

How to construct agile R&D





Put data in the driver's seat

From R&D to customer service; massive amounts of data are collected throughout the lifecycle of a vehicle. But whether from smart machines in factories, sensors in vehicles, or interactions between brands and customers, the majority of this data sits in isolation today.

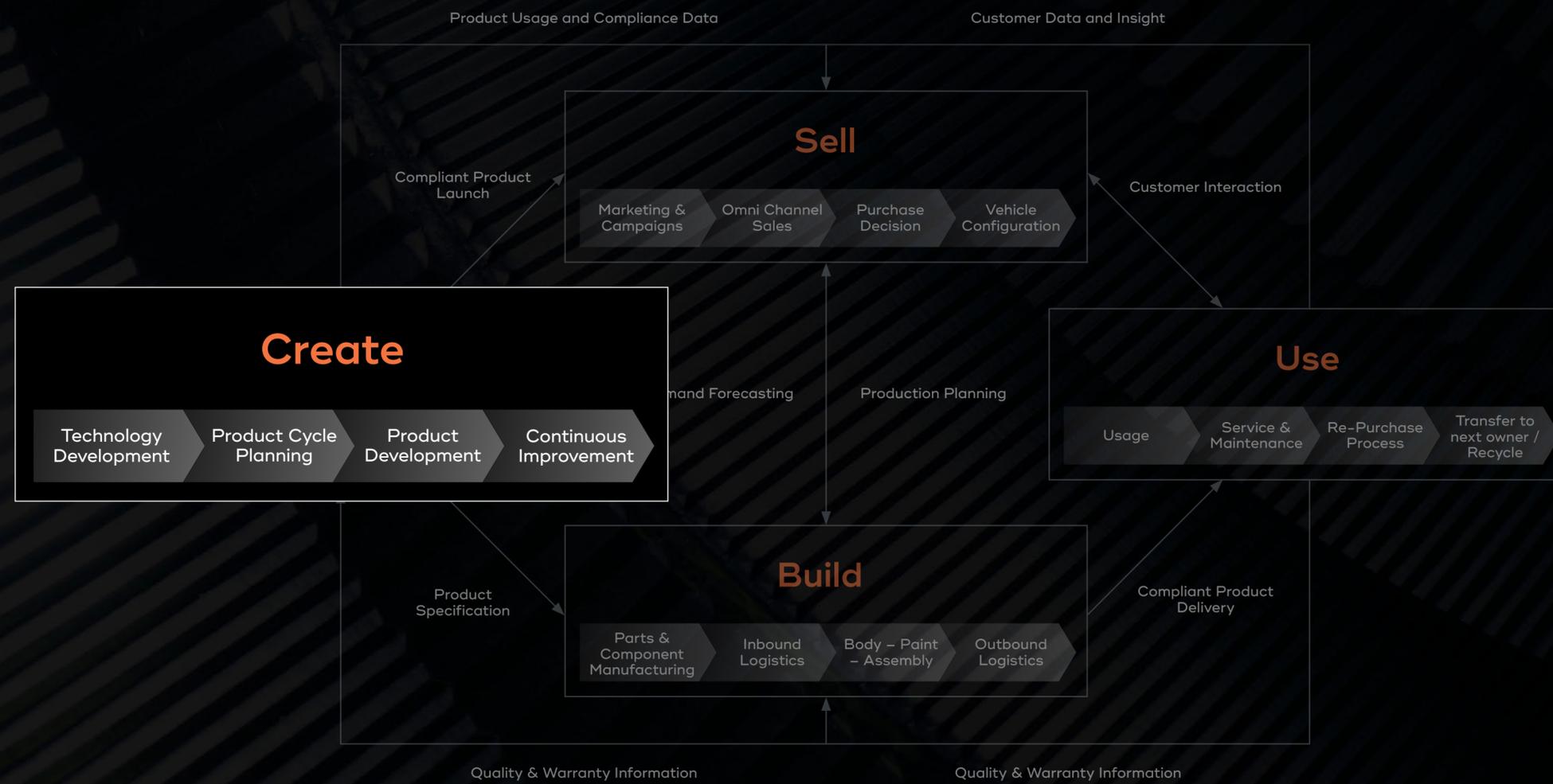
The vehicle moves along a physical path as it is planned, designed, produced, sold, and used by the end customer. But the data generated and used at each point remains behind – rarely if ever impacting any other part of the lifecycle.

A new, connected model is needed to compete in today's digital economy. A digital fabric that connects data from disparate processes, to create a complete and accurate picture across the entire enterprise.

Many are looking to machine learning and AI as the silver bullet to build and retain competitive advantage. But the truth is that automotive businesses must first create the right context and data environment for these technologies to deliver the intended business value.

In this brochure, we give you ideas on how to utilize your data in R&D to win the race for the car of the future.

The Digital Fabric: Data drives efficiency and value as it integrates the automotive product lifecycle



Create

Feed back data from across your business to continuously plan, optimize, and deliver new technologies and product innovations in shorter R&D cycles.

It is essential that you create a holistic 360° view and strategy of your data from development and manufacturing to sales and customer service. Our in-depth brochure shows you how to do just that.

[Read brochure now](#)

Create

In the past, research and development (R&D) would design a new vehicle, then partner with manufacturing to the point of that vehicle's launch. This operational model no longer applies.

As vehicles increase in complexity, manufacturers have the opportunity to continually learn from vehicle sensor and driver data.

The expectation is fast becoming that vehicle performance and customer experience are updated and improved – using software – long after the vehicle is driven off the forecourt.

In short, R&D today is continuous, with opportunities and challenges at every turn.

Contact Teradata to explore how the digital fabric can help you build better.

[GET IN TOUCH](#)

Construct agile R&D



Modern vehicles are becoming increasingly reliant on code, essentially becoming software defined vehicles. A modern car contains about 100 million lines of code, and that number is expected to rise to 300 million by 2030. To put that in context, a passenger plane has around 15 million¹.

R&D must balance long-lead-time electromechanical development with the expectation of frequent updates and new features delivered by software. Risk levels across vehicle portfolios are at an all-time high, and it is practically impossible to effectively assess and understand that risk using experience and human cognitive capabilities alone. Harnessing the data from R&D can help manage risk, predict the impact of changes, reduce project lead times and ultimately reduce costs.

¹Petzinger, J., Yahoo Finance, 2019.

How can it be done?

Hardware and Software in the Loop (HiL and SiL), and simulation must replace physical tests. Data and analytics with the feedback loop from the actual use of products and services are key to optimize and minimize the need for physical tests.

Analytics enables OEMs to continually train and run predictive models of each vehicle, including hundreds of thousands of possible variants.

These same analytics can help trace model predictions back to historical data and customer usage/personas.

This gives you the insight necessary to act and improve processes.

Keep an eye on your finances

Automotive manufacturers should be able to walk into a parking lot, scan a VIN (or part number), and immediately understand the margin on that vehicle through its entire lifecycle. This requires linking data from all lifecycle stages – which most automakers are yet to achieve.

Vehicle design and manufacturing are complex processes. Manufacturers are pushed to create innovative, customer pleasing vehicles with strong warranties at reasonable price points, while meeting increasingly stringent regulatory requirements. Shareholders expect them to do so efficiently enough to maintain or grow profits. At the same time, they are forced to undergo a massive transformation in business model – from a traditional vehicle producer to a technology company that provides mobility solutions.

This is no easy task, which is why understanding your cost base, and hence profitability, right down to the VIN level is so critical. Such understanding demands that companies have extremely detailed and quantifiable visibility of every component, part and process, how they interact, and their effect on profits and customer satisfaction.

How can it be done?

By leveraging the data fabric, which is created by integrating data across financial and non-financial processes, sophisticated analytics can be run against the complete set of data to understand and allocate costs in the most granular detail.

This analytical environment not only forms the basis for Performance (KPI) and Statutory/Regulatory reporting, but crucially, enables faster, better business decisions all along the value chain.

Moving beyond individual vehicle profitability, the same data can be used to quantify and inform the effectiveness of sustainability efforts, moving way beyond drivetrain emissions targets to create a much more holistic perspective.

The DHL logo is displayed in red, featuring the letters 'DHL' in a bold, italicized font with horizontal lines above and below the letters.

Learn from DHL Express

DHL Express implemented a transformation project to provide financial business insights through a single global application on Teradata, replacing their costing system.

[Read more](#)



The Digital Fabric: Important considerations for building analytics at scale

**Find out how data helps you innovate
during the whole automotive life cycle.**

[Read more](#)



Accelerate innovation that delivers positive business outcomes

Feed back data from across your business to continuously plan, optimize, and deliver new technologies and product innovations in shorter R&D cycles.



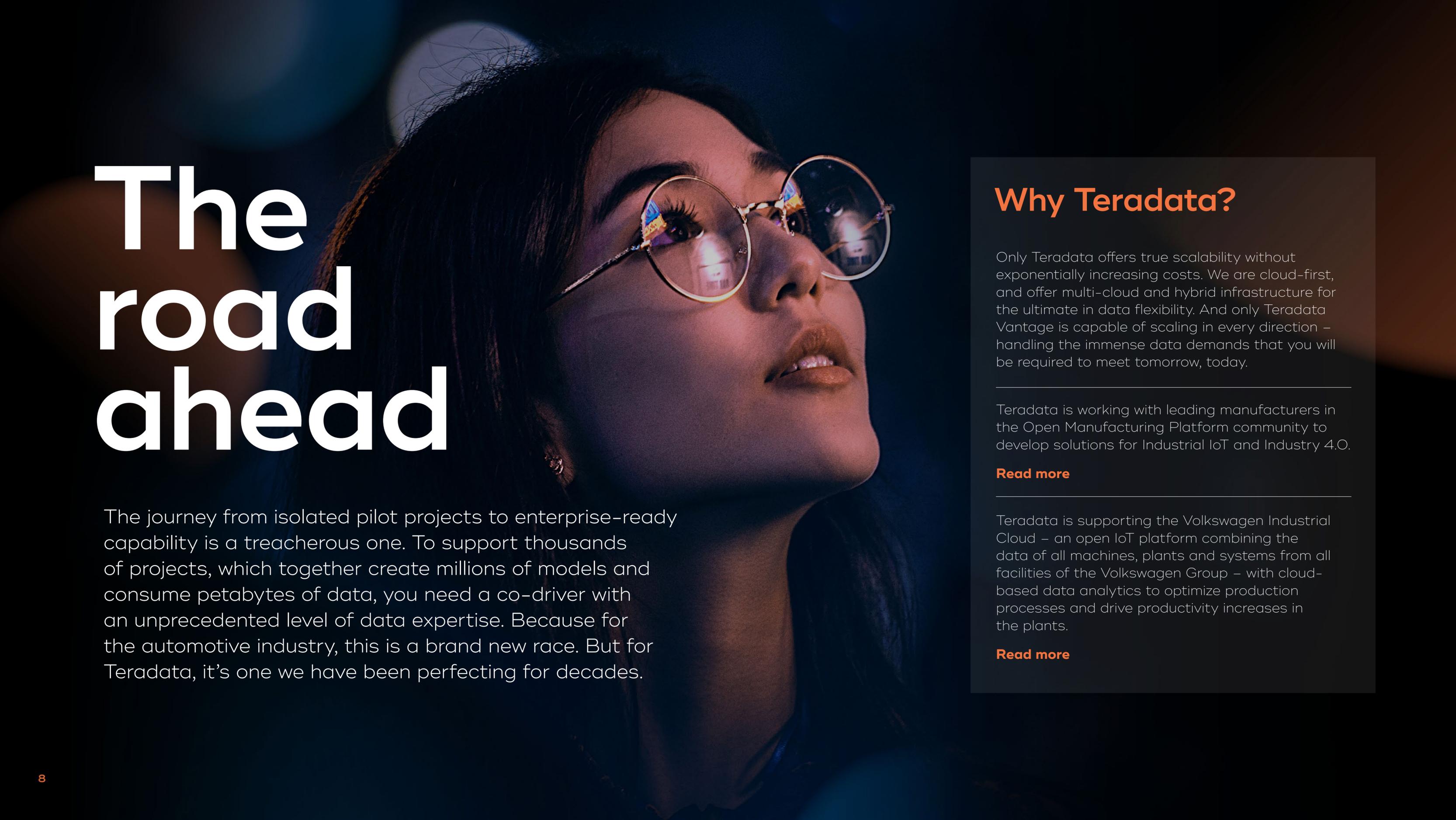
Rapidly deploy analytics, AI and ML into business processes, vehicles and services

Increasing analytic throughput from idea to operationalization is critically important, as is managing analytic model maintenance throughout the full lifecycle.



Digital trust – governance and data traceability

Teradata customers enjoy appropriate response times even when ML is run concurrently to simple reporting. This removes the need to fragment data into silos, reducing data governance overhead and increasing digital trust through an auditable analytic production line.



The road ahead

The journey from isolated pilot projects to enterprise-ready capability is a treacherous one. To support thousands of projects, which together create millions of models and consume petabytes of data, you need a co-driver with an unprecedented level of data expertise. Because for the automotive industry, this is a brand new race. But for Teradata, it's one we have been perfecting for decades.

Why Teradata?

Only Teradata offers true scalability without exponentially increasing costs. We are cloud-first, and offer multi-cloud and hybrid infrastructure for the ultimate in data flexibility. And only Teradata Vantage is capable of scaling in every direction – handling the immense data demands that you will be required to meet tomorrow, today.

Teradata is working with leading manufacturers in the Open Manufacturing Platform community to develop solutions for Industrial IoT and Industry 4.0.

[Read more](#)

Teradata is supporting the Volkswagen Industrial Cloud – an open IoT platform combining the data of all machines, plants and systems from all facilities of the Volkswagen Group – with cloud-based data analytics to optimize production processes and drive productivity increases in the plants.

[Read more](#)

Talk to the experts

Book a virtual or face-to-face meeting with an expert from Teradata to explore how we can help you become the automotive company of the future.

[BOOK A MEETING](#)

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