, D., 2018. What do we talk about when we talk about dashboards?. *IEEE transactions on visualization and computer graphics*, *25*(1), pp.682-692.

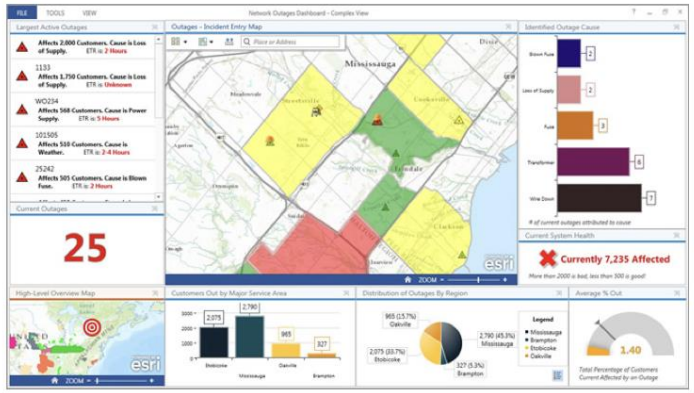
1 Strategic decision-making (DB052)

2 Quantified Self (DB021)

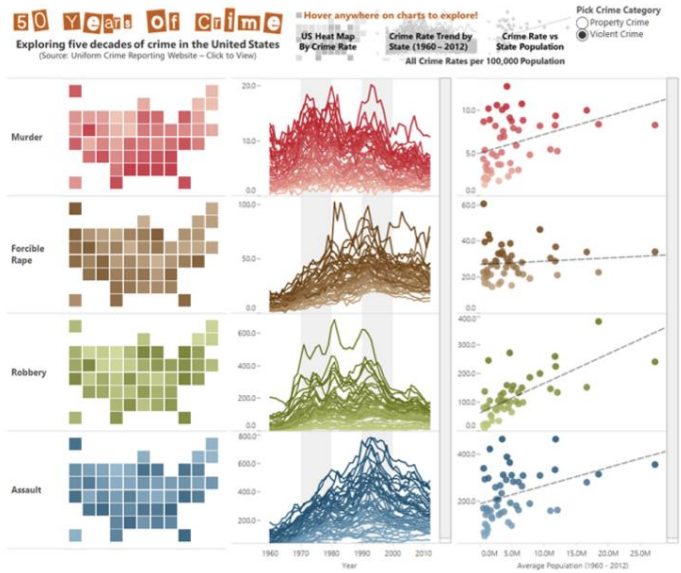


3 Static Operational (DB034)

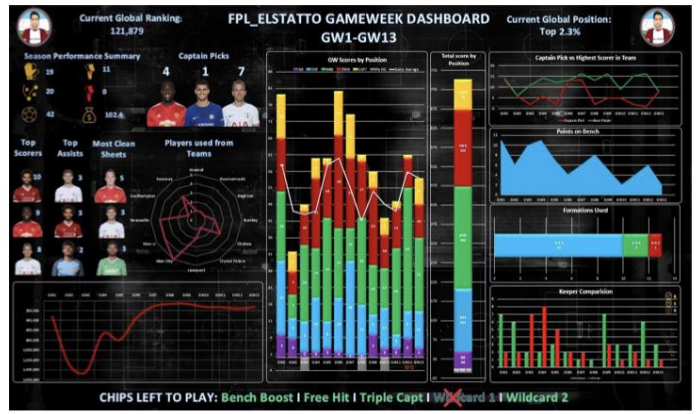
4 Static Organizational (DB101)



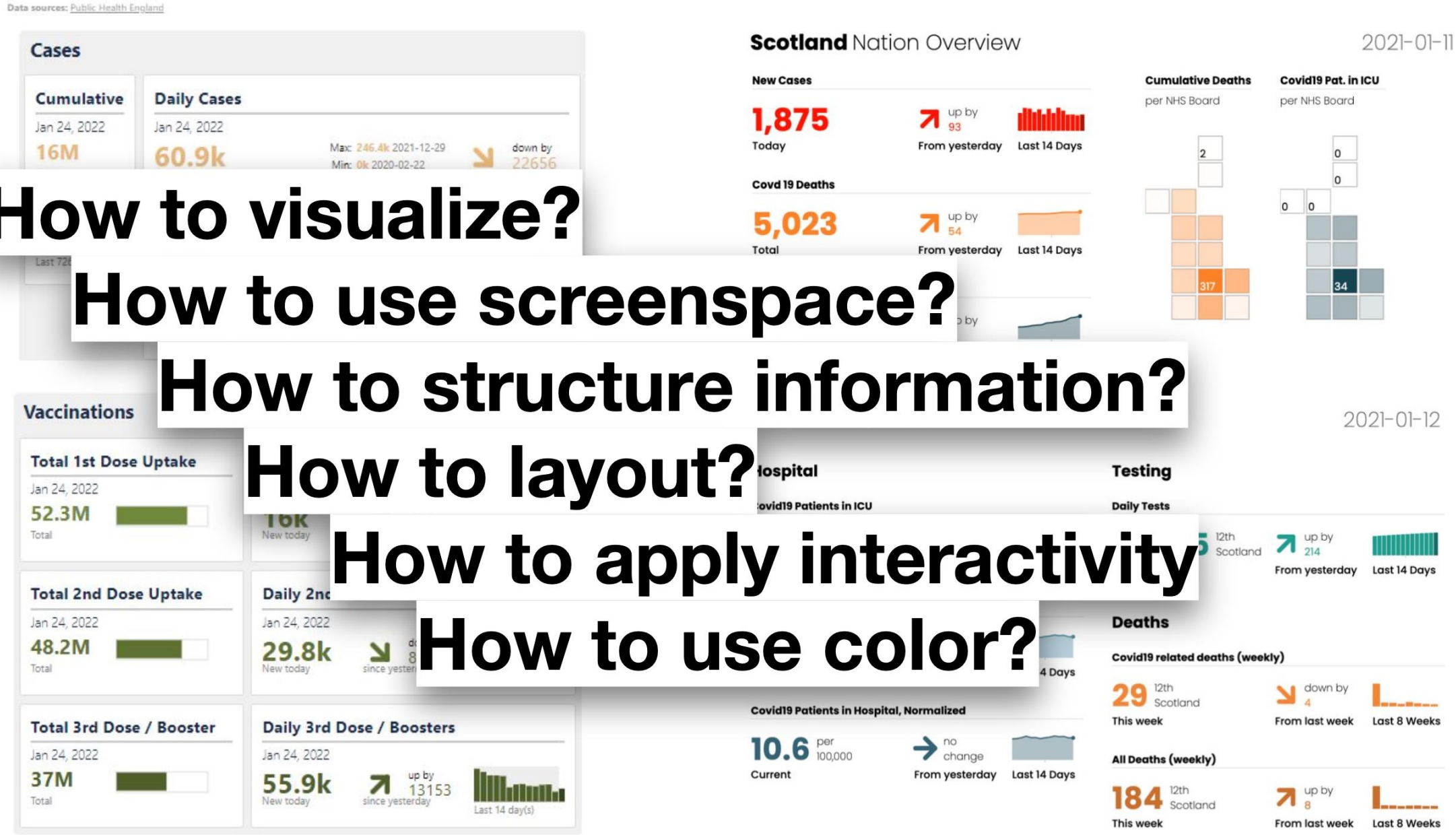
5 Operational decision-making (DB036)



6 Communication (DB005)



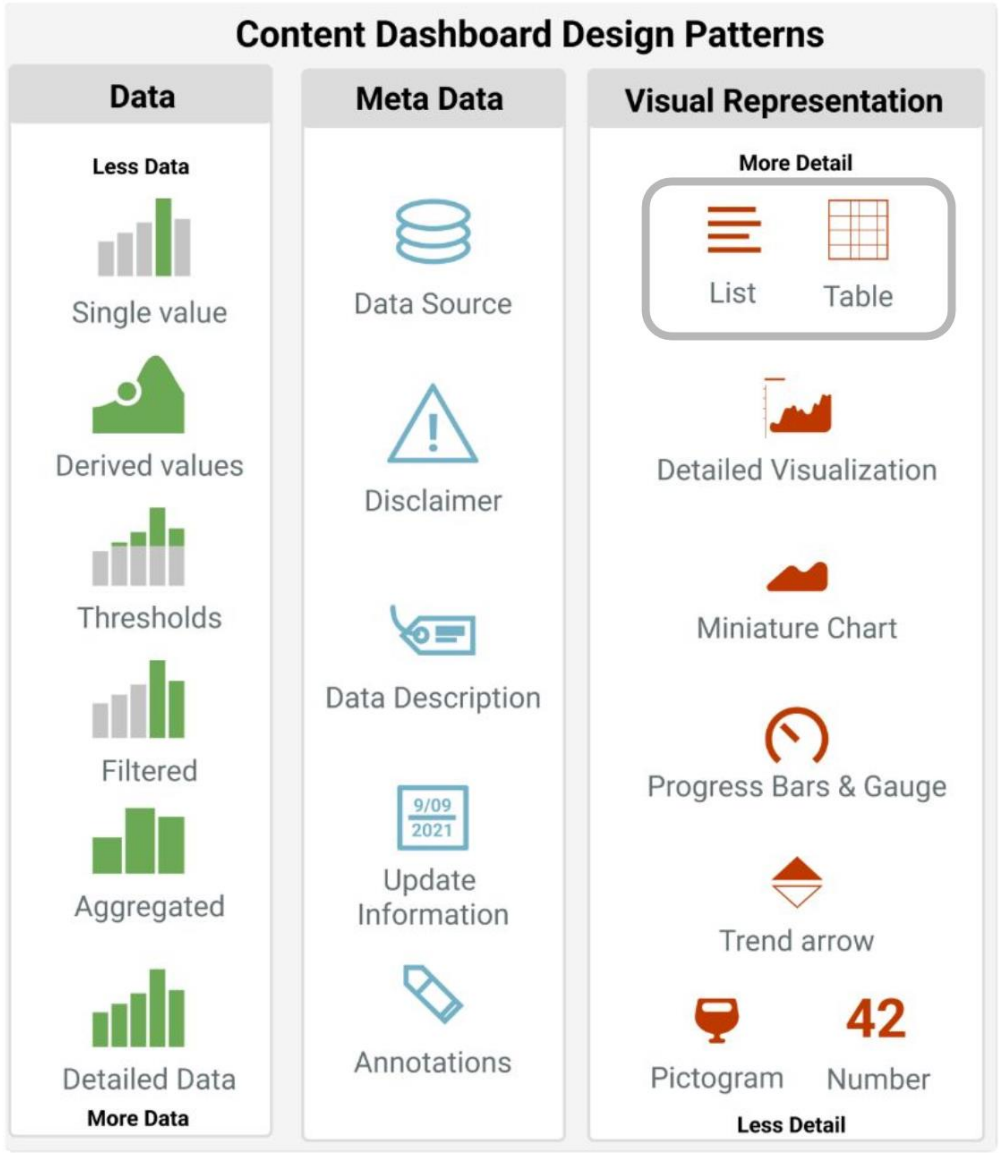
7 Dashboards Evolved (DB045)



Khan, S., Nguyen, P. H., Abdul-Rahman, A., Bach, B., Chen, M., Freeman, E., & Turkay, C. (2021). Propagating visual designs to numerous plots and dashboards. *IEEE Transactions on Visualization and Computer Graphics*, *28*(1), 86-95.

Dykes, J., Abdul-Rahman, A., Archambault, D., Bach, B., Borgo, R., Chen, M., Enright, J., Fang, H., Firat, E.E., Freeman, E. and Gönen, T., 2022. Visualization for epidemiological modelling: challenges, solutions, reflections and recommendations. *Philosophical Transactions of the Royal Society A*, *380*(2233), p.20210299.

23 Dashboard Design Patterns

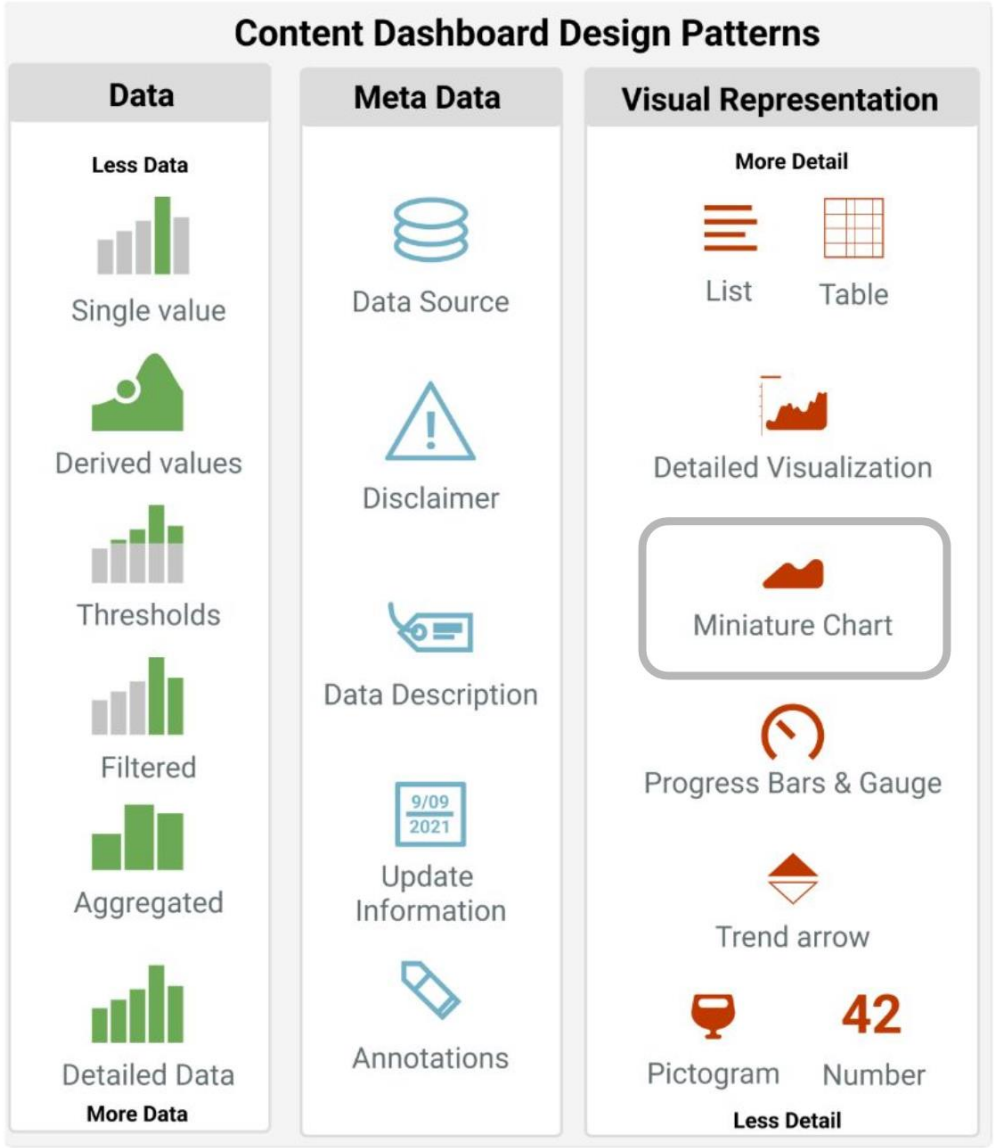


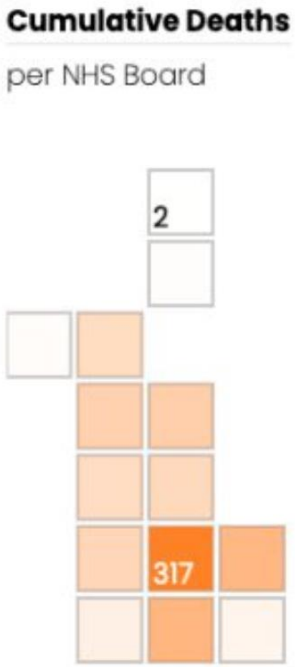
Cases by States

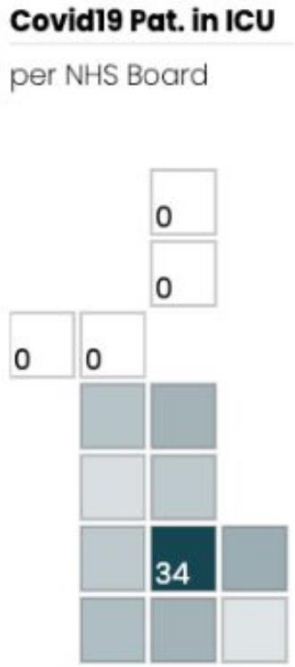
Jul 10, 202

#		TOTAL		DEATHS
Selangor		281,670	↑ 4277	1,983
Kuala Lumpur		87,711	↑ 1398	662
Johor		74,436	↑ 399	637
Sabah		72,042	↑ 251	559
Sarawak		68,599	↑ 352	431
Negeri Sembilan		51,851	↑ 638	466
P. Pinang		36,376	↑ 180	129
Kelantan		35,991	↑ 89	240
Perak		28,903	↑ 145	140
Kedah		28,202	↑ 364	240
Melaka		21,009	↑ 247	196
Pahang		15,848	↑ 247	144
Terengganu		11,721	↑ 50	82
Labuan		9,087	↑ 85	135
Putrajaya		2,550	↑ 39	15
Perlis		607	↑ 4	8
Total		826603		6067

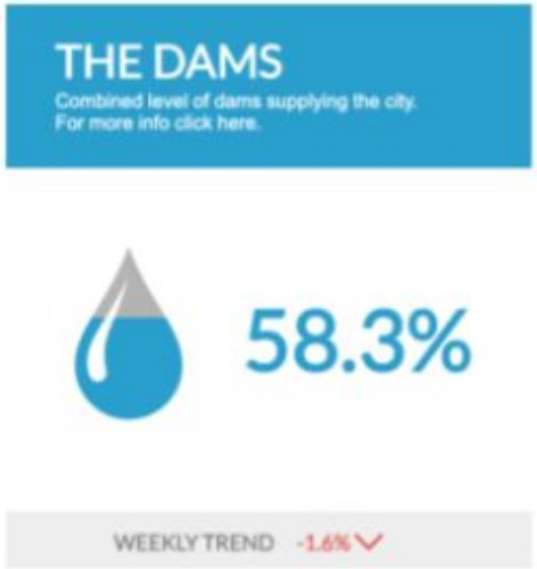
23 Dashboard Design Patterns







23 Dashboard Design Patterns



23 Dashboard Design Patterns

Content Dashboard Design Patterns

Data

Less Data

- Single value
- Derived values
- Thresholds
- Filtered
- Aggregated
- Detailed Data

More Data

Meta Data

- Data Source
- Disclaimer
- Data Description
- Update Information
- Annotations

Visual Representation

More Detail

- List
- Table
- Detailed Visualization
- Miniature Chart
- Progress Bars & Gauge
- Trend arrow
- Pictogram
- Number (42)

Less Detail

Composition Dashboard Design Patterns

Page Layout

- Open
- Table
- Stratified
- Grouped
- Schematic

23 Dashboard Design Patterns

Content Dashboard Design Patterns

Data

Less Data

- Single value
- Derived values
- Thresholds
- Filtered
- Aggregated
- Detailed Data

More Data

Meta Data

- Data Source
- Disclaimer
- Data Description
- Update Information
- Annotations

Visual Representation

More Detail

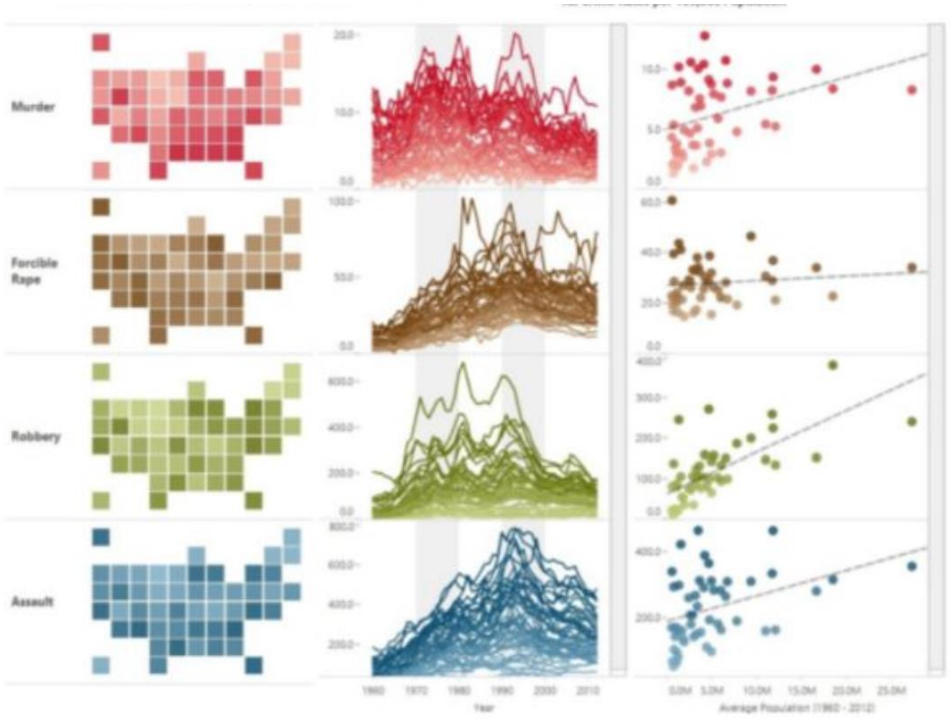
- List
- Table
- Detailed Visualization
- Miniature Chart
- Progress Bars & Gauge
- Trend arrow
- Pictogram
- Number (42)

Less Detail

Composition Dashboard Design Patterns

Page Layout

- Open
- Table
- Stratified
- Grouped
- Schematic

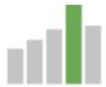


23 Dashboard Design Patterns

Content Dashboard Design Patterns

Data

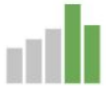
Less Data



Single value

Derived values

Thresholds



Filtered

Aggregated

Detailed Data

More Data

Meta Data

Data Source

Disclaimer

Data Description

Update Information

Annotations

Visual Representation

More Detail

List

Table

Detailed Visualization

Miniature Chart

Progress Bars & Gauge

Trend arrow

Pictogram

42

Number

Less Detail

Composition Dashboard Design Patterns

Page Layout

Open

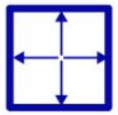
Table

Stratified

Grouped

Schematic

Screenspace



Screenfit

Overflow

Detail on demand

Parameterization

Mulitple pages

23 Dashboard Design Patterns

Content Dashboard Design Patterns

Data

Less Data

- Single value
- Derived values
- Thresholds
- Filtered
- Aggregated
- Detailed Data

More Data

Meta Data

- Data Source
- Disclaimer
- Data Description
- Update Information
- Annotations

Visual Representation

More Detail

- List
- Table
- Detailed Visualization
- Miniature Chart
- Progress Bars & Gauge
- Trend arrow
- Pictogram
- Number

Less Detail

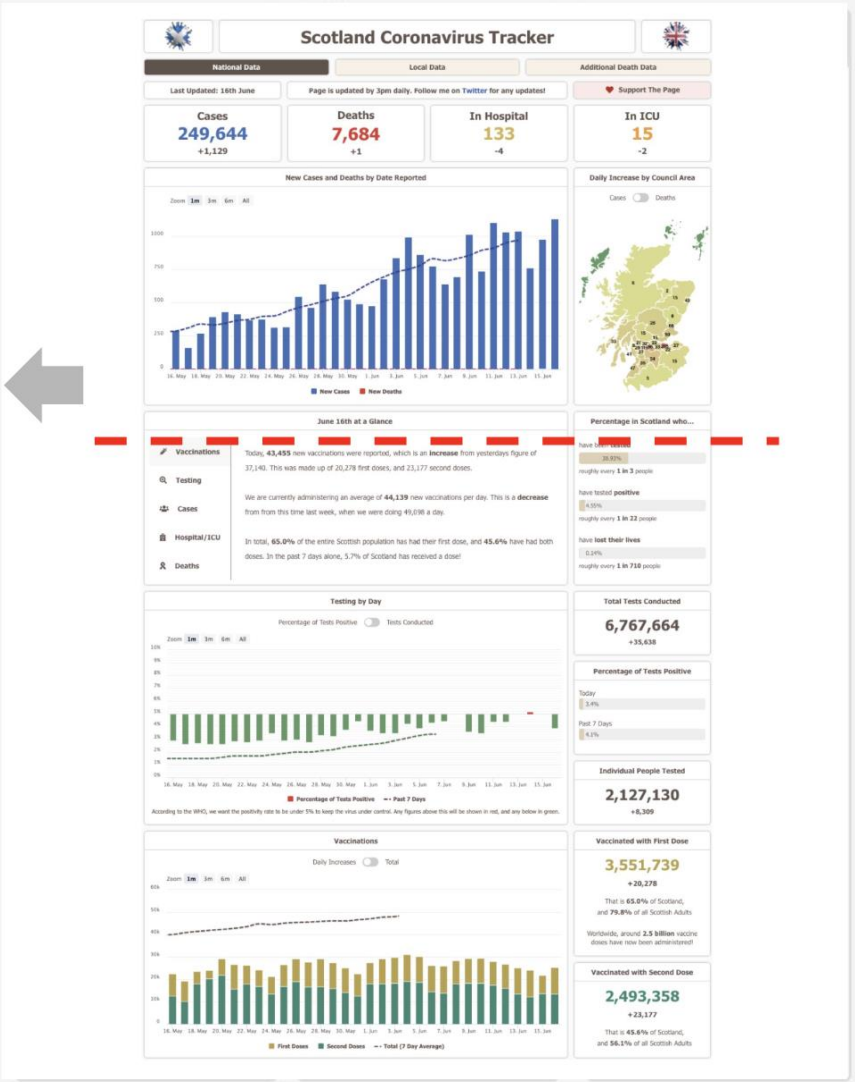
Composition Dashboard Design Patterns

Page Layout

- Open
- Table
- Stratified
- Grouped
- Schematic

Screenspace

- Screenfit
- Overflow
- Detail on demand
- Parameterization
- Mulitple pages



23 Dashboard Design Patterns

Content Dashboard Design Patterns

Data

Less Data

- Single value
- Derived values
- Thresholds
- Filtered
- Aggregated
- Detailed Data

More Data

Meta Data

- Data Source
- Disclaimer
- Data Description
- Update Information (9/09 2021)
- Annotations

Visual Representation

More Detail

- List
- Table
- Detailed Visualization
- Miniature Chart
- Progress Bars & Gauge
- Trend arrow
- Pictogram
- Number (42)

Less Detail

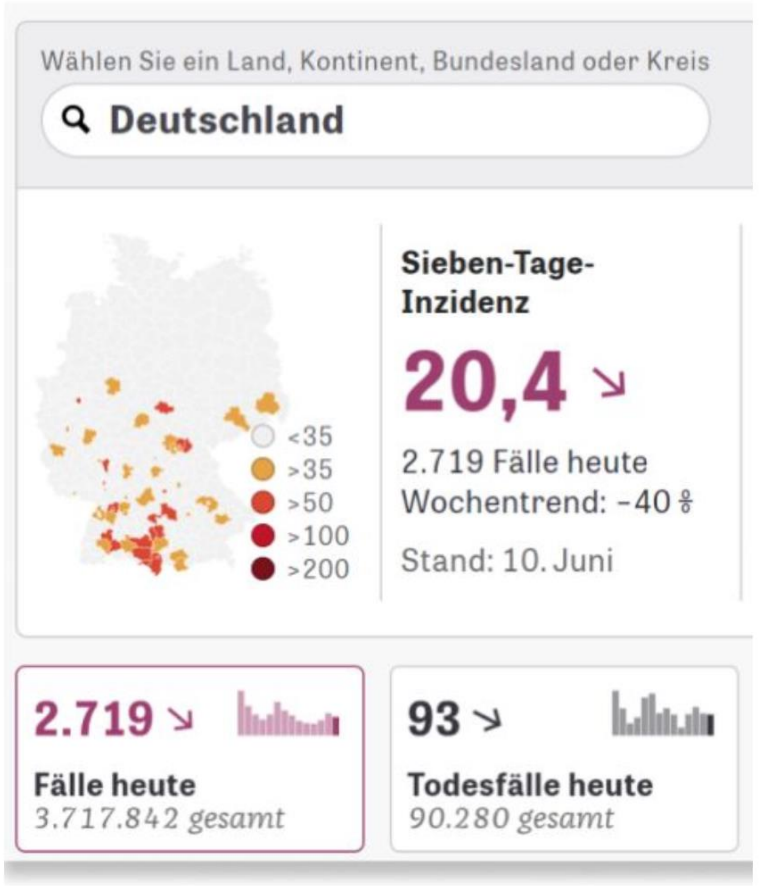
Composition Dashboard Design Patterns

Page Layout

- Open
- Table
- Stratified
- Grouped
- Schematic

Screenspace

- Screenfit
- Overflow
- Detail on demand
- Parameterization
- Mulitple pages



23 Dashboard Design Patterns

Content Dashboard Design Patterns

Data

Less Data

Single value

Derived values

Thresholds

Filtered

Aggregated

Detailed Data

More Data

Meta Data

Data Source

Disclaimer

Data Description

Update Information

Annotations

Visual Representation

More Detail

List

Table

Detailed Visualization

Miniature Chart

Progress Bars & Gauge

Trend arrow

Pictogram

42

Number

Less Detail

Composition Dashboard Design Patterns

Page Layout

Open

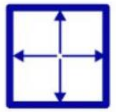
Table

Stratified

Grouped

Schematic

Screenspace



Screenfit

Overflow

Detail on demand

Parameterization

Mulitple pages

Structure

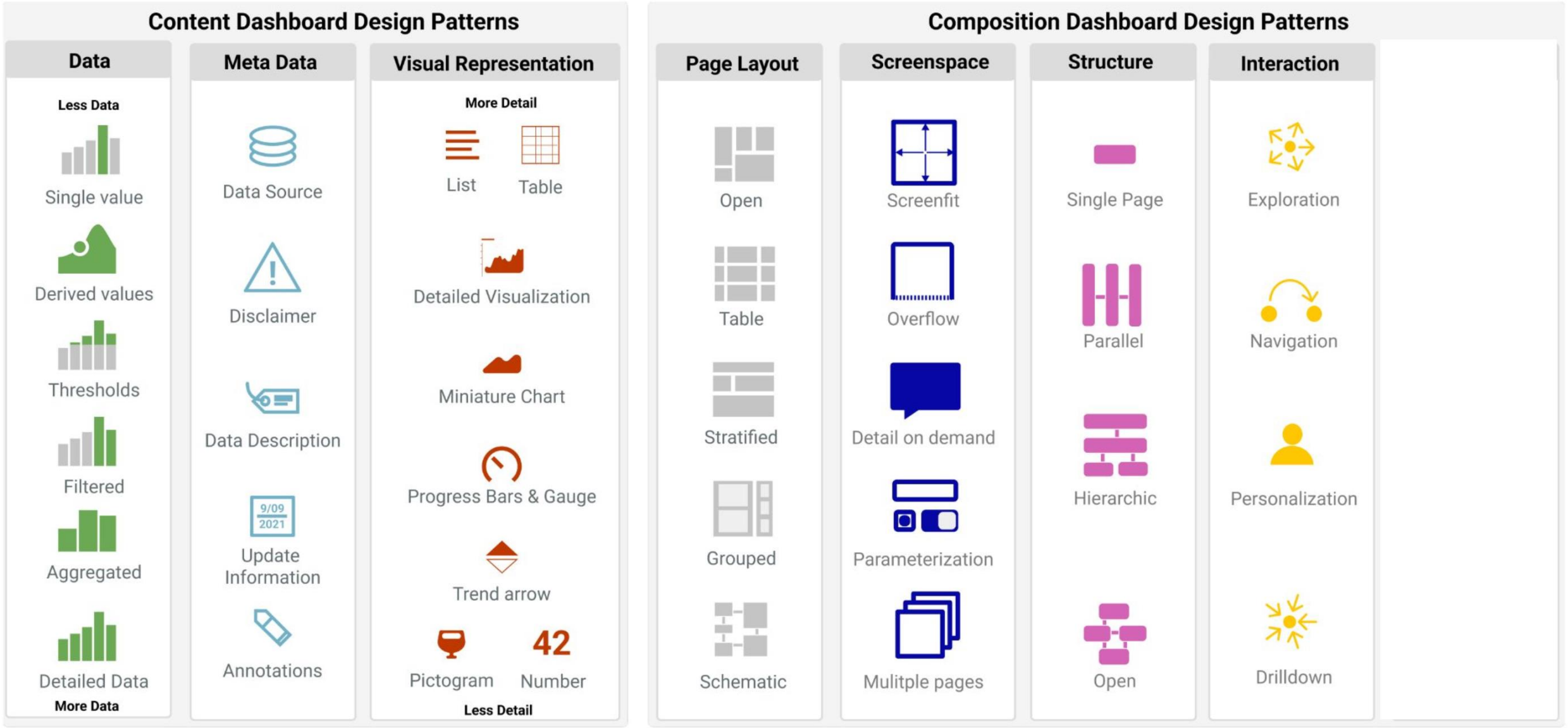
Single Page

Parallel

Hierarchic

Open

23 Dashboard Design Patterns



23 Dashboard Design Patterns

Content Dashboard Design Patterns

Data

Less Data

Single value

Derived values

Thresholds

Filtered

Aggregated

Detailed Data

More Data

Meta Data

Data Source

Disclaimer

Data Description

Update Information

Annotations

Visual Representation

More Detail

List

Table

Detailed Visualization

Miniature Chart

Progress Bars & Gauge

Trend arrow

Pictogram

42
Number

Less Detail

Composition Dashboard Design Patterns

Page Layout

Open

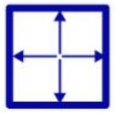
Table

Stratified

Grouped

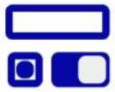
Schematic

Screenspace


Screenfit

Overflow

Detail on demand


Parameterization

Mulitple pages

Structure

Single Page

Parallel

Hierarchic

Open

Interaction

Exploration

Navigation

Personalization

Drilldown

Color

Distinct

Data Encoding

Semantic

Emotive

7 Dashboard Genres

Static

Analytical

Magazine

Infographic

Mini

Slideshow

Repository

7 Dashboard Genres

Static

Analytical

Magazine

Infographic

Mini

Slideshow

Repository

US coronavirus data

Hide

New cases

14-day average on 15 Oct
39,197

-25%

Change in past 14 days

Cases by state →

New deaths

14-day average on 15 Oct
377

-14%

Change in past 14 days

Deaths by state →

Fully vaccinated

		At least one dose
Total pop.	65.4%	76.8%
Age 12+	73.8%	86.5%
Age 65+	88.9%	95.0%

Vaccinations by state →

7 Dashboard Genres

Static

Analytical

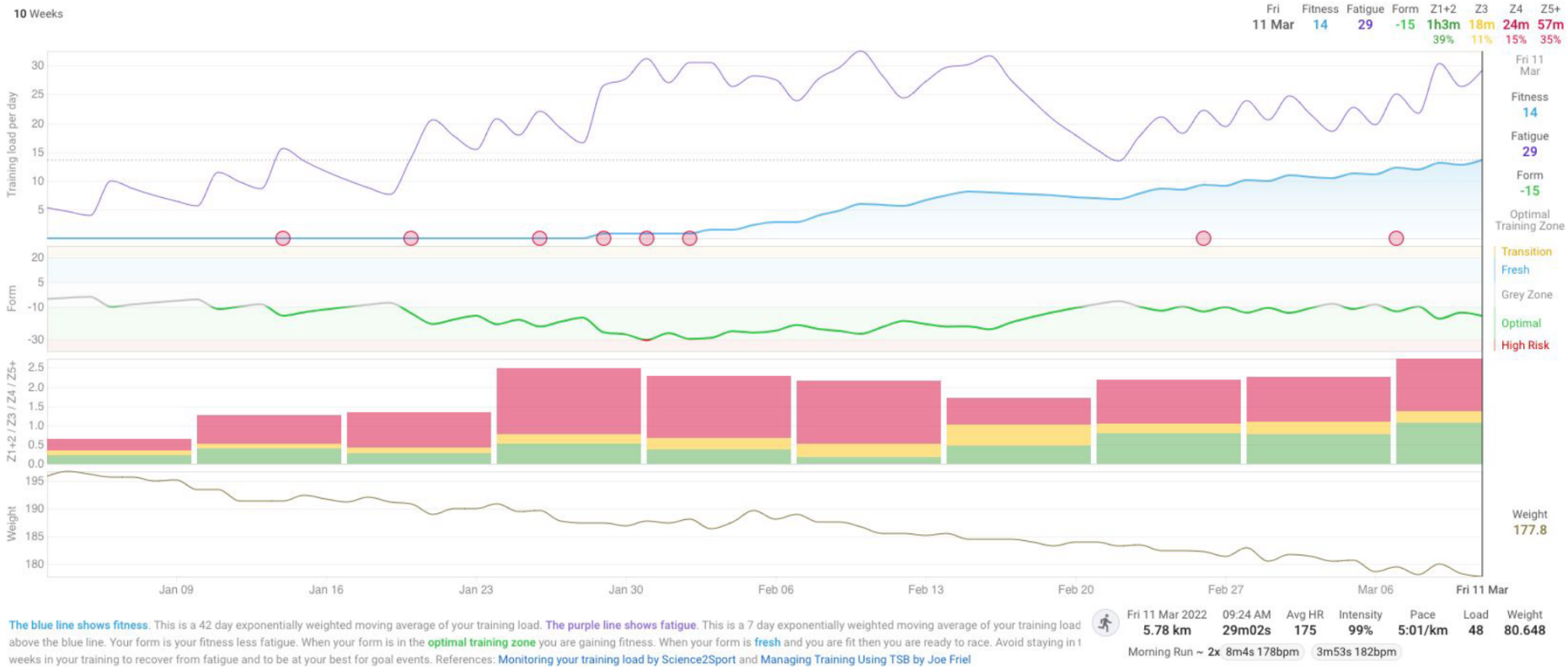
Magazine

Infographic

Mini

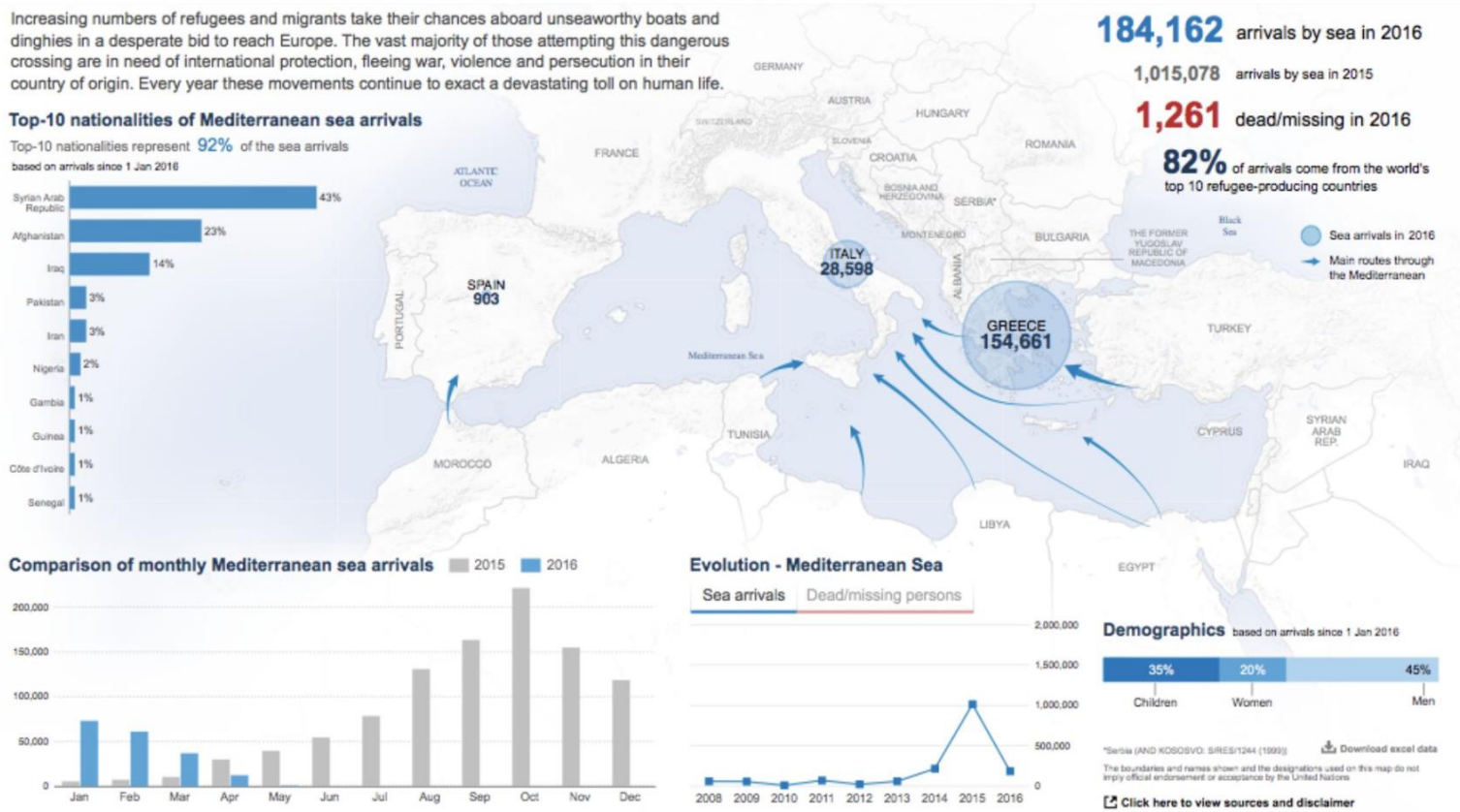
Slideshow

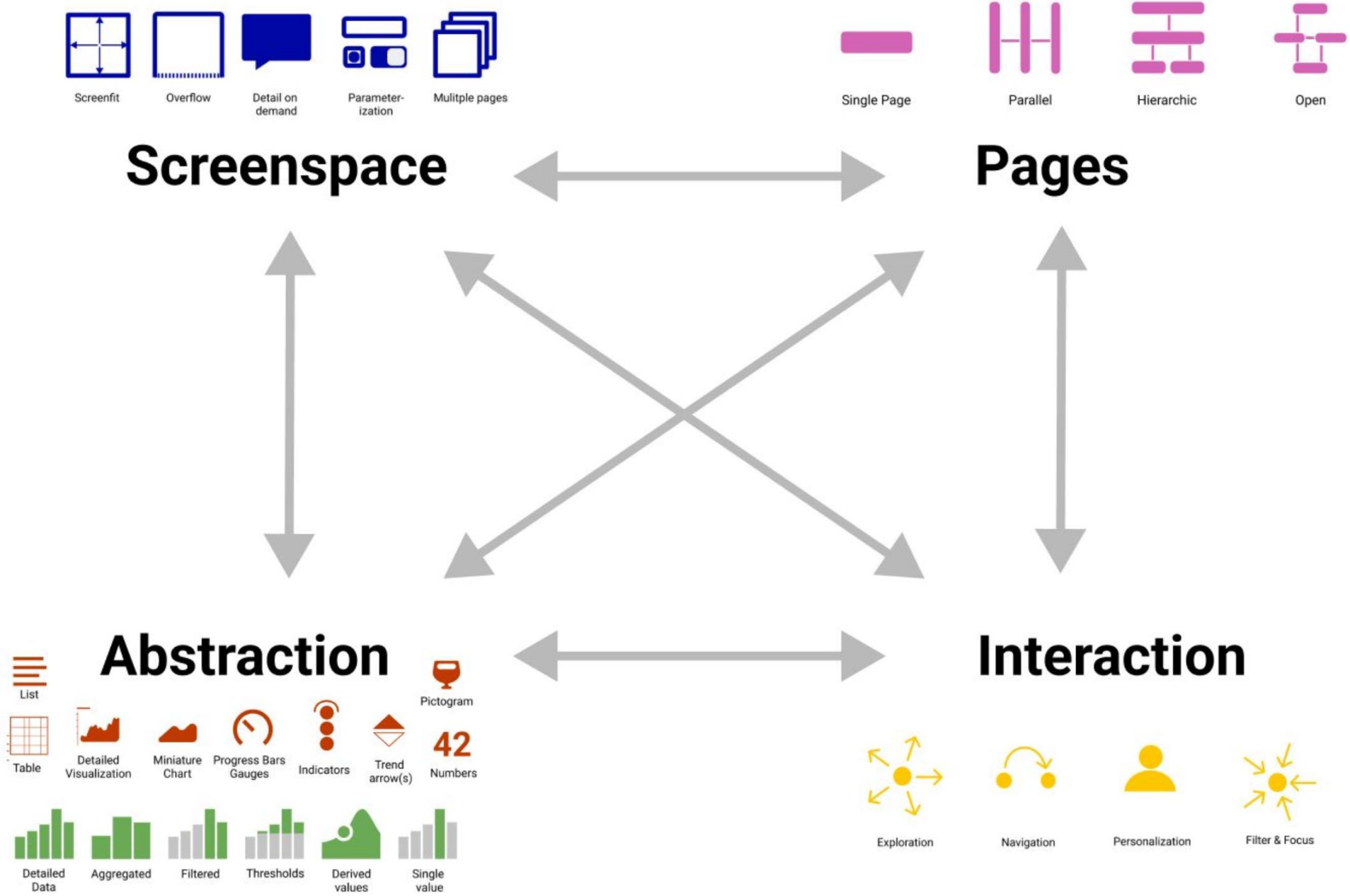
Repository



7 Dashboard Genres

Static | Analytical | Magazine | **Infographic** | Mini | Slideshow | Repository




Screenfit
Overflow
Detail on demand
Parameter-ization
Mulitple pages
Single Page
Parallel
Hierarchic
Open
Screenspace
Pages
Abstraction
Interaction
List
Table
Detailed Visualization
Miniature Chart
Progress Bars Gauges
Indicators
Trend arrow(s)
Pictogram
42
Numbers
Detailed Data
Aggregated
Filtered
Thresholds
Derived values
Single value
Exploration
Navigation
Personalization
Filter & Focus

https://bit.ly/3ABHsRD