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Ushering in a New Era of Data Sharing Needs for Utilities

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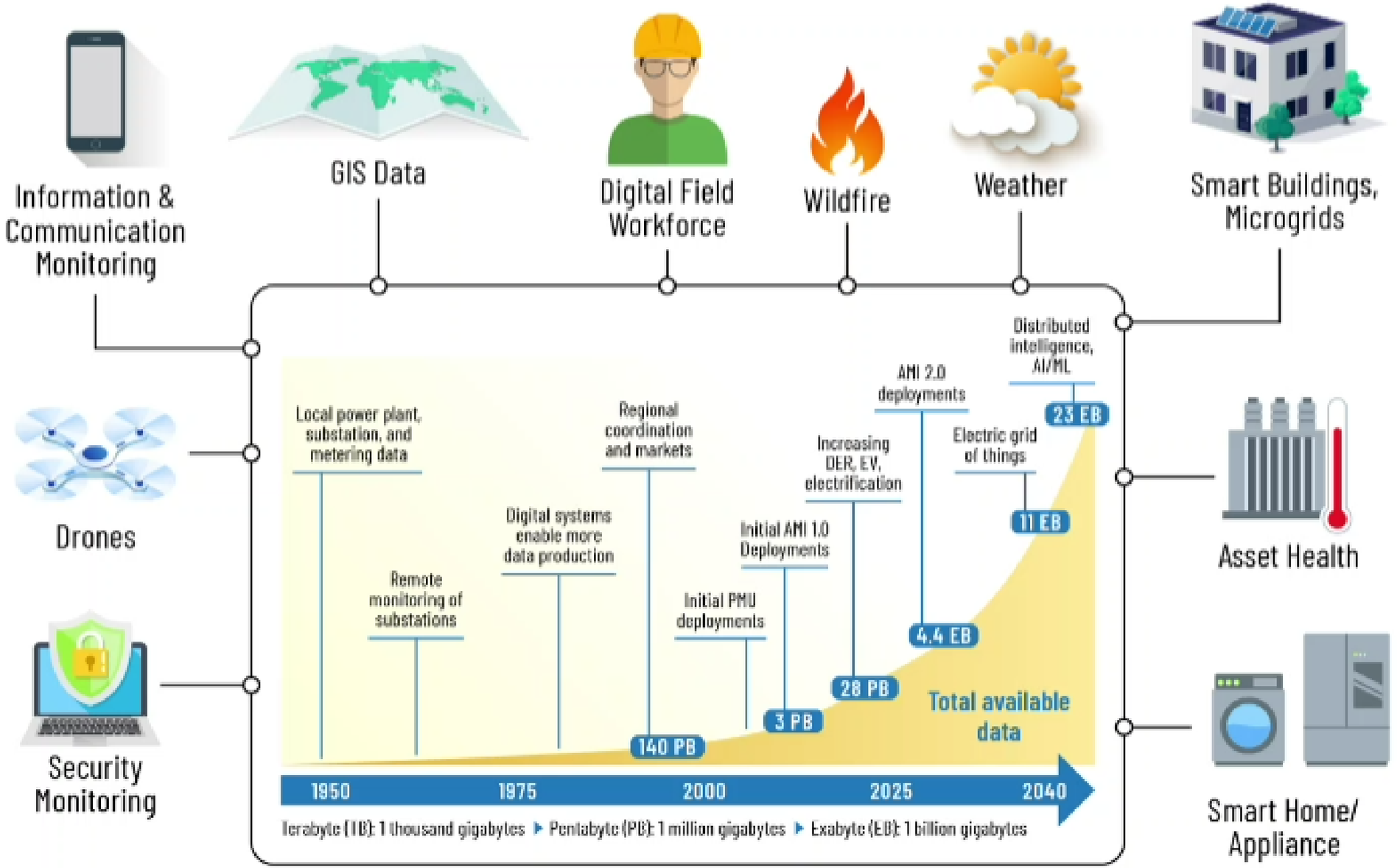
Grid Data Growth Over Time



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Utilities and grid stakeholders need ~~*more data*~~!

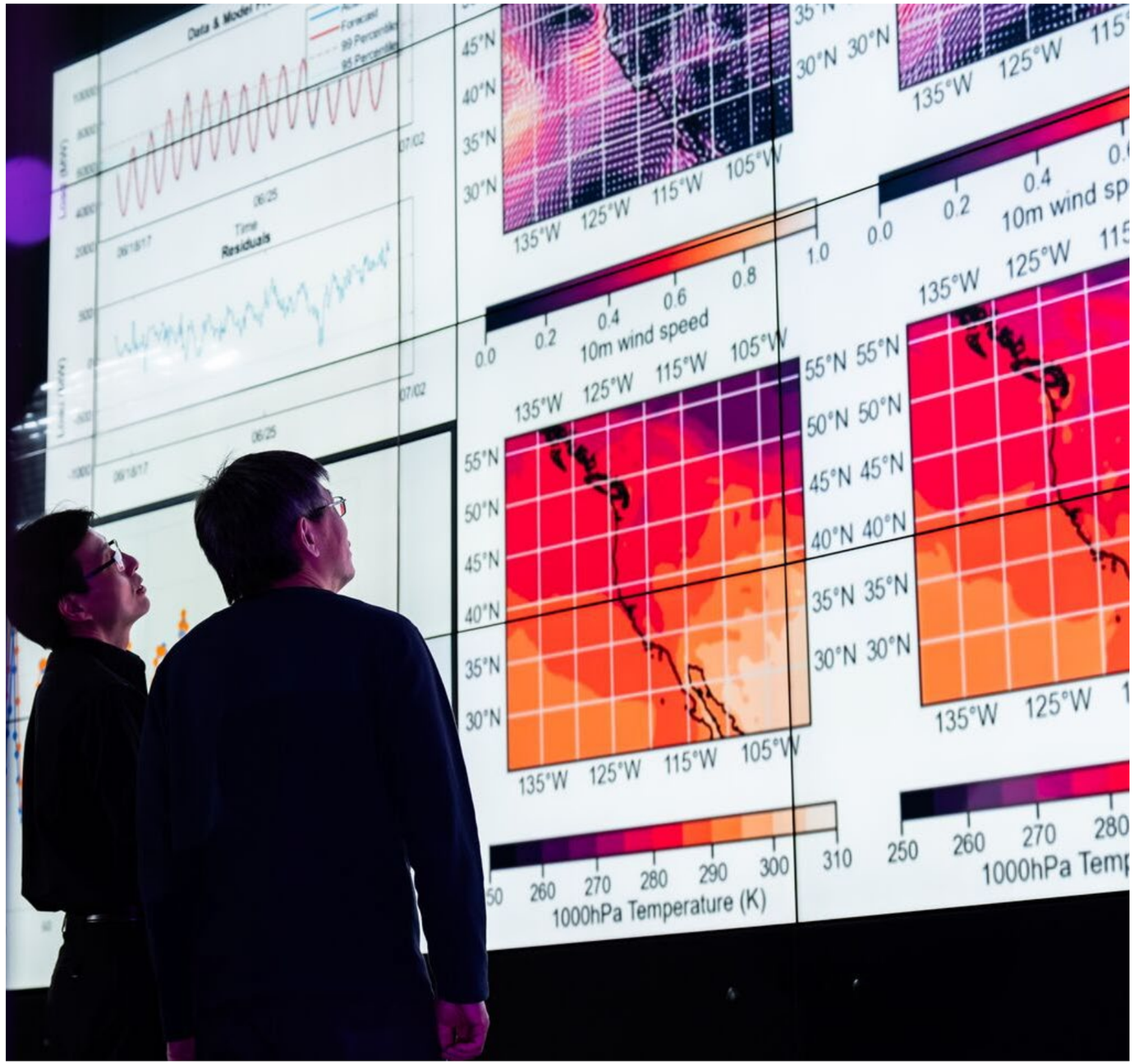
No….we need:

timely data!

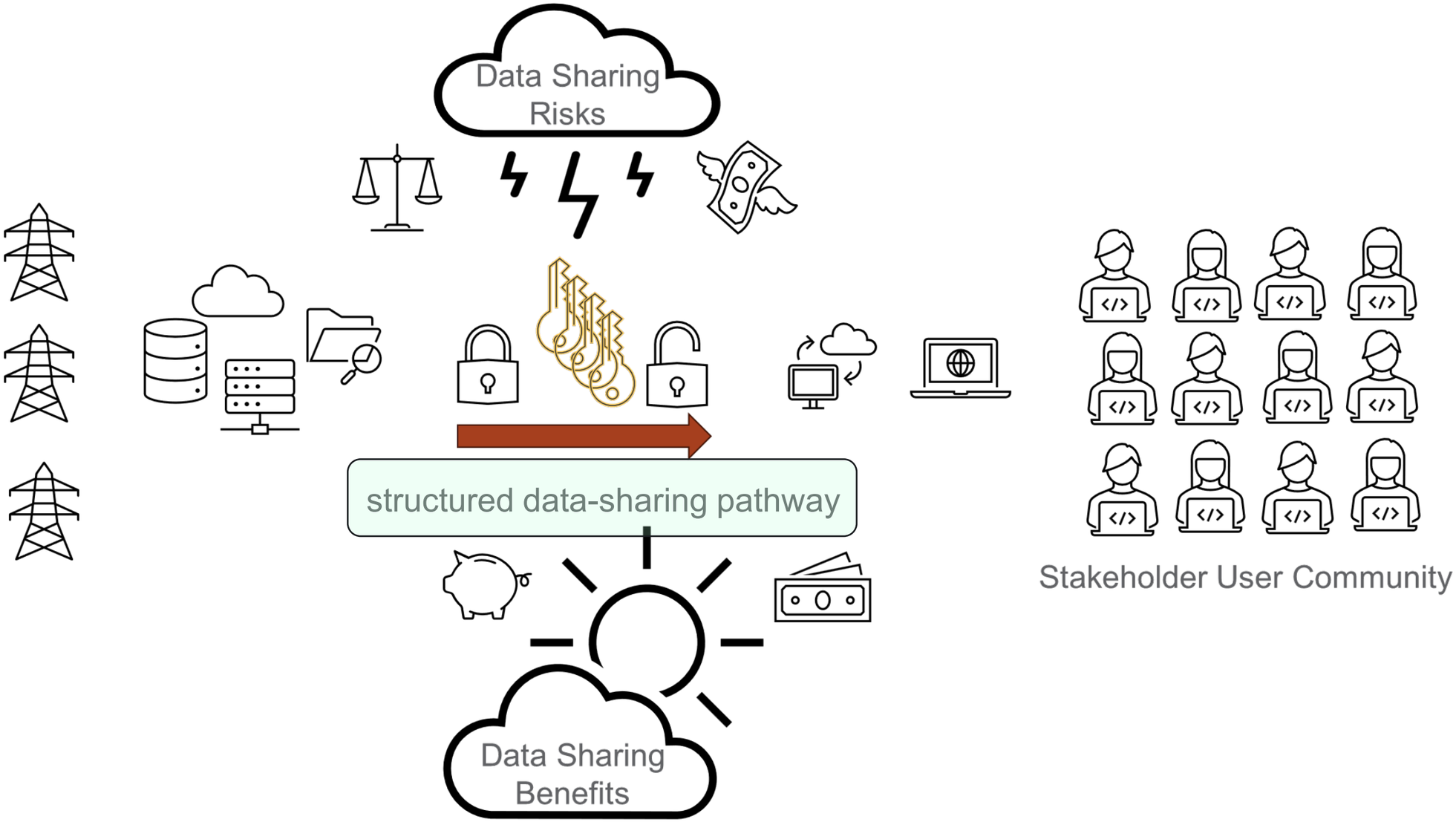
usable data!

affordable data!

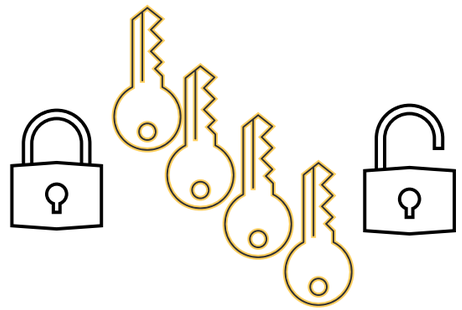
the right data!



Utility Data Sharing Landscape



The keys to unlocking a structured data sharing pathway



- Key 1. Data Lifecycle – Unlock Data Governance and Stewardship
- Key 2. Affordability – Unlock Financial Cost-Benefits and Incentives
- Key 3. Reliability & Resilience – Unlock Operational Efficiency
- Key 4. Security – Unlock Protection with Appropriate Accessibility
- Key 5. Compliance– Unlock Regulatory Landscape

Risks of not having a Structured Data Sharing Pathway

- Emerging advances in grid technology and sensors like data-driven decision-making, remain limited without efficient data sharing.
- Internal efficiencies - manual data handling is resource-intensive and error-prone; lack of a structured pathway results in increased costs and limited analytical capacity.
- Poor data quality, semantic alignment, and standardization are significant limitations.
  - E.g., misaligned timestamps, inconsistent naming conventions, formatting differences, missing metadata, ad hoc approaches, and lack of standards implementation
- Persistent issues with current processes regularly undermine data usability and increase risk.
- No longer one-way sharing: cloud services and AI are enabling new ways to manage the grid

Structured Data Sharing Pathway Benefits

- Advances in grid technology and sensors highlight the emerging benefits of data-driven decision-making, though these remain limited without efficient data sharing.
- Internal efficiencies - manual data handling is resource-intensive and error-prone; structured sharing can lower costs and enhance analytical capacity.
- Public and system-level benefits - Improved data access supports situational awareness, integration of distributed resources, planning, and innovation, contributing to a resilient electric system.
- Data sharing should be seen as a strategic asset opportunity, especially with AI and electrification trends increasing data importance.

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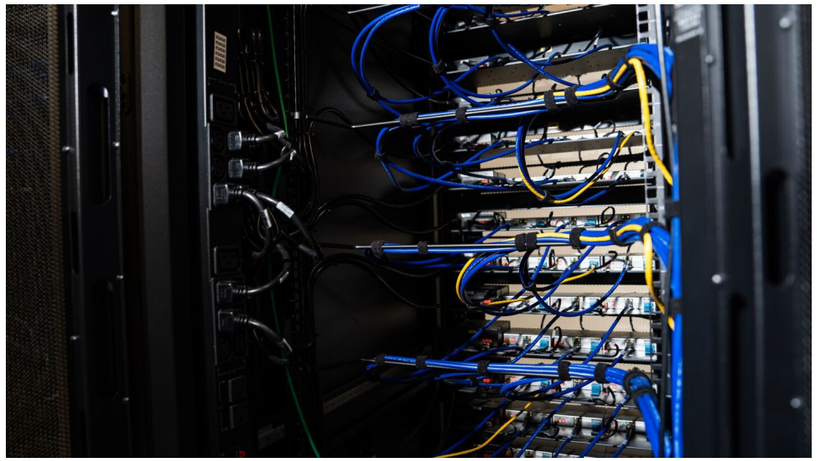
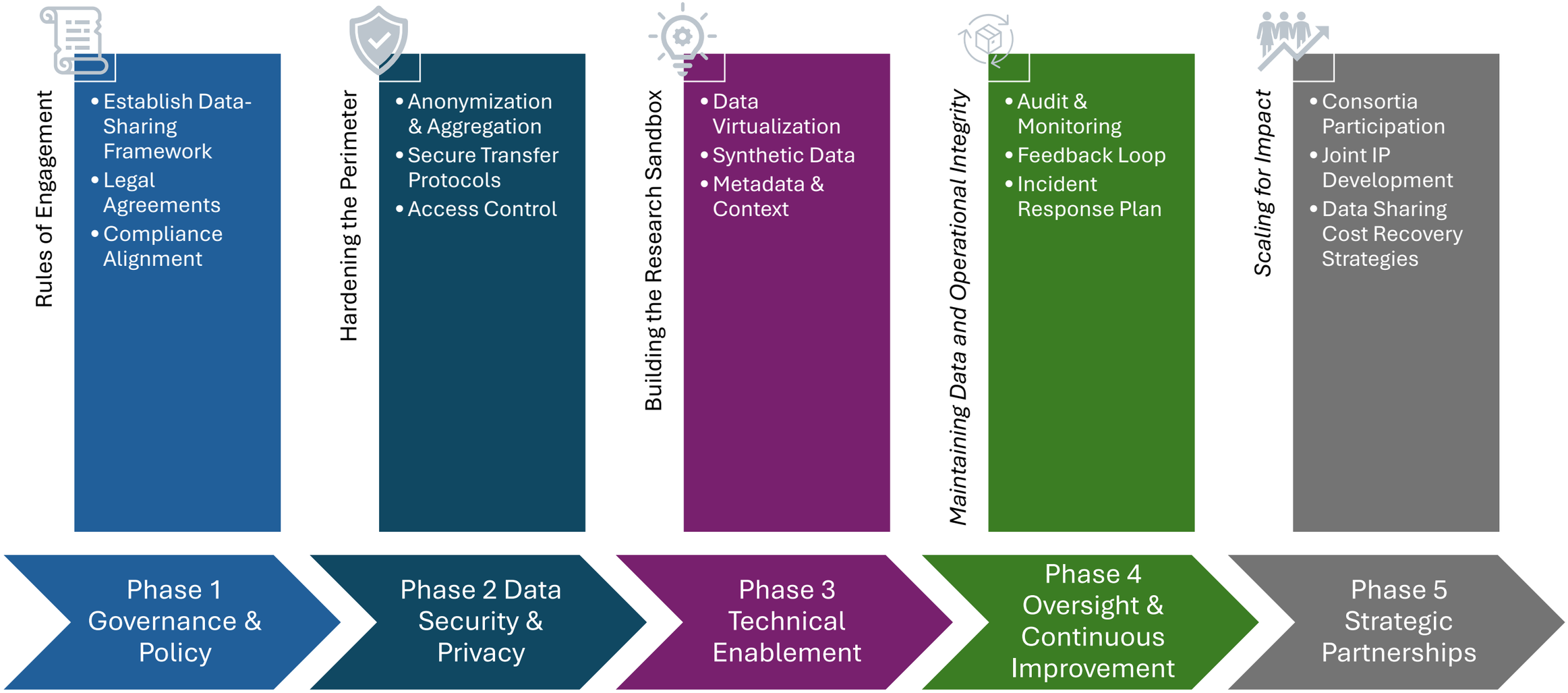
A Mental Shift: Data as Operational Infrastructure



- The utility industry as a whole needs to start thinking about their data pipeline as Operational Infrastructure.
- The data pipeline requires active management and use; data is not just a by-product of the measuring devices.

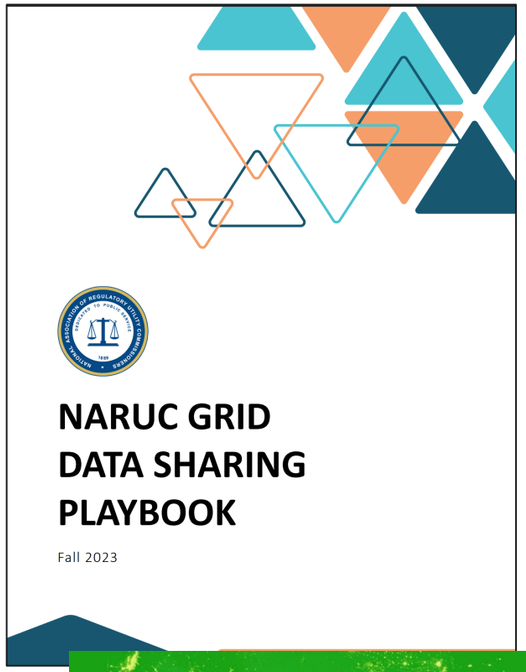
  NOTE: a ***mental shift*** is required here, an evolution from gathering data to treating it as an operational asset. This evolution compels utilities to **treat data the same way they treat physical assets**: planned, governed, maintained, standardized, and trusted.
- Four characteristics are emerging for *data as operational infrastructure*:
  - Standards & Governance →
  - Secure Data Stewardship →
  - Curated/Quality-tagged Data →
  - Integration into Operations and Procedures.

Structured Data Sharing Pathway - Phased Approach Concept



Emerging Models and Frameworks for Successful Data Sharing Practices

- Some Recent Data Sharing Efforts
  - National PMU Data Set – a large data curation effort
  - NARUC – Grid Data Sharing Playbook
  - Avista Data Exchange – Data sharing with an economic cost recovery model
  - Chelan PUD Data Elevator – secure data sharing based on levels of authority
  - Outage Data (ODIN) – data sharing platform
  - Grid Signatures (GESL) – catalog of useful data event signatures



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Conclusion

- Systemic risk is growing; the ad hoc approaches aren't going to work anymore.
- The industry needs to move toward establishing **best practices and standards** for data as operational infrastructure.
- Establishing governance and policy is a good start, but it can't stop there.

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Thank you