AI Engineering

AI ENGINEERING

True intelligence depends on data at scale

Organizations have been experimenting with Artificial Intelligence (AI) for some time, often with exciting results in specific areas. But many have yet to realize the major benefits that could be just around the corner. Now it's time to infuse AI across the whole enterprise.

This means industrializing AI to deliver at scale – which is where AI Engineering comes in. Its foundation services provide the right data and platform to deliver trusted AI solutions in production and at scale. With AI Engineering in place, the whole organization and its customers can achieve trusted, AI-based, at-scale services for business transformation and innovation.

Organizations increasingly appreciate the potential benefits of using AI within a business: For example, it can help them increase sales, improve operational efficiency, engage customers, and generally obtain better insights and analysis. However, Capgemini research* suggests that this isn't yet happening in practice. Less than a third of organizations currently promote data-driven decision making, apply AI to improve the customer experience, or use AI in operations.

Despite this finding, many organizations are already successfully using AI through prototypes and local solutions. What they now need is a pragmatic, scalable approach for implementing it across their whole business.

*Capgemini Research Institute, Understanding Digital Mastery Today, July 2018

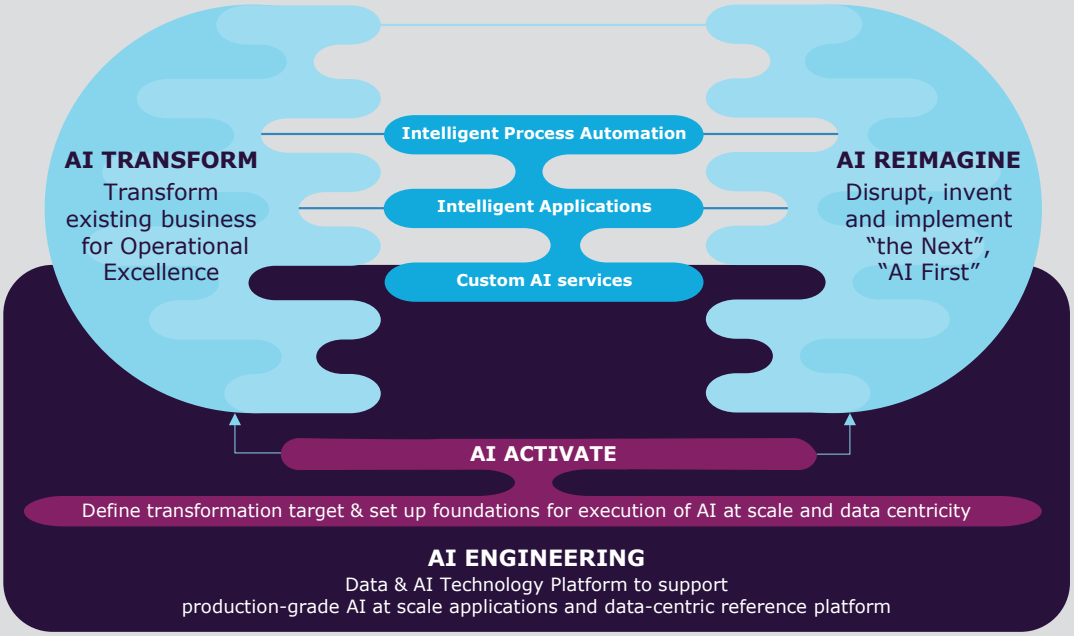


Figure 1: The Perform AI portfolio of services provides real-world solutions to AI challenges and opportunities

The Perform AI portfolio is underpinned by a data and AI technology platform called AI Engineering. The focus on data as well as AI reflects today's constant data-centricity. As the figure below shows, data centricity is the key to enabling business and technology innovation and accelerating organizational agility and change. In short, there is no innovation without knowledge, and no knowledge without trusted data.

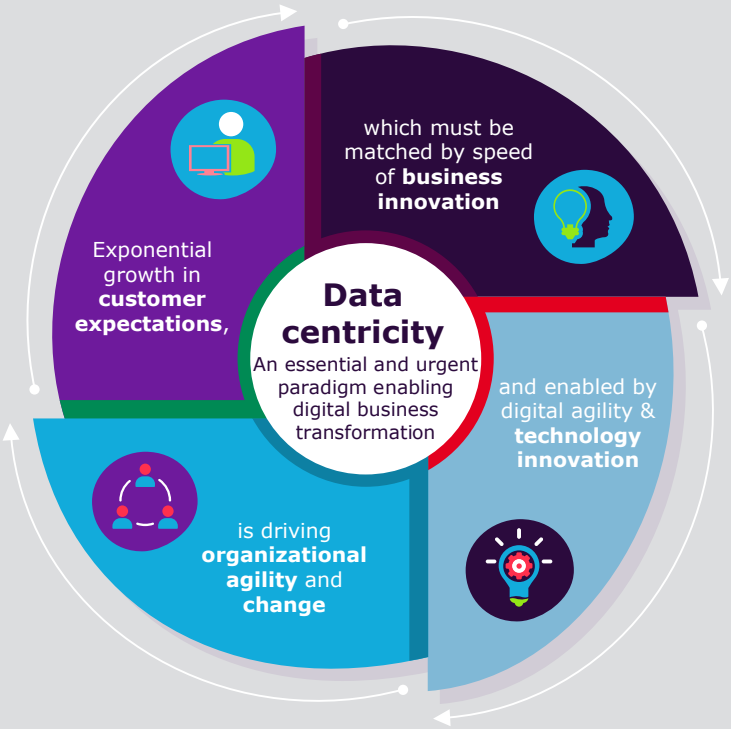


Figure 2: Data centricity is an essential enabler of business transformation

Business value of AI Engineering

AI brings major business benefits, as early adopters are finding. Capgemini research shows that using AI within your business can help you in these four areas:

Influencing sales

3 in 4 organizations implementing AI increase sales of new products and services by more than 10%

Boosting operations

78% of organizations use AI to increase operational efficiency by more than 10%

Engaging the customer

75% of organizations using AI enhance customer satisfaction by more than 10%

Generating insights

79% of organizations implementing AI generate new insights and better analysis

Benefits of AI Engineering

With the additional data and platform provided by AI Engineering, you can achieve these benefits faster and more reliably. This is because AI Engineering helps you bridge what's commonly called the "AI Death Valley" – the development delays that prevent the majority of AI projects and proofs of concept making it through to production.

Reasons for this lack of progress include the complexity of existing processes, a lack of alignment with business requirements, deployment challenges, and environmental changes that quickly leave project objectives outdated.

AI Engineering overcomes these issues by focusing on operationalization. It allows you to benefit from all the core characteristics of a modern data & AI platform – one that:

1. Is business value driven
2. Provides omni-sourced, trusted data, by design, from event to effective action
3. Recognizes that data is the only constant in a changing world
4. Is based on a persistent, omni-structured, data-centric architecture
5. Is repeatable and extendable – and therefore scalable.

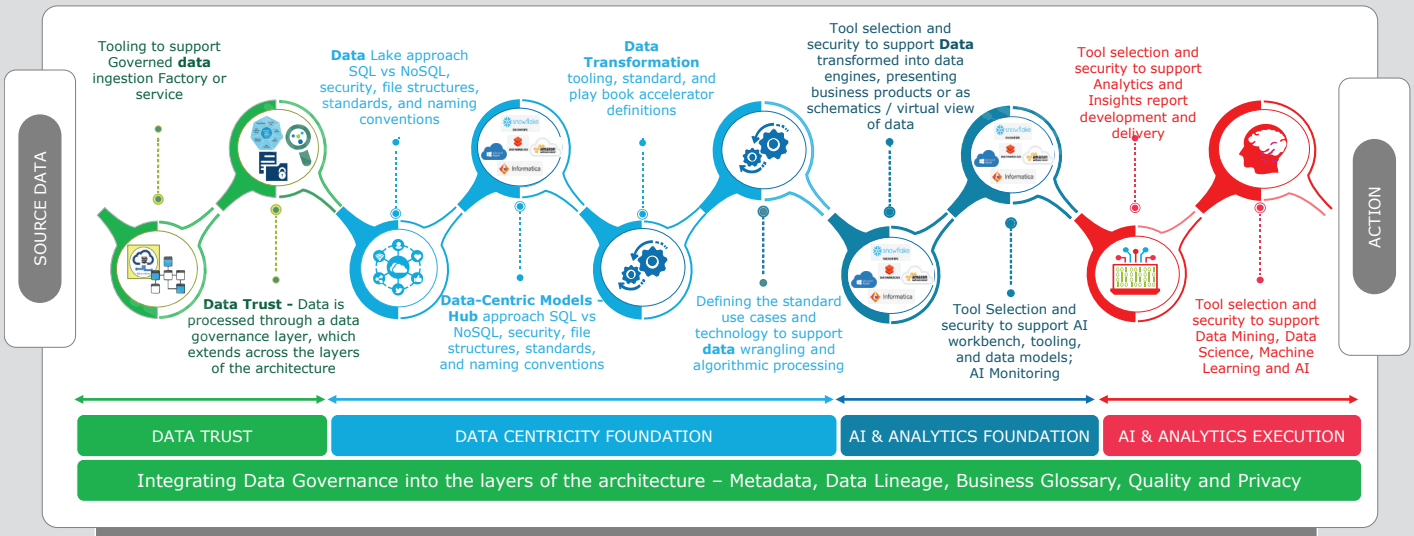
How does AI Engineering work?

In order to take advantage of data and turn it into actionable insights, organizations need to move towards a unified infostructure that manages the cloud-based platform together with all necessary data and then acts as the mechanism for delivering insight to users and applications. This is what AI Engineering provides.

AI Engineering consists of foundation services that enable you to use your existing data estate to deliver reliable AI solutions – not just demos or departmental applications, but production systems that work at scale. These services can be understood in terms of five main layers, all underpinned by secure data:

- **Platform Foundation:** Helps you build an industrialized data and AI platform supporting innovation.
- **Data Trust:** Helps you develop a data governance strategy that supports your journey to trusted data.
- **Data Centricity Foundation:** Addresses data lakes, hubs, and warehouses, and provides data ingestion.
- **AI & Analytics Foundation:** Offers services, work products, frameworks, and accelerators to organize your data optimally for enterprise AI working at scale.
- **AI & Analytics Execution:** Provides minimum viable products (MVPs) and accelerators to help you develop AI-based or AI-enabled applications efficiently.

Across all these layers, we offer **Architecture & Advisory** services providing all the skills required to design and operationalize a modern data and AI platform. We can also help you implement a DevOps approach, which is commonly used in this context.



The Platform Foundation components - Platform as Code, DevOps Tooling and Platform Security & Governance - are designed and deployed to support the product selection, standards, governance model and security models defined in Data Foundations.

Success stories

PLATFORM FOUNDATION

Consumer goods company

Migration to DevOps cloud insight platform

For a leading international consumer goods company, we led migration to a DevOps cloud insight platform, supporting the transformation of the operating model across people, process, technology and data. We optimized governance processes to enable agile delivery and supported the deployment of a data lake and business hub. We also helped create a data engineering function, services and assets to support business-led Insight & Data Science teams. Finally, we industrialized data engineering with Kanban factory ingestion services, and designed and deployed continuous integration and continuous delivery (CI/CD) pipelines to automate product deployment.

DATA TRUST

Engineering group

Strategy for single data platform to drive analytics-based decisions

For a multinational engineering group, we created a strategy for building a single data platform to drive analytics-based decisions. Standardized BI reporting tools are now used to deliver advanced reporting and analytics at both group and divisional levels. This approach has overcome challenges in gaining insights from divisional IT systems and made it possible to apply robust data management processes and technology. It supports the client's ambition of becoming one of the world's leading technology companies.

DATA CENTRICITY FOUNDATION

Soft drinks company

Establishing a data lake for organization-wide use to make AI viable at scale

When a global soft drink manufacturer wanted to increase its insights and analytics capabilities and make AI viable at scale, we helped establish a single data lake for organization-wide use. Now data is always available to business users within a 30-minute timeframe. The solution's capabilities are being extended to a range of business units and also to external partners such as bottlers. As a result, the client is now much better positioned to realize business value through collaboration around data.

AI & ANALYTICS FOUNDATION

IT company

Creating an affordable, centralized data solution to support digital transformation

An IT company needed an affordable way to apply AI across its business and supply chain in order to support digital transformation. With our help, it replaced a legacy business intelligence platform that relied on local data marts with a modern, centralized data solution. Now new data requirements can be met rapidly and consistently. Savings of more than $30m from phasing out old technology have paid for the work and are funding the further development of the new centralized data platform, which also supports a range of new features and business transformation initiatives.

AI & ANALYTICS EXECUTION

Leisure company

Applying AI to improve passenger experience

We helped a leisure company apply an AI-based approach to its business, using facial recognition technology to automate the boarding experience and remove the frustration of check-in queues. We also automated entertainment surveys to get better information, and found ways to use existing security cameras to understand occupation of key areas, enabling better operational management.

Our capabilities

With Capgemini's capabilities, enterprises find they can do more with AI than they ever thought possible. We have more than 7,800 engineers with the appropriate skills, and have worked with more than 400 clients. In 2018 alone, we ran at least 500 projects in this area.

Solution Offerings

- Advisory
- **Data Estate Modernization (including Migration factory)**
- **Unified Data Management**
- GDPR and Data Privacy
- **MDM**
- **Big Data**
- **Data Management**
- AI Solution Labs

Key Enablers

- Talent Transformation
- Dedicated Azure and AWS labs
- Partners & Alliances
- Global team including CTO for each partner
- Solution Architect Community

Assets & Accelerators

- LEAP (Data Estate Modernization)
- REAP (Replatforming Analytics Engine on Azure)
- IIS (Intelligent Integration Services)
- Great BI (Estimation)
- GDPR Framework
- Smart Procurement Analytics Management
- Smart Asset Management

Center of Excellence

- 7800+ Data engineers; 400+ clients
- Strategic Alliances With Selected Vendors on Cloud Platforms (Informatica, SAS, Databricks, Snowflake)
- Proven delivery methodologies, accelerators; 500+ projects in 2018

Figure 4: Capgemini's AI Engineering capabilities

Our most important solutions in this area include:

- Unified Data Management (UDM): provides end-to-end data ingestion, data orchestration, data governance, and data architecture capabilities.
- Data Estate Modernization (DEM): transforms on-premise workloads and BI solutions to run on new hybrid platforms.

Our partner ecosystem also plays a vital role in AI Engineering. It includes key players such as Snowflake, Databricks, Talend, Informatica, Amazon Web Services, Microsoft and Google.

About Capgemini

A global leader in consulting, technology services and digital transformation, Capgemini is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. It is a multicultural company of over 200,000 team members in more than 40 countries. The Group reported 2018 global revenues of EUR 13.2 billion.

Learn more about us at

www.Capgemini.com/AIEngineering

Perform AI

Artificial Intelligence.
Real World Solutions.

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People matter, results count.

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