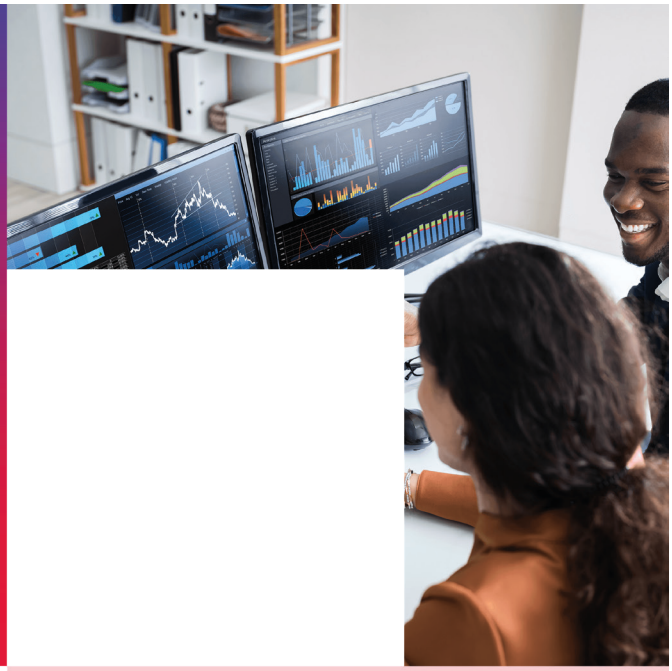


The data journey

Achievable and sustainable data strategies that establish a foundation for long-term, data-driven outcomes.

An Advisory Services PoV

CGI Data Advisory Services

Whether your organisation is looking to start a data journey or needs support along the way, our experts are here to help with tailored solutions that drive powerful, data-driven benefits and outcomes.

Data underpins nearly everything we do in our organisations and personal lives. With the availability of this data increasing exponentially, it is becoming more difficult to know how to use it reliably and effectively.

The concept of data-driven business is a process that goes beyond simply establishing clever reporting solutions. A comprehensive data journey uses data-based insights and knowledge to forecast events and revolutionise decision-making, driving tangible operational benefits and profitability through automation and artificial intelligence.

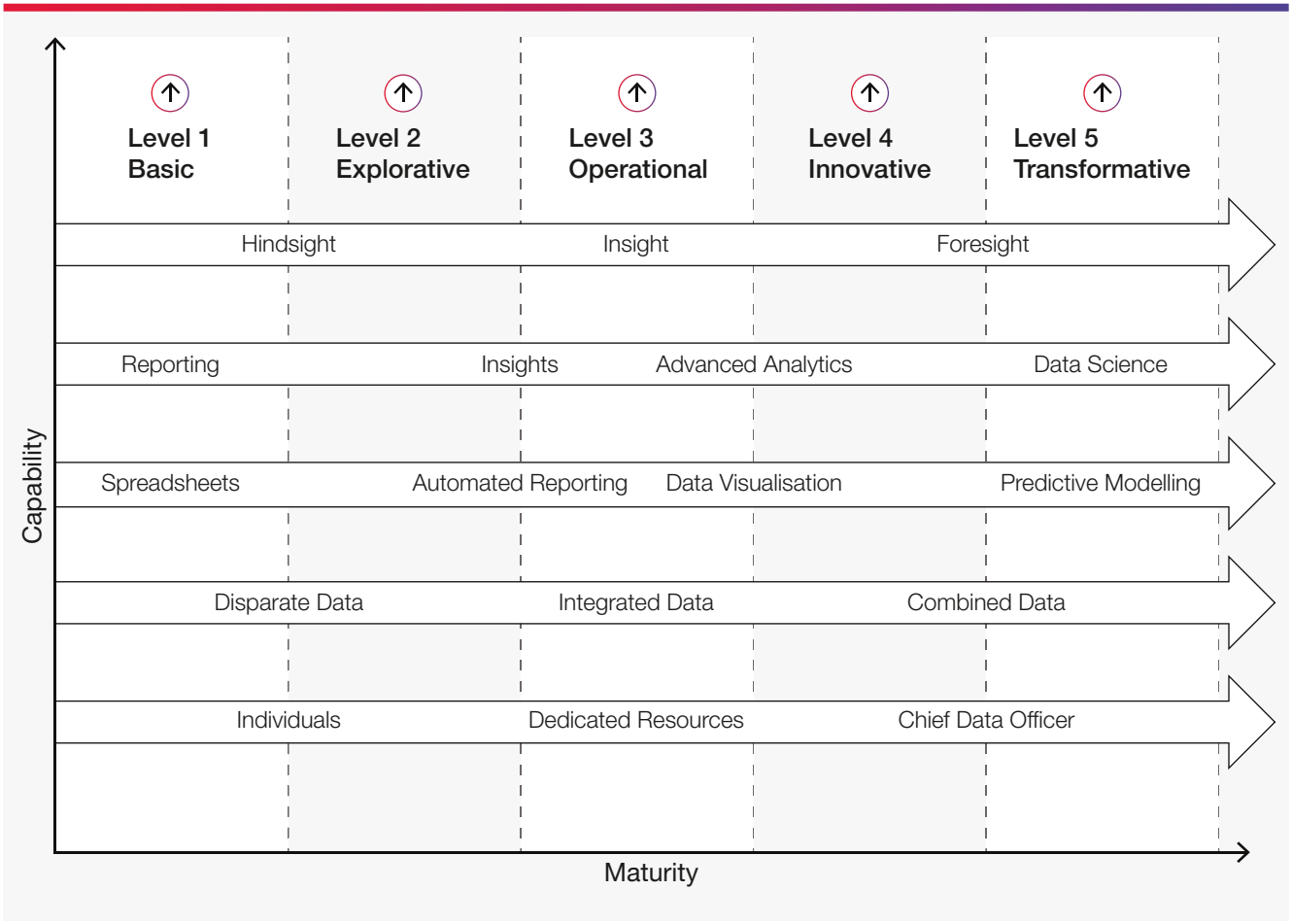
Our Data Advisory experts have defined the key steps to help you build an ethical, sustainable and achievable solution to monetise data, placing it at the heart of your organisation's strategic decision making.

Our approach

Every organisation is different, and so are their data transformation journeys. We start by helping to define your organisation's specific data vision, and depending on your data maturity, readiness and capability, we design a tailored, unique strategy based upon your needs.

Data maturity assessments

A clear understanding of data maturity must underpin every client's journey. Using our CGI data maturity framework we will identify your organisation's level of data maturity, working together to address any areas that are preventing you from achieving your desired data strategy.



CGI data maturity model – organisational maturity

Our maturity assessment looks at all aspects of your organisation, starting with the executive leadership and then expanding across multiple levels. Our experience tells us that successful transformational change relies upon this buy-in and input from all levels of an organisation; we will work with you to step through the CGI maturity assessment whilst considering multiple perspectives to ensure the appropriate data strategy has clear and actionable recommendations.

	Level 1 Basic	Level 2 Explorative	Level 3 Operational	Level 4 Innovative	Level 5 Transformative
Business Strategy	Reporting is sporadically used to depict historical events	Data is only used for ad hoc reporting	Analytics are used to help drive operational decisions	Data is used in business decision making	Data is embedded in business strategy
Resource	Limited or no data resources and skills	Data skills are supplementary to existing roles	Data teams are created with specific roles	Data resources sit across the organisation in specific, dedicated roles	Chief data officer sits on the board
Data	Data is rarely used to drive insight and is used for basic reporting	The only data available is internal data	Multiple data sources are used to create deeper insight	External data is used to support greater insight	Multi-dimensional data sources are integrated into business data
Culture	Data is vaguely understood by a few	Data is an individual uncoordinated activity	A data architecture approach is adopted to manage data	A data governance approach is created to foster a data culture	Data strategy underpins business and technology strategy
Architecture	Data is randomly ingested and managed	There is no data architecture strategy	Some architectural principals exists pertaining to data	An enduring data architecture strategy is in place	Data architecture is designed to leverage the power of data
Data Governance	Data is an afterthought	Data governance is manual and individually managed	There is an approach to data quality and security	A data governance strategy is in place	Data governance is integrated across the organisation

Our approach to understanding your data maturity is divided into 4 areas:

Strategy	Capabilities	Data Governance	Organisation and Culture
Is your organisation aligned on a vision, and are goals in place for short- and long-term data aspirations? →	Does your organisation have the systems, tools and skills needed to achieve its goals? →	Does your organisation understand its data governance maturity? →	Is your organisation fostering the mindsets and behaviours for critical transformation?
The content of our data maturity model is constant, but the level to which an organisation needs to be mature in each area is dependent on their own business strategy, business model and operating model.	Capabilities looks at the skills possessed by the organisation, evaluating how it can achieve a data-centric approach to operations and change. It also assesses the technology and how it can be transformed to enable long-term benefits.	How the organisation's data is governed, managed and maintained is critical to the effective and optimised use of data to deliver desired outcomes. Mature data governance unlocks the power of data.	It is vital to understand the culture of the organisation, ensuring it is positioned to take advantage of the proposed digital technologies. This assesses how leaders are driving a data-centric culture across all levels of the organisation. Culture also focuses on assessing employees' perspectives on placing data at the heart of the business.

Our three-pillar approach

After assessing your data maturity, we then use a three-pillar approach to establish and support your data journey. These three pillars incorporate what we have identified as the key components and solutions required for your organisation to achieve a sustainable and deliverable strategic data transformation.

Vision & Strategy

- Vision
- Strategy
- Investment planning
- Transformation roadmap
- Benefits realisation planning
- Organisational and cultural change

Data Fundamentals

- Legacy data migration
- Data quality
- Master data management
- Big data
- Cloud/virtual data

Analytics & Science

- Data optimisation
- Data forecasting
- Data prediction
- Artificial intelligence

Pillar 1 – vision and strategy

It is essential to establish a clear vision that empowers your organisation to embed data throughout all that you do. The first step is to create a data strategy that aligns, underpins and supports the delivery of your desired outcomes.

Data vision

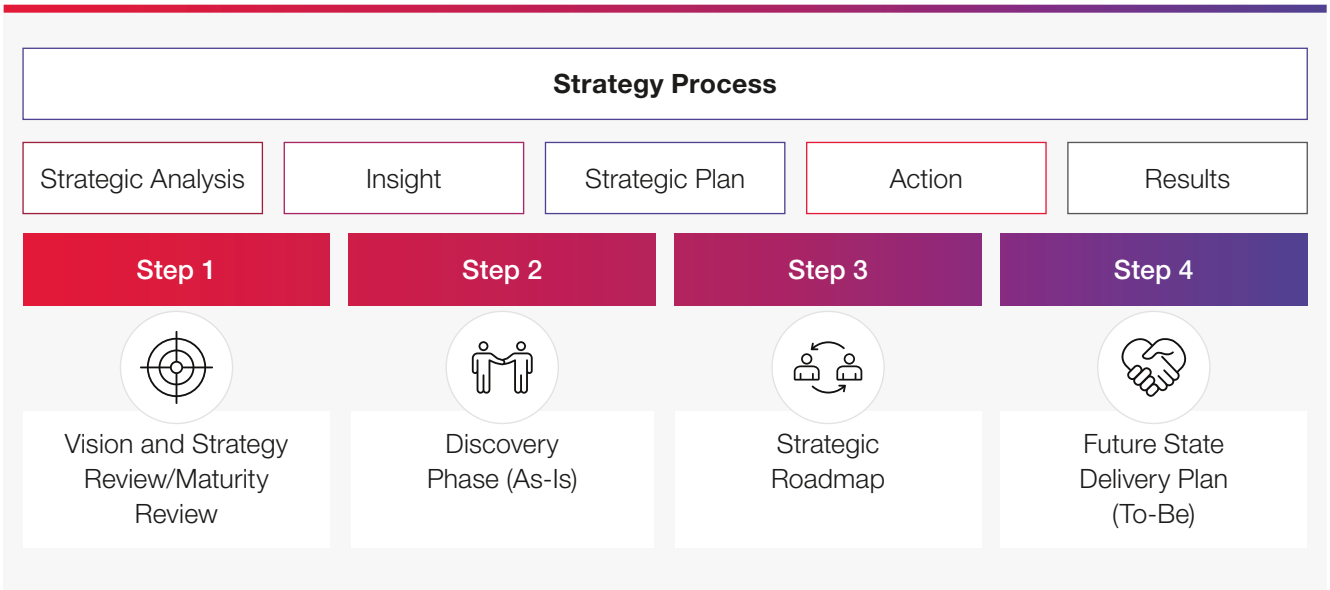
Your vision should provide a very personalised and specific insight into your organisation, its culture and product offerings. Determining a shared vision is central to the process of change; it amplifies success by setting a clear outcome to achieve, inspiring and empowering all to deliver accordingly.

A vision for data is no different. By working closely with you and your leadership to understand your organisation and the outcomes critical to your success, we will help you to set an effective, unambiguous goal for your organisation's data vision.

Data strategy

A robust and sustainable data strategy that aligns directly to your business and IT strategy is essential if you are to successfully deliver usable, accessible, quality data that supports your IT, digital or technological delivery.

Whilst data is the key to successful business outcomes and increased profits, this can only be achieved with a robust yet simple strategy that is understood and supported by executive leaders and employees. To help you achieve a functional data strategy based upon your specific organisational evaluation and planning, we use a strategy cycle.



Pillar 2 - data fundamentals

Before you can leverage data to make informed, strategic decisions, it needs to be in a useable state; by this, we mean your data must be clean, accessible and stored using a methodology aligned to your organisation in terms of culture, size and strategic direction.

A data journey with CGI guarantees that these data fundamentals are carefully curated from the start to fit your needs, thereby allowing you to build a complex and reliable data analytics and data science capability based upon strong foundations.

Data centralisation and migration

You can more easily and efficiently manipulate, organise and leverage your organisation's data when it is centralised. Specifically, an aggregated location can enable more in-depth analysis than disparate systems and databases, enabling you to draw meaningful insights from seemingly unrelated data.

Whilst migrating your data from a legacy system (whether an on-premise storage solution or already established way of working) to a centralised location might seem daunting, we will help make this transition seamless using best practice methodologies combined with bespoke strategies to fit your organisation's needs.

However, we understand your IT landscape will be unique and therefore a centralised database may not necessarily be the most efficient, cost effective or appropriate way to handle your data. We can therefore help assess and advise on other more suitable implementation options, whether that be a federated data model (where multiple data sources are mapped into a single repository) or another bespoke solution to fit your requirements.

Big data

The definition of big data changes with time. Whilst in previous decades big data comprised of gigabytes, it can now span into the hundreds of petabytes of information available from a wide variety of IoT devices, data scraping software and enterprise scale management platforms.

The vast data available to an organisation can be overwhelming, and merely adopting an effective access and storage solution does not make data meaningful. We can only derive value from data when we can understand, analyse and leverage it to make strategic decisions. Our solutions therefore help you to summarise vast quantities of data into sets of metrics and trends that humans (or when further along your data journey, machines) can use to make impactful decisions.

Cloud/virtual data

Moving data from an on-premise solution to a cloud environment can provide a host of benefits, including:

- Reduced costs and risk
- Convenience of accessing data from anywhere
- Ability to effortlessly share and aggregate data
- Protecting data integrity
- Applying more complex analysis in a collaborative way.

A cloud environment is also conducive to other elements of your fundamental data journey, providing a common platform for your big data, centralising it, and allowing the power of data science to be flexed when your data is mature enough. We use our expertise to guide clients through this process, ensuring that data is in a fundamentally mature state before allowing our data science and analysis provision to deliver tangible business metrics. This provides you with the confidence to make informed business decisions.

Pillar 3 - data analytics and data science

Now having established your sustainable data platform, you can begin to reap the benefits of data to achieve meaningful insights.

Data analytics and data science can deliver:

- A better understanding of your organisation, products, services, customers and citizens
- Increased market share and profitability
- A forecast of future events to manage and mitigate risk.

The challenge is understanding how to leverage your avalanche of data to deliver these benefits ethically and effectively.

An ethical approach to data

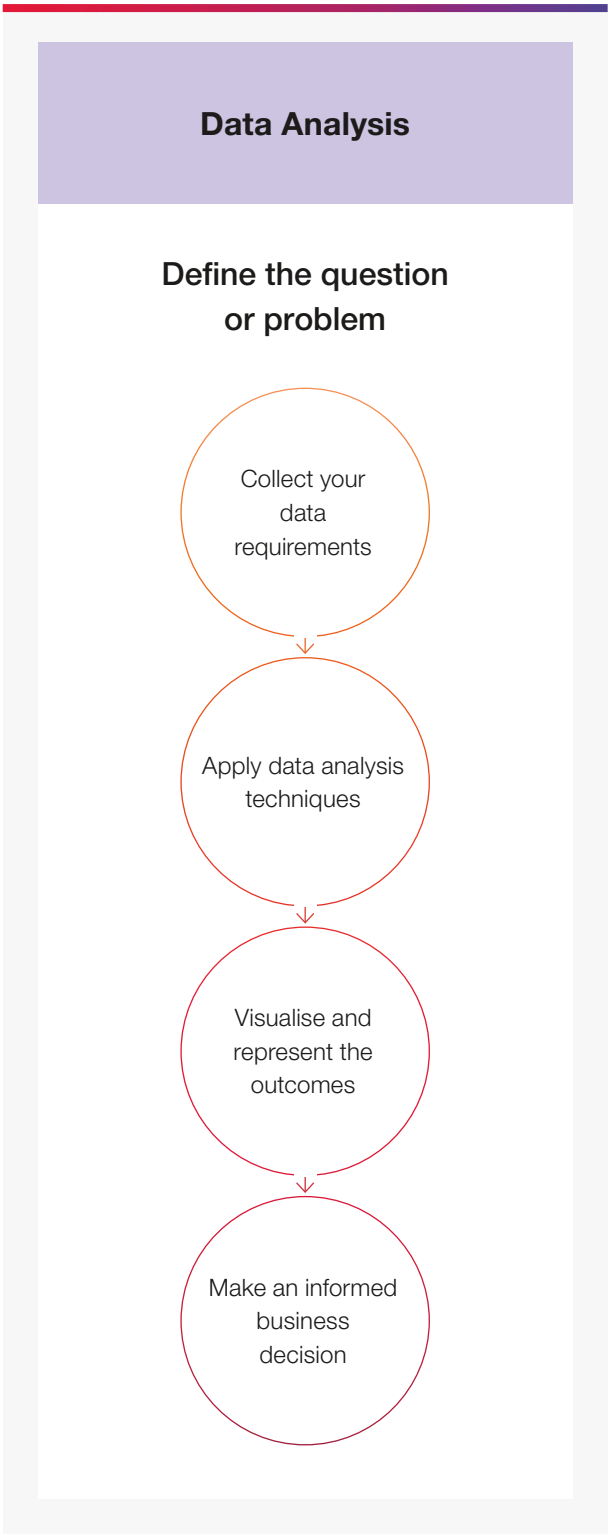
Ethics plays a central role in everything we do at CGI. Handling and utilising sensitive and often personal information with integrity and privacy is therefore fundamental to our data analytics and data science approach.

Data analytics

The power of data can only be realised once you are able to extract tangible metrics, trends and analysis to make informed decisions. The first step in your data analysis journey is therefore to define the question you need your data to answer; this question should align to your data strategy and vision. We support this process, working with clients to decide on a clear problem their data should address, and ensuring their data is workable to achieve this prior to applying analytical techniques.

After defining your question or problem, analysis can begin. We recommend a four-step approach to implement targeted analytical techniques consistently:

1. **Collect your data requirements** - Having your data cleaned and centrally stored as recommended in our data fundamentals pillar enables you to effectively target specific requirements for your analysis, thereby reducing your overheads and efficiently realising the power of your data.
2. **Apply data analysis techniques** - Data analytics can take many forms, such as parsing your data using SQL, Python or even through Microsoft Office's suite of applications. Our experts will guide you through the most appropriate technique for your data, and further along your data journey can help build a platform for more complex scientific techniques.
3. **Visualise and represent the outcomes** - A key part of the analytics process is to present your data in a digestible manner to answer your defined question or problem. PowerBI, Microsoft Excel and other more bespoke solutions help present easy to understand data for effortless decision making.
4. **Make informed business decisions** - The steps in your analytical process must enable easy decision-making. Once your data has been analysed using the appropriate techniques, you can confidently address your question or problem.



Data science

Modern tools and techniques have allowed data science to create a new world of opportunities and benefits.

Data science (or data-driven science) could be considered as the interdisciplinary field where statistics, coding and business come together. The overarching aim of data science within CGI is to extract insight, knowledge and analysis from large, complex and often untapped data to help you derive data-driven decisions for your organisation.

Wherever you are on your data journey, data science will empower your organisation with new capabilities based upon large volumes of structured or unstructured data.

This ranges from:

- Statistical mathematical models that enhance and bring new dimensions to analytical reporting
- Natural language processing techniques that help to understand and categorise large scale textual data
- Automating and interpreting your data through building machines that learn from your history
- Providing a 360-degree view of your customers or employees to help personalise and predict behaviour and outcomes
- Using static or moving imagery to create augmented or virtual reality solutions
- Interpreting or providing automated support to complex imagery, such in critical clinical or health and safety environments
- Even building your own metaverse.

Data science accelerator

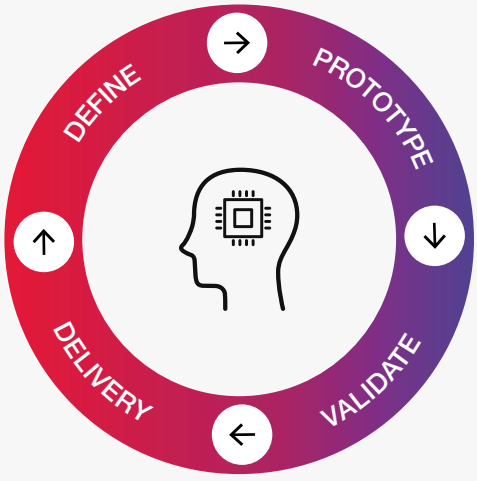
We use our tried and tested data accelerator process to help clients understand how data science can support their organisations. This provides an agile, design thinking approach to unpack and understand complex business problems, and defines outcomes through prototyping fit for purpose ethical solutions.

DEFINE

- Define the business problem
- Design thinking approach
- Outcome identification
- Ethical review

DELIVERY

- Productionise
- Operationalise
- Collaborate and train
- Support
- Monitor and maintain



PROTOTYPE

- Stakeholder engagement
- Data acquisition/ingestion
- Data wrangling/cleansing
- Data modelling
- Collaborative prototyping/MVP

VALIDATE

- Stakeholder review
- Validate outcomes
- Benefits realisation
- Sustainability
- Ethical review

Benefits

Data governance

A robust set of data-centric activities help control your organisation. Managing and maintaining high quality data is central to deriving tangible and sustainable benefits from your data.

Data governance enables this by focusing on “what, where and how” your data is used, creating a solution to deliver usable, secure, compliant and readily available data and data roles within your organisation.

Strong governance will also help your organisation save money through delivering adaptive and creative models designed for specific business units, products or clients.

- Reduce costly duplication and decrease associated ingestion, transformation, storage and misuse of data costs.
- Reduce the risk of security or compliance costs.
- Provide clarity and consistency from a clean, consistent master data model, creating an untapped value proposition from your data.
- Eliminate data silos.
- Improve data integrity.
- Ensure clean data and simplify maintenance of data.
- Optimise analytics.
- Reduce overheads.

Data monetisation

Convert your high quality, clean data into decisions and processes that can:

CGI Advisory Services

For over 45 years, organisations have trusted CGI to transform their operations with innovative and reliable services and solutions. Committed to supporting our clients for every step of their digital journeys, we established our Advisory Services, where our experts utilise their vast knowledge and experience of delivering world-class IT to collaborate closely with clients and help them unlock their full potential.

We understand that digital transformation isn't simple, so our advisors are here to help you develop the right solutions which are aligned to your specific business capabilities, securely and sustainably transforming the way your organisation works.

About CGI

Insights you can act on

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world.

We are insights-driven and outcomes-based to help accelerate returns on your investments. Across 21 industry sectors in 400 locations worldwide, our 88,500 professionals provide comprehensive, scalable and sustainable IT and business consulting services that are informed globally and delivered locally.

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