**Technical debt blueprint:**

Navigating a
key challenge to
modernisation and
digital transformation

CGI

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# About us

CGI is trusted worldwide to do complex things well. Founded in 1976, CGI is among the largest IT and business consulting services firms in the world.

Our goal is to build trusted relationships, by providing industry and technology expertise to help you achieve your business ambitions and objectives.

Through our global insights and local experts, we support our clients with their change and transformation through our world-class portfolio of end-to-end capabilities.

**Trusted to do complex things well.**

# Stopping technical debt from crossing the line

Technical debt means different things to different people, and there is no need to assume that every aspect of it is bad.

For most, it is a necessary part of a responsibly managed IT provision.

The business challenge Central Government business and IT Leaders face is pervasive technical debt, which can stifle growth and adaptability.

**Pervasive technical debt crosses a line**: Where it includes the accumulation of outdated, inefficient, or incompatible technologies and data that hinder an organisation's ability to deliver its objectives and enabling services.

This represents the cumulative consequences of past decisions and indecision, that can compromise operations.

**In this blueprint plan**, Andy Burston, explores the importance of addressing tech debt, offering insights into its management, and the strategic advantages of resolving it.

Technical debt management does not have to exclusively focus on risk mitigation. It can also be a strategic driver for efficiency and modernisation.

# Understanding Total Cost of Ownership (TCO)

Understanding the Total Cost of Ownership (TCO) is crucial for organisations to fully comprehend the long-term implications of their IT investments.

The essence of IT investment lies not just in its acquisition but in its lifecycle value to business operations.

**By focusing on TCO**

We gain insights into the true value of IT assets, the potential impact on our organisations and their objectives. This is essential for making informed strategic decisions and to ensure current investments do not become the financial burdens of the future.

# 3 key elements of TCO beyond purchase price

There are 3 key elements of TCO beyond the initial purchase price. It is unlikely that all the answers will be available, but even approximate values and determination of systems longevity will help your technical debt planning.

**Longer term costs**

The planning and commitment required to keep a system up to date and supportable. A system with a low up front cost but with a commercial tie-in to high maintenance cost over time may represent a much higher TCO with limited benefit.

**Hidden costs**

The costs that are not immediately obvious when you originally developed, purchased or licensed the system.

These can include:

- System integration with any (sometimes many!) others.
- Tailoring the system to meet specific needs including customising the system beyond commercial specification or updating entry fields and database structure.
- Training users throughout the system lifecycle.
- Data migration in support of change.

**Intangible costs**

Tangible costs should be relatively easy to quantify. They include hardware, software, support, maintenance, etc.

However, intangible costs can also impact TCO and might include:

1. **Cyber security risks:** especially where data is breached due to vulnerabilities caused by obsolescence.
2. **Productivity costs:** particularly where slow, and capacity limited systems impact business performance.
3. **Regulatory compliance:** ensuring system enablement and business adherence of industry standards and laws.

# TCO calculation can be problematic

**This is especially true where systems:**

- Have been built upon

- Are tightly integrated and bound together

- Have changed in response to shifting business priorities

**These problems are compounded**

If engagement between IT teams and the business who consume services is limited, and change control is weak.

This challenge increases where business applications and their enabling hardware remain in operational use for 15, 20, even 30 years without modernisation.

# TCO calculation requires whole lifecycle planning

If we do not plan for the whole lifecycle of our IT provision, then debt and obsolescence will accrue.

The result can be complex with debt-ridden IT estates that are inflexible and tightly coupled systems.

This presents incompatibilities, limits interoperability, creates inherent risk within live service and is counter-intuitive to the wider digital vision for government.

**Technical debt**

Does not have to be about the burden of our past decisions. Confronting technical debt within strategic intent, can be a driver of modernisation and transformation.
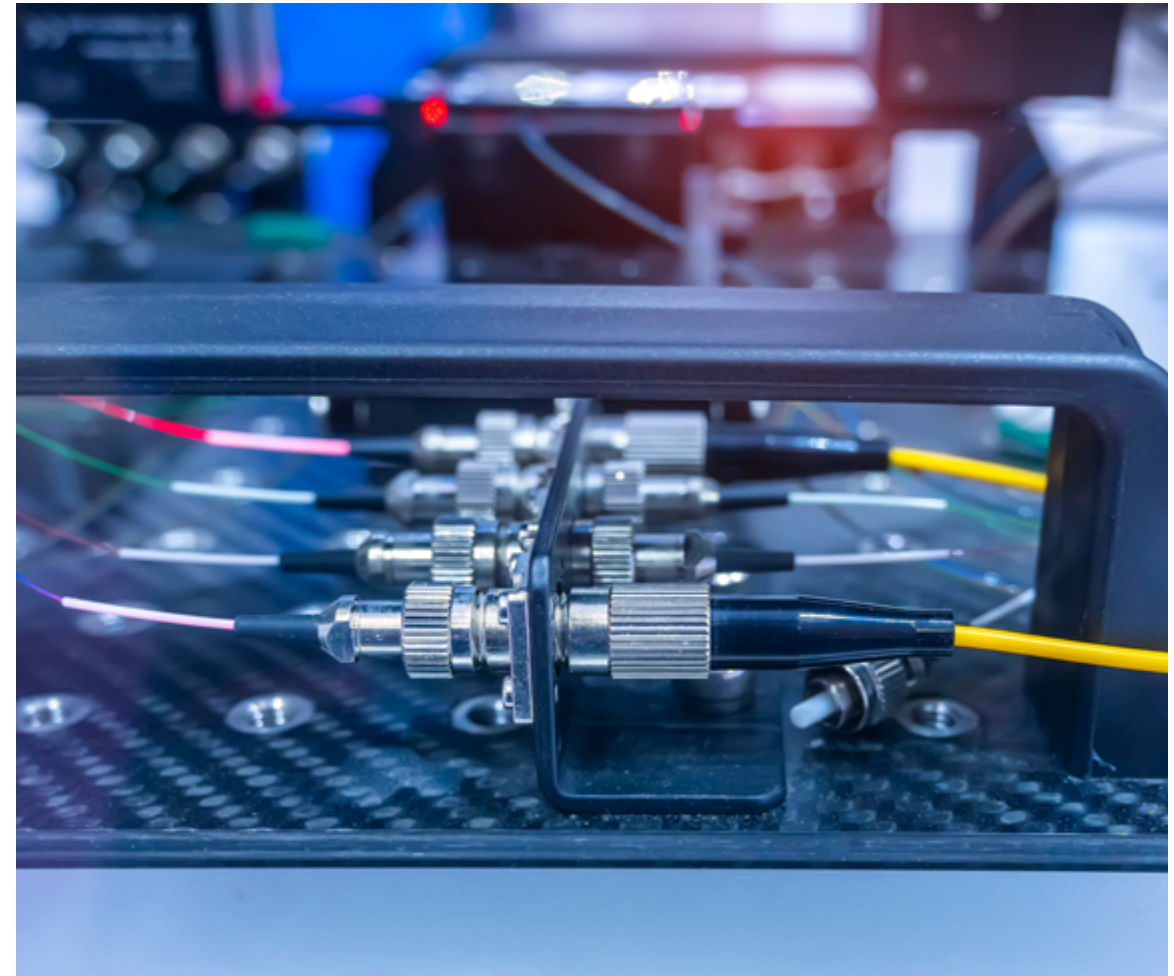
# Building a sustainable IT strategy

Coherent IT strategy requires an understanding of the current IT landscape, the future business needs, and the best practices for modernising and optimising systems and data.

Without this, the business case for change will fail.

**In our experience**

A collaborative build of a robust and sustainable IT strategy, with due reference to technical debt strategic intent, is the very best place to start. Strategy must unquestionably enable business objectives and the operational success of our teams.

# Linking IT strategy to business goals

**Strategy should feature a set of common aspects and processes to drive technology management. Technical debt should be an enduring consideration.**
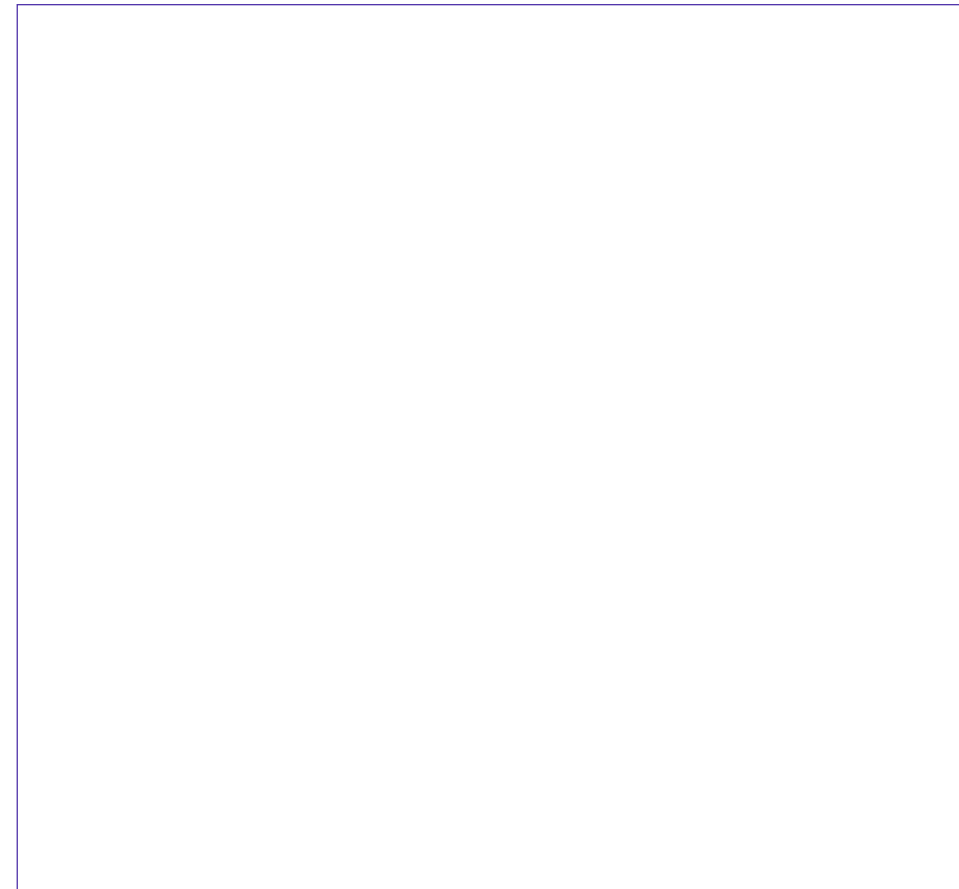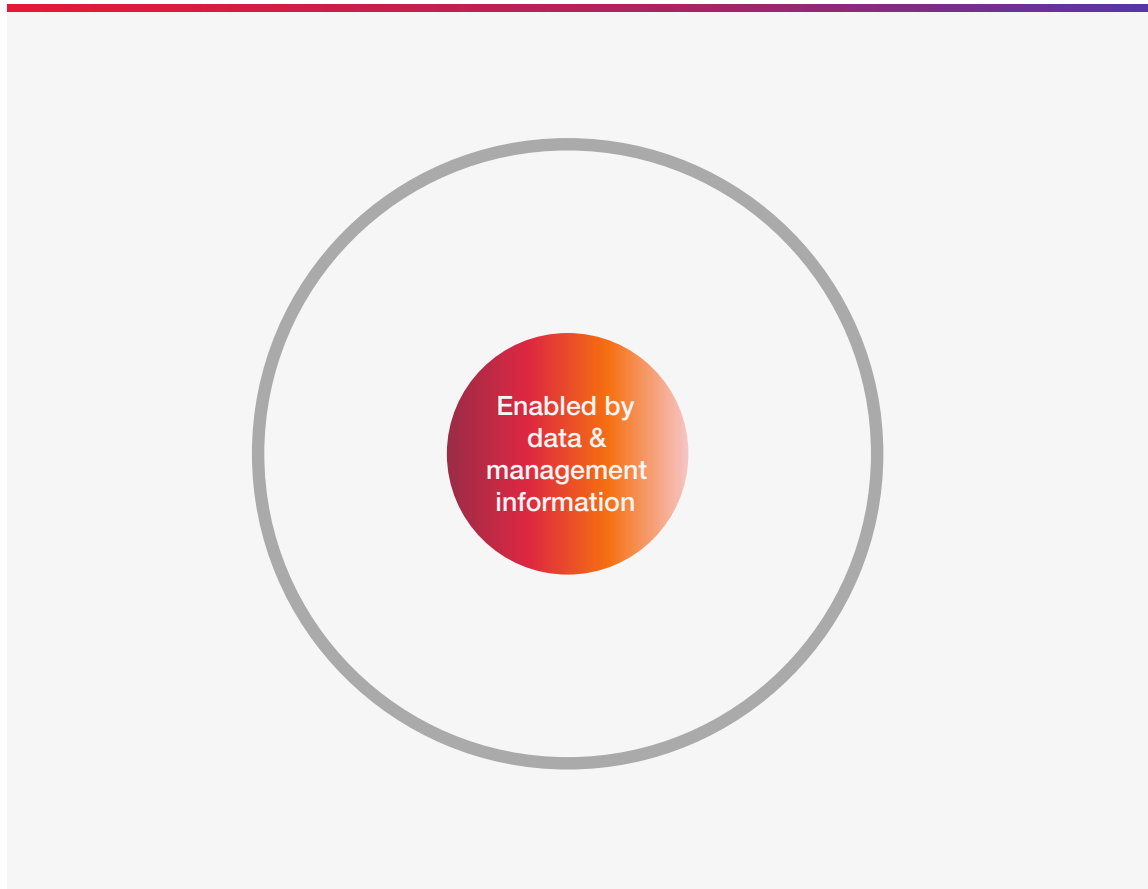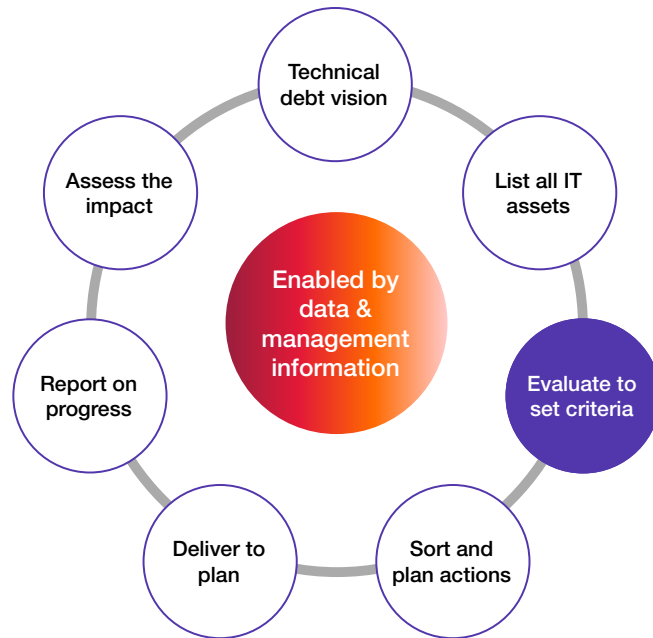
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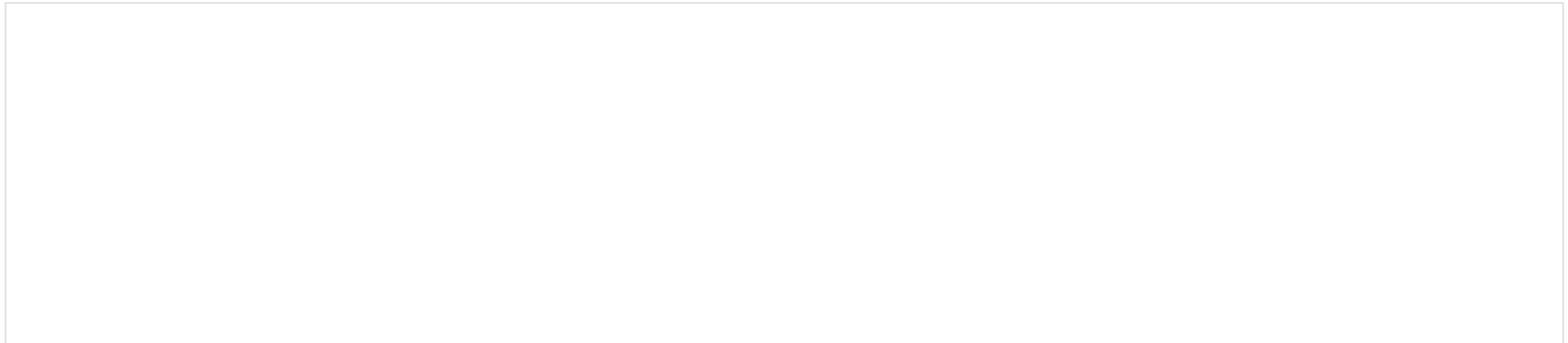
**Technical debt requires a detailed technology management approach,** particularly if it is suspected the problem is acute.

# Engineering steps for technical debt management

Click the subheading to learn more

Enabled by data & management information

# Business and technology tests for IT assets



## Within technical debt remediation planning

Consideration: Think about involving the working group to explore at least two different sets of tests. These will help establish the importance of the IT asset, identify knowledge gaps, and assess the severity of any obsolescence, informing remediation prioritisation.

**Business tests**

Is the IT asset:

- Meeting business needs?
- Enabling enterprise objectives?
- Affordable?
- Delivering Value for Money?
- Supporting strategic ambition?
- Aligning with Enterprise Architecture?
- …and other criteria?

**Technology tests**

Is the IT asset:

- Commercially available?
- Supportable?
- Compatible with common technologies?
- Capacity limited?
- Vulnerable to attack?
- At material risk of failure?
- Tightly coupled to other assets?
- …and other criteria?

**Outcome** Tech debt remediation priorities

# Defining success in technical debt management

In summary, technical debt is neither inherently bad nor beneficial however, in our experience the following traits can be found in the better management approaches.

## Documented

Technology obsolescence is well-understood, documented and maintained.

Your team can identify the common factors of obsolescence and how it pivots around particularly platforms, operating systems or even parts of business.

This includes what the associated debt is and the back story as to why it was taken on. For high performing teams 'good' includes accurate identification of the potential costs of not addressing it.

## Planned

There's a clear plan for how and when the technical debt and associated obsolescence will be addressed.

This might be scheduled and tactical refactoring, through to wider change plans that render the obsolescent system as irrelevant and a candidate for decommissioning.

## Intentional

The decision to take on technical debt is conscious, made with a clear understanding of the trade-offs and the risk is defined.

Your team knows the potential downsides but chooses to move forward because of a specific business need and strategic objective.

## Controlled

Technical debt is isolated and does not create a ripple effect throughout transformation ambitions.

This is where your team has absolute understanding of the existing business reliance on debt ridden systems, and the key reasons as to why this may present incompatibilities and blockers to the digitally transformed end state.

If you get this bit right, it is easier to identify and realise business benefit sooner.

# Partnering with CGI for better outcomes

By partnering with CGI, you can benefit from our proven expertise and experience in technical debt management.

We can help you to reduce operational costs and risks associated with outdated or poorly maintained IT assets, improve the performance, reliability, security, and compliance of your IT systems and services.

We enhance your ability to innovate, and most importantly, increase the satisfaction and trust of citizens and employees by delivering high-quality and modern IT solutions.

**Find out more about**
CGI Central Government technical debt services.

Enquiry.uk@cgi.com

# About CGI

## Insights you can act on

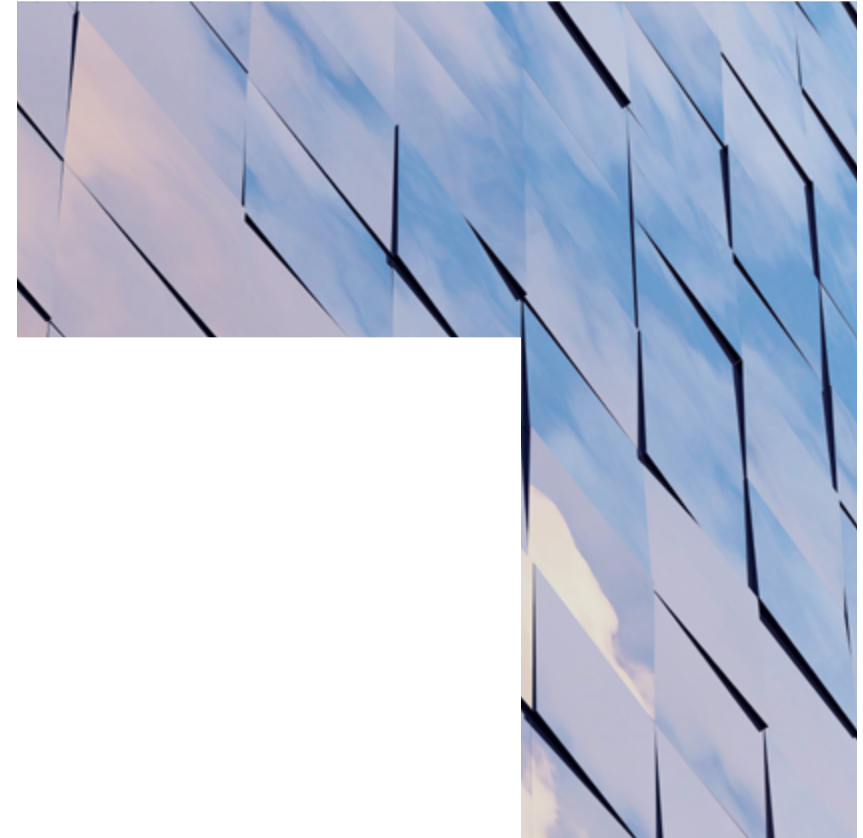Founded in 1976, CGI is among the largest IT and business consulting services firms in the world.

We are insights-driven and outcomes-focused to help accelerate returns on your investments. Across hundreds of locations worldwide, we provide comprehensive, scalable and sustainable IT and business consulting services that are informed globally and delivered locally.

Learn more at cgi.com/uk

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