Design and Implementation of Actionable Public Health Data Dashboards

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What are dashboards good for?

Dissemination and Translation
- Efficient, timely, and universal access to curated data
- Clear, accessible, and intuitive presentation of complex information

Surveillance and Monitoring
- Trends and patterns
- Key performance and outcome indicators
- Bottlenecks and opportunities

Evidence-Informed Decisionmaking
- Learning / enlightenment
- Goal-setting / prioritization
- Data-driven decisions (strategic, tactical, operational)
- Assessment and evaluation

Collaboration and Communication
- Knowledge sharing and exchange
- Problem-solving and coordination
- Resource and asset mobilization
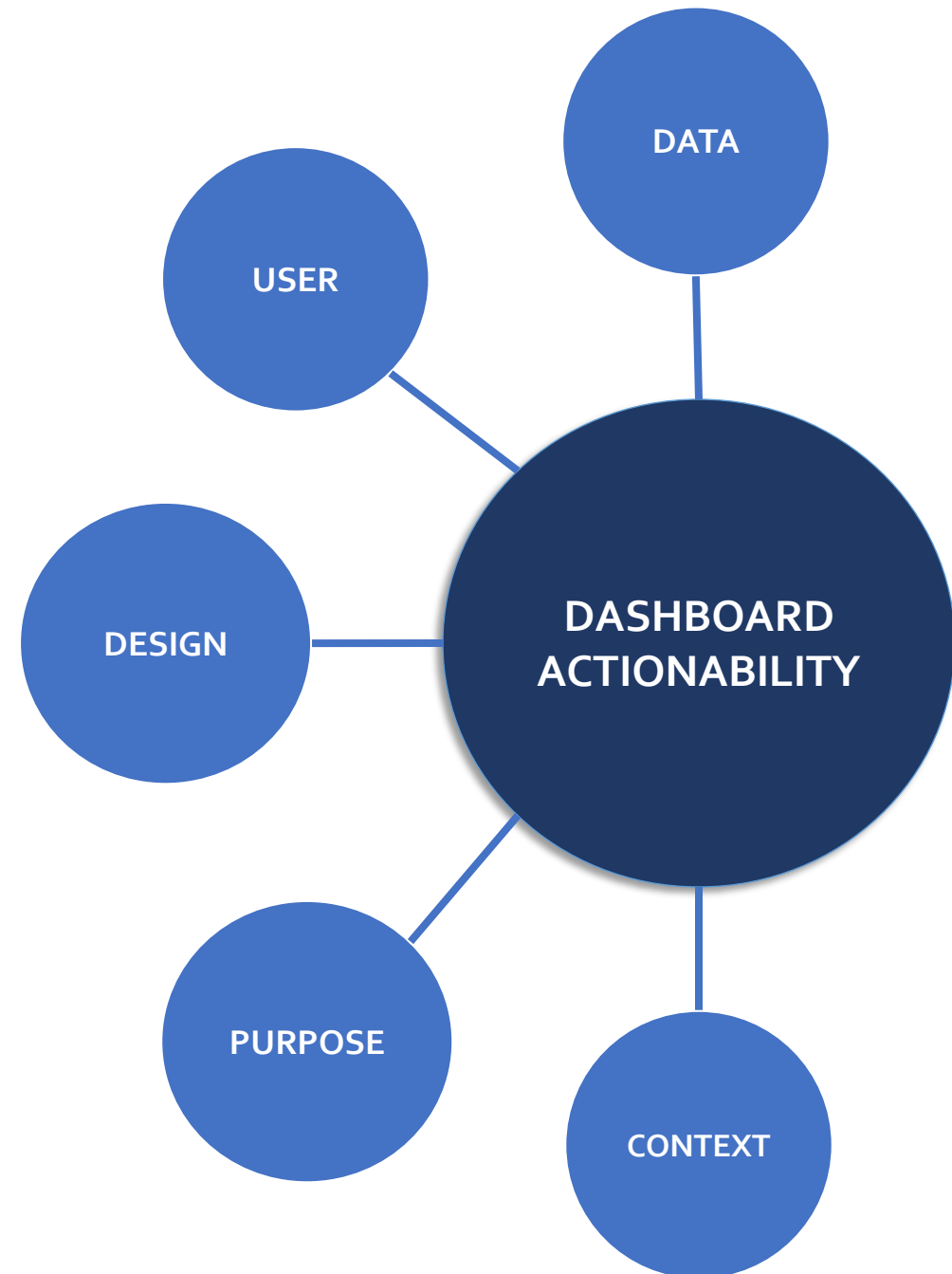- Stakeholder and public engagement/dialogue

If you build it, will they come?

- Access to data dashboards does not guarantee use. Use is contingent on several factors:

  o User factors (capacity, needs, motivations, etc.).

  o Data characteristics (quality, completeness, granularity, etc.).

  o Design elements (usability, functionality, interactivity, customization, adaptability, etc.).

  o Goal or purpose (surveillance/monitoring, education, diagnosis, prediction/prognosis, prescription for action, etc.).

  o Context (policy, practice, system change, etc.).

  o Degree of integration with existing routines and norms.

Actionability

- Data dashboards can support evidence-informed decisions by providing users with actionable knowledge (i.e., knowledge that is directly applicable and usable to strategic, tactical, or operational decisions).

- Dashboard actionability is a function of:
  - *Usability*: streamlined, intuitive, efficient, and robust user experience.
  - *Usefulness:* timely, relevant, accurate, and contextual information tailored to user goals/needs.
  - *Integration:* integral to user and organizational routines (data-driven culture and decisionmaking processes).

- Actionability is achieved by design, via a deliberate, iterative process of creating, deploying, evaluating, and improving dashboards that provide an optimal match for goal, function, context, and user capacity and needs with a clear path to action.

Actionability By Design as Process

PROBLEM AND ACTION ANALYSIS

Collaborate with all relevant stakeholders to form a complete understanding of the problem(s) and map all potential action pathways (individual, organizational, and system level), including any contingencies and cascading effects.

TARGET AUDIENCE AND GOALS

Determine target audiences and knowledge needs (who needs to know what, when, and how), purpose (e.g., surveillance, monitoring, analysis, decision support), and intended outcomes of use (including unintended effects).
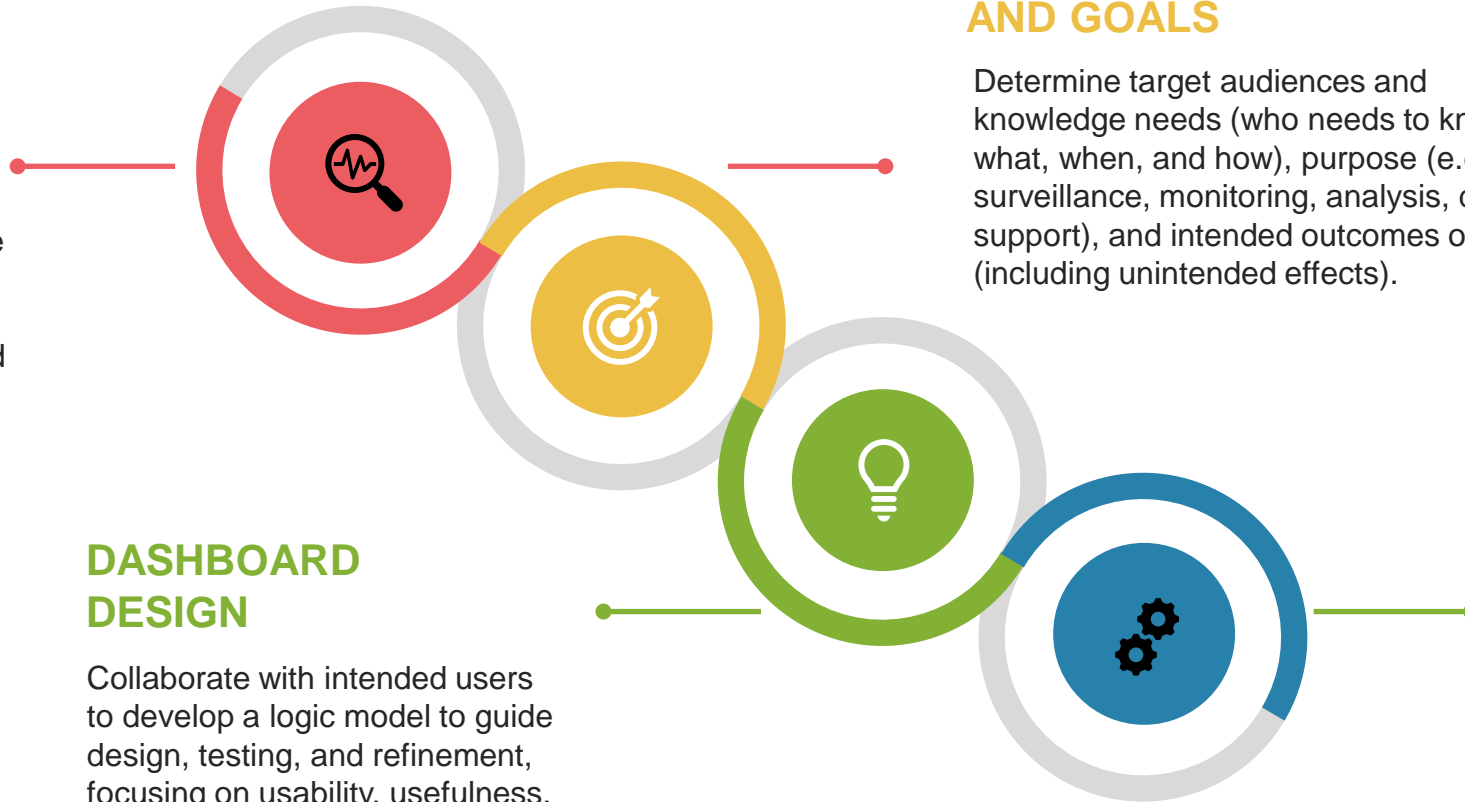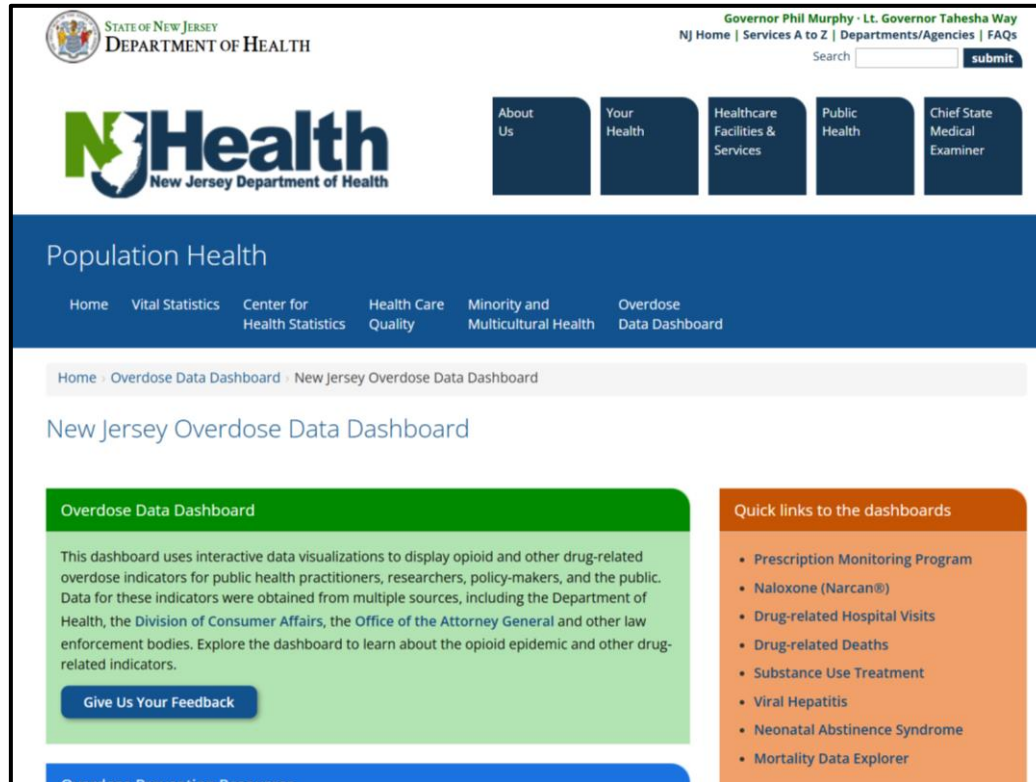
DASHBOARD DESIGN

Collaborate with intended users to develop a logic model to guide design, testing, and refinement, focusing on usability, usefulness, and integration.

IMPLEMENTATION

Determine and secure resources (funding, technical expertise, etc.) and infrastructure (data sources, data use agreements, coordination platforms, etc.); develop and implement evaluation and sustainability plan.

Dashboard Actionability By Design (Example)

Links To Additional Dashboards/Resources:
- News and alerts
- List of state-wide hotlines and helplines
- Supports (e.g., NJ Harm Reduction Coalition)
- Safe drug disposal locations
- Medication-Assisted Treatment (MAT) centers
- Pharmacies participating in free Narcan program
- Local syringe access program
- Overdose response in-person training calendar

Additional Affordances:
- Users can download data for analysis (beyond what is possible with the dashboard)
- Users can download or embed data visualizations to improve communication with stakeholders
- Dashboard use contributes to building and maintaining relationships among users, including robust mechanisms for exchanging knowledge and sharing best practices

- Unrealized potential: linking and harmonizing opioid surveillance and response dashboards across states

- Dashboard was co-designed through inter-agency collaborations to improve coordination and grant access to all potentially relevant data.

- Town hall meetings and listening sessions informed understanding of diverse users' actionable knowledge needs and range of actions involved.