

A man with dark hair and a beard, wearing black-rimmed glasses, is shown in profile, looking intently at a wall of digital screens. The screens display various data visualizations, including line graphs, bar charts, and circular gauges, all with a blue and orange color scheme. The background is slightly blurred, emphasizing the man and the data.

AVEVA

The data maturity advantage

A practical guide to
unlocking operational insights

aveva.com



Table of contents

Introduction	3
Real-Time operational excellence.....	4
Building a unified data infrastructure	5
Mastering the data maturity journey.....	6
Ensuring trustworthy data with a quality framework	8
Your roadmap to data maturity.....	10
Partnering with AVEVA to accelerate your data maturity.....	11
Final thoughts and next steps.....	12



Introduction

In today's data-driven world, organizations are increasingly recognizing the value of operational data - not just as a byproduct of systems, but as a strategic asset. However, simply collecting data is no longer enough. The real competitive advantage lies in how effectively that data is managed, contextualized, and leveraged to drive business outcomes.

This guide empowers you to navigate and accelerate your data maturity journey. Whether you're just beginning to centralize your data or you're exploring advanced analytics and AI, this eBook provides a practical framework to assess where you are, where you want to go, and how to get there.

You'll discover:

- Why real-time operational data is critical to business success
- What a data maturity model looks like and how to use it
- How to improve data quality and governance
- Actionable steps to future-proof your data infrastructure
- Expert insights on building a data-driven culture



Real-time operational excellence

Harnessing data to overcome industrial challenges

Industrial operations today face mounting pressure to improve efficiency, reduce downtime, and meet sustainability and compliance goals. Yet, many organizations still struggle with fragmented systems, limited visibility, and reactive decision-making. Real-time operational data can change that.

When data is accessible, contextualized, and reliable, it becomes a powerful tool to address key challenges and drive performance. These questions are at the heart of operational excellence - and data is the key to answering them.

With the right infrastructure and maturity, data enables proactive monitoring, faster decisions, and measurable business outcomes.

The six questions

1. How do we optimize production and uptime?
2. How can we be more efficient and meet ESG and sustainability goals?
3. How do we ensure availability and reliability of assets?
4. How do we protect worker health and safety?
5. How do we minimize maintenance?
6. How do we ensure quality control and compliance?

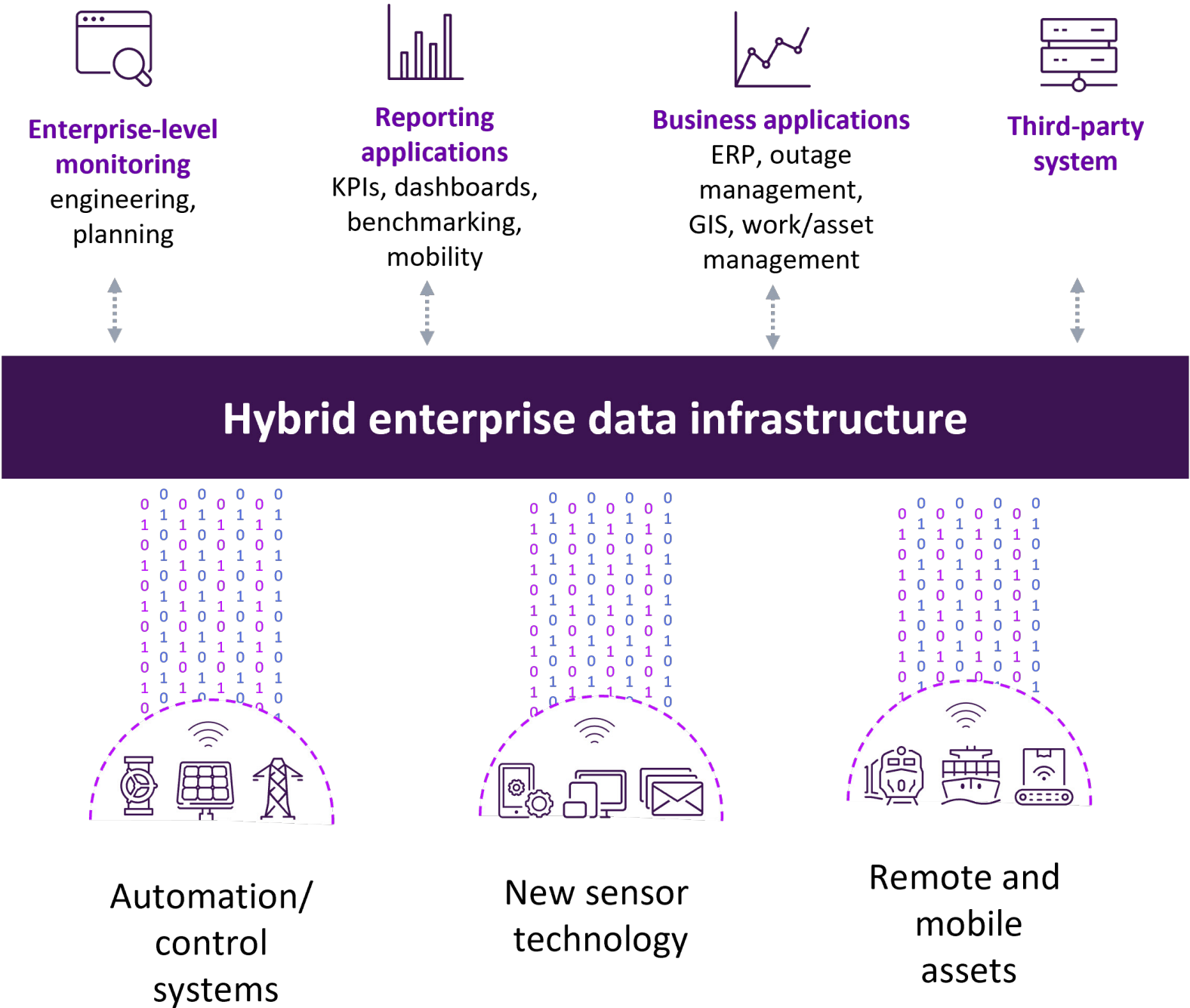
Building a unified data infrastructure

In industrial operations, data is generated across a wide range of systems - from sensors and control equipment to enterprise platforms and mobile assets. Without a unified infrastructure, this data remains siloed, limiting its value. A robust data infrastructure connects these sources and enables real-time data sharing across the organization and beyond. It must support both internal collaboration and secure external access, while handling the scale and complexity of modern operations.

To be effective, your infrastructure should:

- Integrate data from automation systems, IoT sensors, enterprise applications, and remote assets
- Ensure data consistency, quality, and contextualization
- Enable secure, scalable access for internal teams and third-party systems
- Support hybrid architectures (on-premises and cloud) for flexibility and performance
- Provide real-time visibility to drive faster, smarter decisions

With the right foundation in place, organizations can transform raw data into a strategic asset-fueling analytics, innovation, and operational excellence.



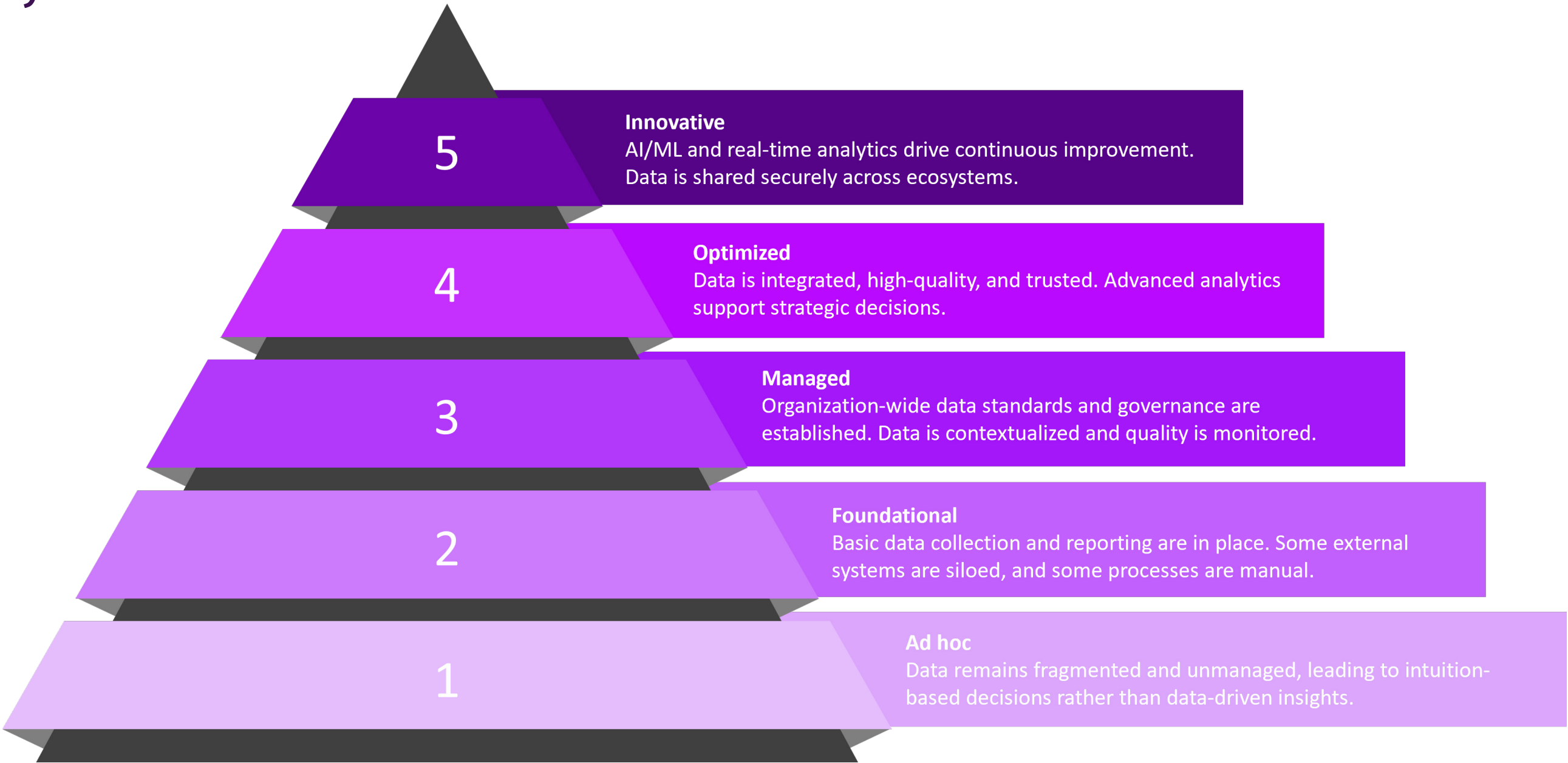
Mastering the data maturity journey

The five levels of data maturity

Data maturity refers to how effectively an organization manages, governs, and uses its data to drive business outcomes.

It's not just about having data - it's about how well that data is structured, accessible, trusted, and actionable.

In essence, data maturity is a reflection of how far along an organization is in transforming raw data into strategic insight. It encompasses technology, processes, governance, and culture.



Mastering the data maturity journey

From ad hoc to innovative: A continuum, not a checklist

Data maturity is a continuous, fluid, and strategic journey, not a checklist. Naturally, data maturity will evolve with your business needs, technology landscape, and organizational culture.

Progression isn't always linear, either. Some areas may be more advanced than others.

Think of it as a spectrum:

- You may have advanced analytics in one department but still rely on spreadsheets in another.
- You might have strong governance but lack real-time data access.
- You may be cloud-ready but still struggle with data quality.

Assessing where you are, identifying gaps, and prioritizing improvements that align with your strategic goals are key. Small, incremental steps - like improving data visibility or standardizing naming conventions - can unlock significant value over time.



Ensuring trustworthy data with a quality framework

Building trust in your data

Even the most advanced infrastructure and analytics tools are only as effective as the data they rely on. Inaccurate or incomplete data undermines decision-making and erodes organizational trust.

High-quality data is accurate, complete, consistent, timely, and reliable. These attributes ensure that data is not only technically available but also meaningful and usable.

To manage data quality effectively, organizations should focus on three key layers:

- **Connection:** Ensuring data pipelines are healthy and flowing from source systems
- **Framework:** Structuring and standardizing data for clarity and context
- **Consumption:** Making data accessible and interpretable for users

A practical way to monitor progress is through a **Data Quality Index (DQI)** - a score that reflects the health of your data across key dimensions, including completeness, accuracy, and availability.

Metrics such as error rates, data freshness, and pipeline uptime help identify areas for improvement and guide necessary adjustments.

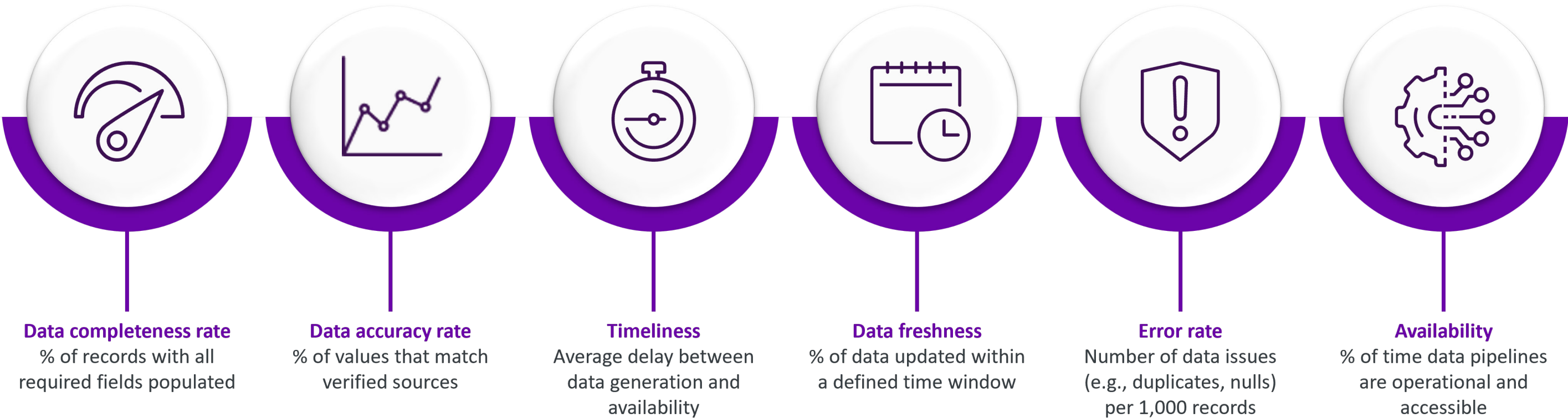
Enhancing data quality is an ongoing commitment. It requires clear ownership, continuous monitoring, and collaboration across IT, operations, and business teams.

When data is trusted, it becomes a catalyst for confident decisions and operational excellence.

Ensuring trustworthy data with a quality framework

Data Quality Index - DQI

Organizations striving for high-trust data often track metrics such as:



While these metrics aren't always available out-of-the-box, they can be established and monitored with the right combination of architecture, governance, and tools suited to your environment.

Your roadmap to data maturity

Assessing and advancing data maturity

Understanding your current level of data maturity is the first step toward improvement. But maturity isn't a destination—it's a continuous journey that evolves with your business, technology, and people.

How to assess your data maturity

Start by evaluating your organization across key dimensions:

- **Data availability:** Is data accessible when and where it's needed?
- **Data quality:** Is the data accurate, complete, and trusted?
- **Infrastructure:** Are systems integrated and scalable?
- **Governance:** Are roles, standards, and policies clearly defined?
- **Usage and culture:** Are teams using data to make decisions?

You can use a simple self-assessment or a formal framework to score each area from Level 1 (Ad hoc) to Level 5 (Innovative). This helps identify strengths, gaps, and priorities. Once you've established a baseline, create a roadmap that aligns with your business goals.

Simplified roadmap structure



Partnering with AVEVA to accelerate your data maturity

Achieving data maturity is a complex journey - but you don't have to do it alone. AVEVA provides the technology, expertise, and support to help organizations at every stage of their transformation.

AVEVA's industrial data management solutions are designed to unify and contextualize real-time operational data across your enterprise. It enables you to:

- Collect and store high-frequency time-series data from sensors, control systems, and IoT devices.
- Contextualize data using asset frameworks and metadata.
- Analyze and calculate KPIs and performance metrics in real time.
- Bookmark and track key events with event frames.
- Notify and act with automated alerts and system integrations.
- Share securely with internal teams and external partners.

Supporting Every Stage of Maturity

Whether you're just starting to centralize your data or scaling AI-driven insights, AVEVA helps you:

- Establish a reliable, scalable data infrastructure.
- Improve data quality and governance.
- Enable advanced analytics and predictive capabilities.
- Integrate with cloud platforms and third-party systems.
- Build a data-driven culture across your organization.



Success in action: Dr. Reddy's Laboratories

Dr. Reddy's Laboratories, one of India's largest pharmaceutical manufacturers, by implementing the AVEVA™ PI System™ portfolio achieved^[1]:

+90%

improved
productivity

-40%

quality-related
costs

100%

paperless by 2030
- goal advanced

“AVEVA PI System is central to ensuring we have real-time streaming analytics capabilities, so that we actually monitor the process behaviour on the product through defined specification limits.”

Head of Digital and GM Technology, Dr. Reddy's Laboratories

Final thoughts and next steps

Data maturity is not a one-time project - It's a continuous journey that evolves with your business. As operations become increasingly complex and data volumes grow, the ability to manage, trust, and act on real-time data becomes a crucial factor in achieving success.

This guide has outlined the key pillars of that journey:

- Understanding the value of real-time operational data
- Building a solid infrastructure to connect and contextualize data
- Advancing through the five levels of data maturity
- Ensuring data quality across systems and users
- Creating a roadmap for continuous improvement
- Leveraging trusted partners like AVEVA to accelerate progress

Wherever you are today, the next step is clear: Assess your current state, define your goals, and take action - one initiative at a time. With the right strategy, tools, and mindset, your organization can unlock the full potential of its data and drive meaningful, measurable outcomes.



References:

1. Dr. Reddy's Laboratories - <https://www.aveva.com/en/perspectives/success-stories/drl/>



For more information, please visit:
aveva.com

 [linkedin.com/company/aveva](https://www.linkedin.com/company/aveva)

 [@avevagroup](https://twitter.com/avevagroup)

About AVEVA

AVEVA is a global leader in industrial software, driving digital transformation and sustainability. By connecting the power of information and artificial intelligence with human insight, AVEVA enables teams to use their data to unlock new value. We call this Performance Intelligence. AVEVA's comprehensive portfolio enables more than 20,000 industrial enterprises to engineer smarter, operate better and drive sustainable efficiency. AVEVA supports customers through a trusted ecosystem that includes 5,500 partners and 5,700 certified developers around the world. The company is headquartered in Cambridge, UK, with over 6,500 employees and 90 offices in over 40 countries.

Learn more at www.aveva.com

AVEVA and the AVEVA logo are a trademark or registered trademark of AVEVA Group Limited in the U.S. and other countries. All product names mentioned are the trademarks of their respective holders.

© 2025 AVEVA Group Limited or its subsidiaries. All rights reserved.

