The digital led university

A technology-enabled future of learning

- An Advisory Services PoV

CGI

Higher education digital leaders

Universities are the leaders of regional innovation clusters, contributing a huge amount of value to our economy and society via the strategies they employ, the research they do, and the stakeholders they engage. Together, these elements combine to create the pipeline of future innovations, leaders and the enterprising workforce that inspires our society to continuously progress.

As a result, those universities that do successfully establish themselves as exemplars of innovation, leadership and specialism excellence can expect to gain more investment and research funding, as well as the interest of more talented students. Therefore, the need to establish your higher education organisation as a digital leader has never been more important!

All university 'funders', from newly-enrolled students and alumni, to research partners and staff, now expect their higher education experiences to match (if not exceed) the digital experiences they enjoy throughout all aspects of their daily lives. As centres of excellence, universities should embrace all things digital to meet users' expectations with a supportive, easy, technology-enabled higher education environment.

Universities have a multiplicity of applications, silos and touch points that can sometimes be difficult to negotiate, however, the experience should be made intuitive, predictive and personalised, and offer responsive support services that are fit for purpose throughout. Furthermore, it is essential that the environment should enable secure and convenient assimilation of users' personal devices into the ecosystem.

Whilst embracing "being digital" in this way undoubtedly transforms the university experience for all, it does however, apply new pressures on institutions to continue acting quickly to implement the best technologies that will enable ongoing success. The key to this is to ensure that all new technologies integrate seamlessly throughout the everyday university experience to support a vastly improved user experience, whilst simultaneously enabling cost reductions and operational efficiencies for the organisation itself.

Considering this, it is clear that those organisations that embrace a journey of digital leadership will not only inspire stakeholders with dynamic, attractive and user-centred environments, they will going forward, essentially achieve sustainable growth ahead of the competition.

The Digital Led University

The university experience in challenging times

In an always-evolving world, higher education providers need to adapt. Students now have access to an ever-increasing amount of choice, and university offerings therefore need to be revitalised to continue attracting the best talent. Further reinforcing this pressure to evolve was the COVID-19 pandemic, as those institutions that responded most effectively are now emerging as new leaders in the sector.

As a result of this disruption, many long-standing norms in higher education are now being challenged:

- Accelerated by the prevalence of home learning, a changed demographic of students are now eager to embrace new ways of accessing learning and support.

- Support systems and staff are being tested and stretched by unexpected demand trends.

- Facilities are no longer completely fit for purpose for a distributed student-base, presenting commercial and repurpose opportunities.

- The pressure is on to commercialise, use assets in different ways and support unique specialisms, so institutions are looking to grow research revenue and create innovation and enterprises that can benefit our local places and grow our economic value footprint.

- Having already responded to distanced learning techniques and technologies, institutions are embracing new opportunities to gain a wider reach and global presence, thereby resulting in the need to offer a more inclusive experience for all potential students.

- Expectations are high for the delivery of personalised, technology-based learning and everyday campus experiences, such through virtual reality.

- The need to provide confidence in safety, across both everyday university life and from a cyber security perspective.

- Legacy ICT and constrained resources are holding institutions back, it is essential to break down silos, consolidate information and content provision, and create efficiencies to present a dynamic and attractive stakeholder experience.

- Campus expectations have changed and it is unlikely that activity and usage will return to the state that existed prior to the pandemic. This encourages questions around the best use of asset investments, and how to respond effectively to sustainability challenges.

- The growing need to conveniently access and visualise all of the data across the university environment in order to support quick and informed executive decision-making.

These challenges present universities with an opportunity to transform to embrace digital and user-centred service design, establishing revitalised brands that set new standards and provide the strongest digital experience for all stakeholders.
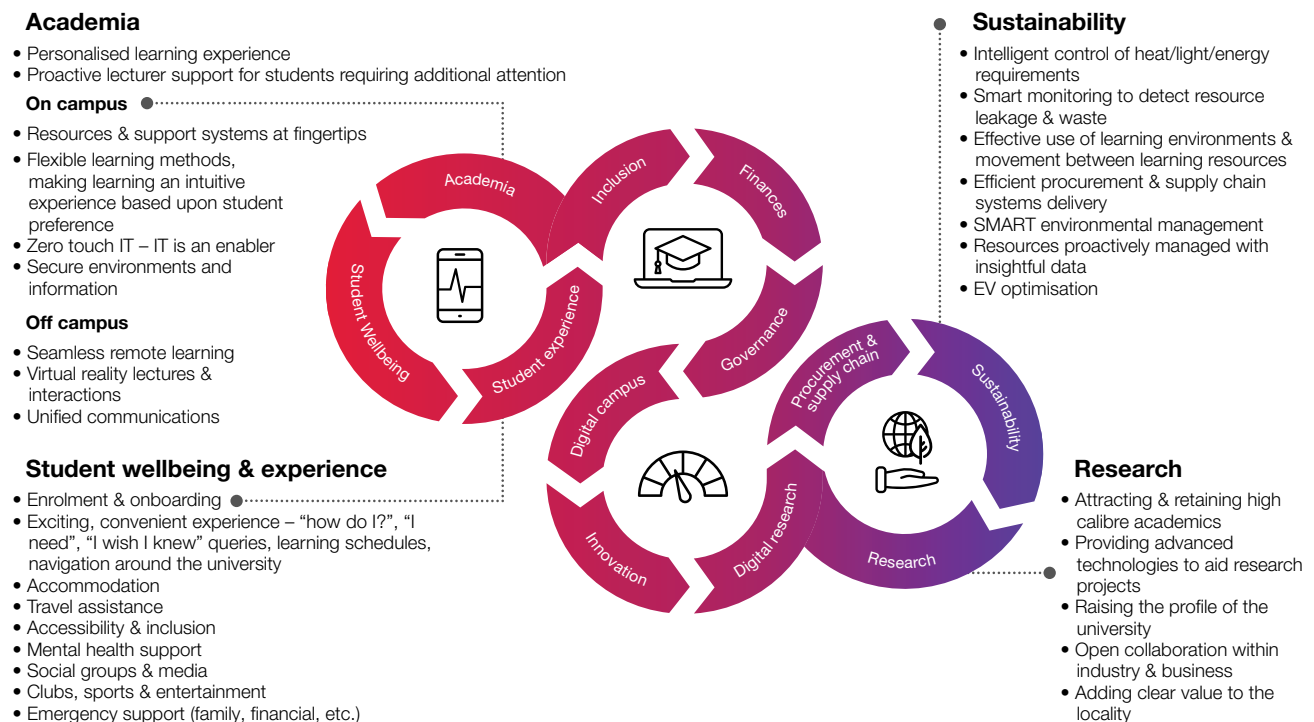
Reimagining the university experience

Institutions now have to work their existing resources much harder in order to create inclusive and dynamic environments that attract the best students and the strongest research partners. This, together with the need to adapt offerings to match changes to funding profiles, is causing many to implement digital solutions throughout their operations.

The university's structure and support services should enable a highly personalised experience throughout the higher education journey, from a potential student or staff member's first impression of the organisation, through to supporting alumni and campus partners.

Furthermore, deep organisational efficiencies and ongoing service improvements must be consistently and rapidly implemented throughout the journey using our "digital backbone" approach, helping the university to constantly evolve to suit its always evolving and increasingly demanding user base.

As a transformation partner, CGI places its support services at the forefront of these digital implementations. With a clearly communicated strategy agreed, your organisation will not need to reactively catch up with disparate innovations, instead, our leaders will help you to define a roadmap that effectively outlines innovative change and realisable outcomes for your organisation. As a result, you'll establish buy in and most importantly, transform into a Digital Led University.

Academia
- Personalised learning experience
- Proactive lecturer support for students requiring additional attention

On campus
- Resources & support systems at fingertips
- Flexible learning methods, making learning an intuitive experience based upon student preference
- Zero touch IT – IT is an enabler
- Secure environments and information

Off campus
- Seamless remote learning
- Virtual reality lectures & interactions
- Unified communications

Student wellbeing & experience
- Enrolment & onboarding
- Exciting, convenient experience – "how do I?", "I need", "I wish I knew" queries, learning schedules, navigation around the university
- Accommodation
- Travel assistance
- Accessibility & inclusion
- Mental health support
- Social groups & media
- Clubs, sports & entertainment
- Emergency support (family, financial, etc.)

Sustainability
- Intelligent control of heat/light/energy requirements
- Smart monitoring to detect resource leakage & waste
- Effective use of learning environments & movement between learning resources
- Efficient procurement & supply chain systems delivery
- SMART environmental management
- Resources proactively managed with insightful data
- EV optimisation

Research
- Attracting & retaining high calibre academics
- Providing advanced technologies to aid research projects
- Raising the profile of the university
- Open collaboration within industry & business
- Adding clear value to the locality

The student journey

Attracting talented students

By implementing the right user-focused digital experiences at the very start of the university journey, higher education organisations can attract the best students from around the world. With innovative, seamless and efficient systems in place, your university will fill potential students with confidence that your organisation is the right choice to support not only their education, but their entire university experience from start to finish.

Consider how technology can assist with:

- The university selection process, with online virtual tours, demonstrations and open days that provide access to university representatives who can answer any queries.

- Highlighting extra-curricular activities, such as student communities and societies, sports teams, discounts in the local area, etc.

- Simplifying the enrolment process with online systems available via students' preferred channels, for instance, utilising SMS, email and online portals to communicate information.

- Providing multiple support channels for queries to be solved quickly and efficiently, including voice call, video chat, webchat, email, social media, virtual agent, etc.

- Providing online knowledge and support resources for easy access to information.

- Demonstrating campus safety measures and health support.

- Providing environments that are inclusive, attracting all of the talent available.

On-boarding and supportive learning

With students now enrolled, the ongoing university experience must live up to expectations. The Digital Led University embraces digital and user-centred service design throughout, providing an innovative and inspiring digital learning environment.

- A quality induction and academic orientation process is essential to share clear academic expectations and maximise impact early on.

- Inclusion is an essential consideration at every point, taking into account students from different cultures (i.e. where English will not be their first language) and with different disabilities, and the additional support they might require.

- Ensuring easy access to value added services across the campus, such as gyms, canteens, pastoral services, etc., all of which support the university experience.

- Implementing automated proactive communication strategies to create an efficient environment where data is harnessed to predict when communication is needed, avoiding a reactive approach.

- Empowering students with efficient systems that enable convenient access to a wide range of personalised student support services. Using an omni-channel strategy, questions and issues can be raised and addressed in the most convenient and efficient manner.

- Empowering students with a range of options of where to learn and how to consume academic materials, creating an innovative and dynamic learning experience.

- Digital technology solutions enabling easy navigation of the campus, including areas such as car parking, signage, security and transport information.

- Ongoing academic support to encourage students to fulfil their potential.

An enriching university experience – learning & life on campus

Universities are the perfect place to test and grow new ideas and intellectual property, and distanced learning highlights that digital innovation is at the forefront of the student experience.

The new development of massively open online courses (MOOCs) allows content to be delivered to much larger audiences, and in turn, the teaching experience has transformed. Educators now have the ability to create digital lessons, gamify study, manage attendance, access real-time updates of results and identify learning trends where students fall behind, all using technology. This presents your university with the opportunity to reach out globally and enrich a deep, inclusive student base, using technologies including:

- AI - To help with smarter content creation, performance evaluation, support trends (such as around the mental health of students), personalised content delivery, chat and contact. It is essential that these technologies are used to achieve the best benefits across the institution.

- Virtual and augmented reality – Placing institutions at the forefront of specialisms, such as creating simulations, representing digital twin data, supporting medical training, visualising building systems, etc. With the right strategy and robust support in place, this can completely transform the student experience and education provided.

- Hybrid cloud strategy - When integrated seamlessly and properly managed, this revolutionises the efficiency of ICT learning platforms and support systems, breaking down silos and consolidating data.

- Blockchain - Supports the safe delivery of diplomas and other qualification evidence.

- Robotics – To transform and reinforce new skills.

With the successful implementation of these digital innovations, you can establish a dynamic, personalised learning environment based upon access and inclusion for all. Furthermore, your university brand will become clearer as the specialisms and research outcomes consequently delivered can be proactively broadcast.

Life after university – a network for life

The Digital Led University engages alumni as ambassadors for life, and by keeping these individuals well informed, your organisation will also establish a wide professional network.

Using effective digital marketing and content management tools, your engagement teams will be able to open up more opportunities for promotion, such as by encouraging alumni to actively share their university experiences and ongoing career successes in order to inspire both prospective students and current students.

Furthermore, many alumni have careers with potential research partners, therefore, by clearly communicating your organisation's successes, visions and specialism aims with these individuals, you will open up new opportunities for funding and sponsorships.

A great place to work

Empowering staff to deliver quality

The Digital Led University strategy ensures that everyone engaged in university life is fulfilled and motivated: that includes staff as well as students.

Often, staff are hindered by a legacy of silo-based service design, as well as traditional ways of working based upon inefficient, monotonous and repetitive tasks. Further complicating this is that by nature, universities are a hot bed of creativity where a multitude of apps are used for everything, therefore often making the navigation around systems a complicated experience.

As a result, IT is often a blame point for staff; however, in the user-centric world of the Digital Led University, IT becomes an invisible, seamless enabler of operations, and inspires positive working experiences:

- A **zero touch approach** for the seamless integration of the user's favourite device.

- Service redesign to implement effective **robotic process automation (RPA)** that removes repetitive, monotonous tasks, thereby motivating staff.

- **AI and machine learning** that enables users get personalised information on demand, freeing up staff to engage in rewarding human conversations for those more interesting and important subjects.

- IT support systems that use the best mix of **hybrid cloud and onsite technologies** to avoid bottlenecks whilst ensuring secure and responsive operations.

- Optimised, **virtual print and copy services** enabled with payment services by device.

- A **reliable, safe network** that uses the best mix of service provision.

- New technologies provisioned though **robust backbone integration technologies, and API standards** for software integration into business systems.

- **Information and data** is conveniently available to enable effective decision-making, helping to establish proactive operations rather than reactive, event-driven actions.
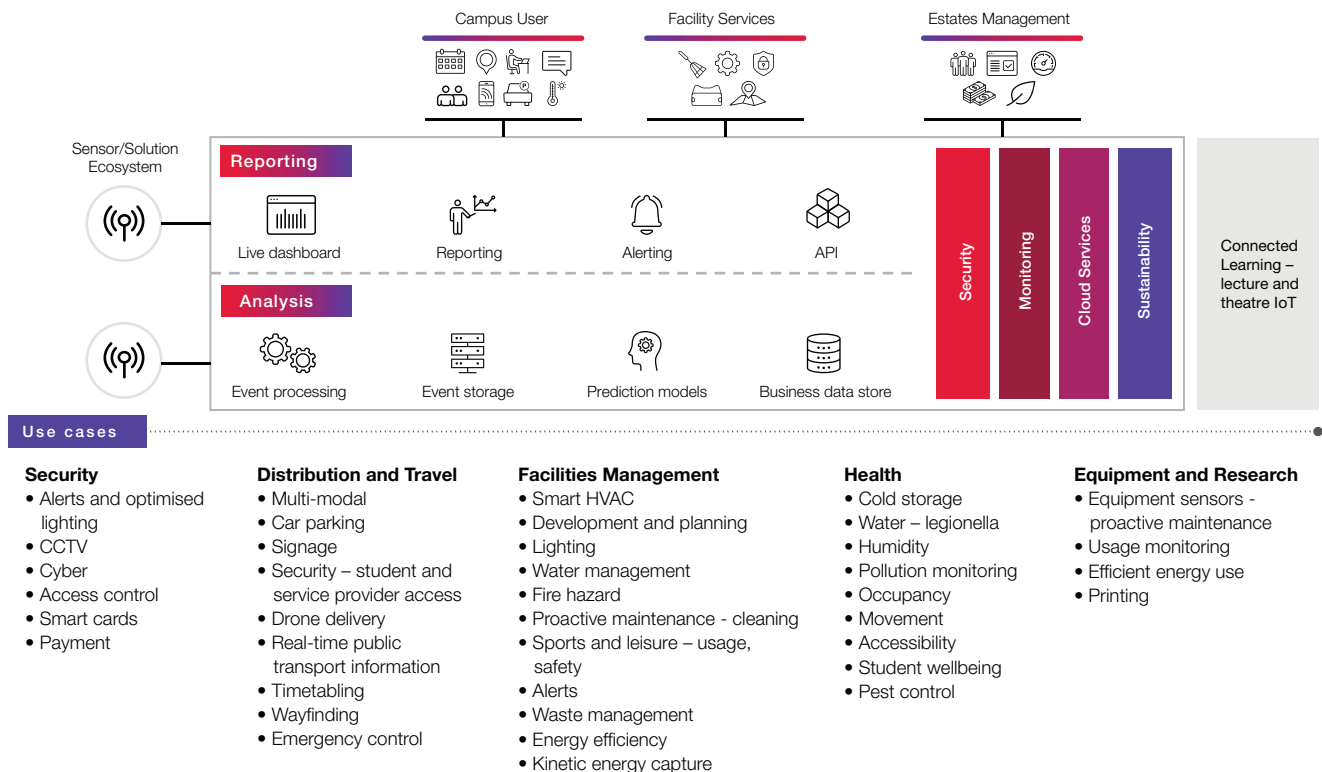
The Digital Led Campus - workplace efficiency

The internet of things (IoT) enables the ability to visualise feeds of data from across the campus, as all assets provide feedback and insights that offer a fantastic opportunity to evolve university life.

The Digital Led Campus is a place where trends such as on heat loss, maintenance impact costs, service efficiencies, water usage and occupation levels are all monitored and managed proactively, and operations such as pest and waste control are optimised. Furthermore, the overall campus environment is

safer thanks to affordable and dynamic lighting and illuminated walkway solutions, and health and safety concerns are monitored, such as by using movement trends in student accommodation to identify mental health risks.

By embracing these opportunities to evolve into a digital campus, your university creates a user-centred, sustainable environment, where budgets are manageable and predictable, and asset investments and change planning is based upon real-time data.

Use cases

Security
- Alerts and optimised lighting
- CCTV
- Cyber
- Access control
- Smart cards
- Payment

Distribution and Travel
- Multi-modal
- Car parking
- Signage
- Security – student and service provider access
- Drone delivery
- Real-time public transport information
- Timetabling
- Wayfinding
- Emergency control

Facilities Management
- Smart HVAC
- Development and planning
- Lighting
- Water management
- Fire hazard
- Proactive maintenance - cleaning
- Sports and leisure – usage, safety
- Alerts
- Waste management
- Energy efficiency
- Kinetic energy capture

Health
- Cold storage
- Water – legionella
- Humidity
- Pollution monitoring
- Occupancy
- Movement
- Accessibility
- Student wellbeing
- Pest control

Equipment and Research
- Equipment sensors - proactive maintenance
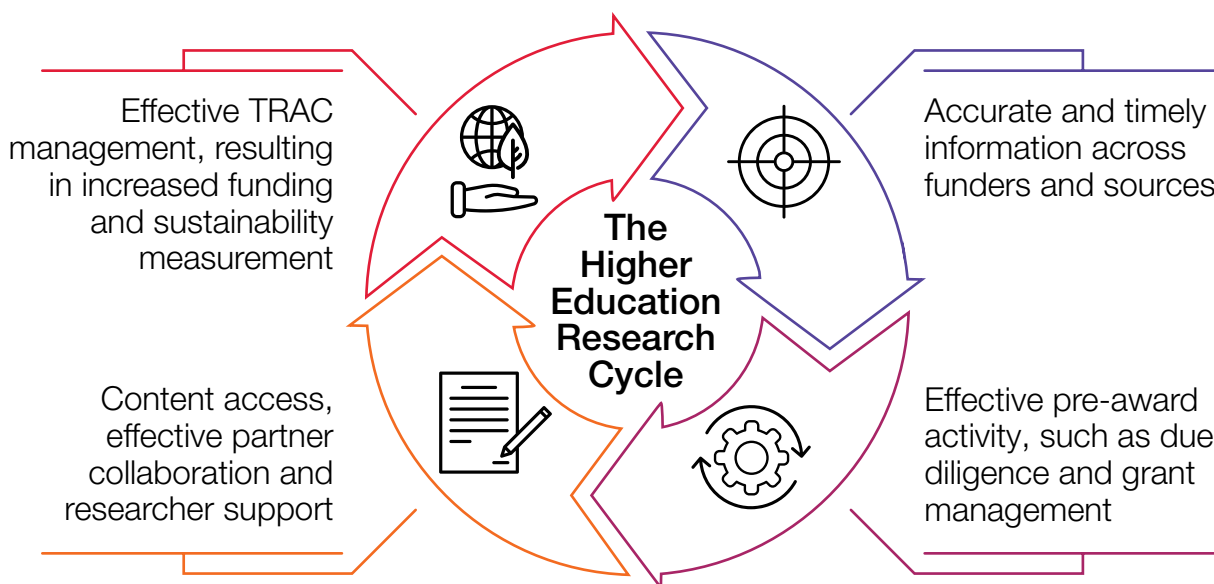- Usage monitoring
- Efficient energy use
- Printing

Implementing the Digital Led Campus requires a complete view of the university's business systems, connectivity, data security and storage in order to design pragmatic roadmaps. With robust plans in place, investments are focused on the right technologies that will achieve your desired outcomes, and users will begin to enjoy the benefits of the Digital Led Campus with active communications highlighting all changes.

Attracting investment – bringing ideas to life

Research is at the centre of higher education, providing universities with opportunities to establish strong brands based upon specialisms. This inspires industrial investment, and as the research transforms into commercial ventures, establishes income-generating enterprises.

The Digital Led University invigorates the entire research cycle.

Effective TRAC management, resulting in increased funding and sustainability measurement

Accurate and timely information across funders and sources

The Higher Education Research Cycle

Content access, effective partner collaboration and researcher support

Effective pre-award activity, such as due diligence and grant management

The Digital Led University encourages synergies and makes collaboration natural. Through open access to research progress, your investors will enjoy a real-time view of projects that both reinforce their confidence in your organisation, and highlight alignments with their own strategies, thereby creating a virtuous circle of success and encouraging further investment.

Furthermore, with demonstrably secure environments across the research estate (especially those delivering mission critical protection), you will emphasise to the investment community that their IP and assets are in good hands.

The university 'as a business'

Our clients want a partner that will help them explore new operating models to evolve their organisations.

As a global business that is advisory-led, we are at the forefront of our own digital transformation programmes, and use our knowledge and experience to help universities achieve their desired outcomes. At every stage along the transformation journey, we investigate:

• How to best apply innovative sourcing models, including our Advisory Services, resource supplementation, incremental partnerships, and wide scale managed service operating models.

• How to deliver effective, quality shared services to create a more sustainable support budget, but without diluting local effectiveness.

• How CGI can add value to research partnerships, creating specialism hubs and small enterprises.

Key levers for the commercial Digital Led University

Continuous innovation and improvement

Digital advancements and user needs are always evolving, and universities on this transformation journey therefore need to embrace a culture of continuous improvement. The key to this is accessible, complete data visualisation.
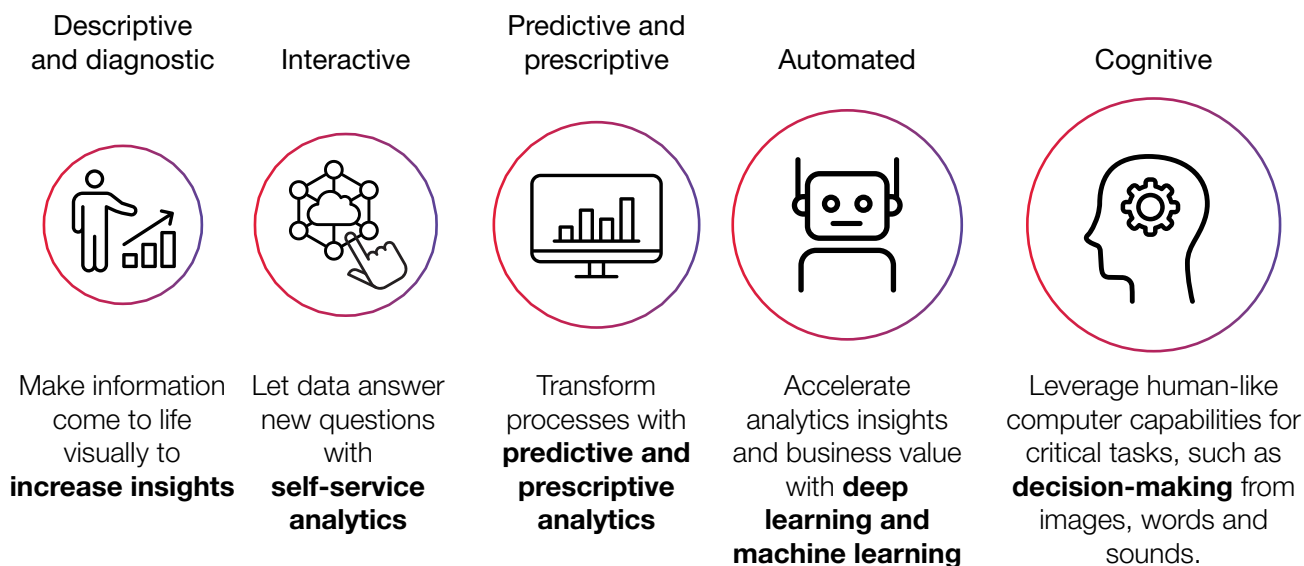
Achieving digital transformation requires a deep understanding of all the fragmented information and data available across an institution, and the Digital Led University aims to ensure that whenever something happens within the environment, this data is used to inform best actions that will optimise and continuously improve operations.

The Digital Led University therefore builds fully proactive and deep real-time analytics into its strategic planning and daily management requirements. When combined with the right toolsets, a data plan enables effective decision making and transformation by identifying the critical information required to evaluate the state across the campus, thereby helping to achieve high value results.
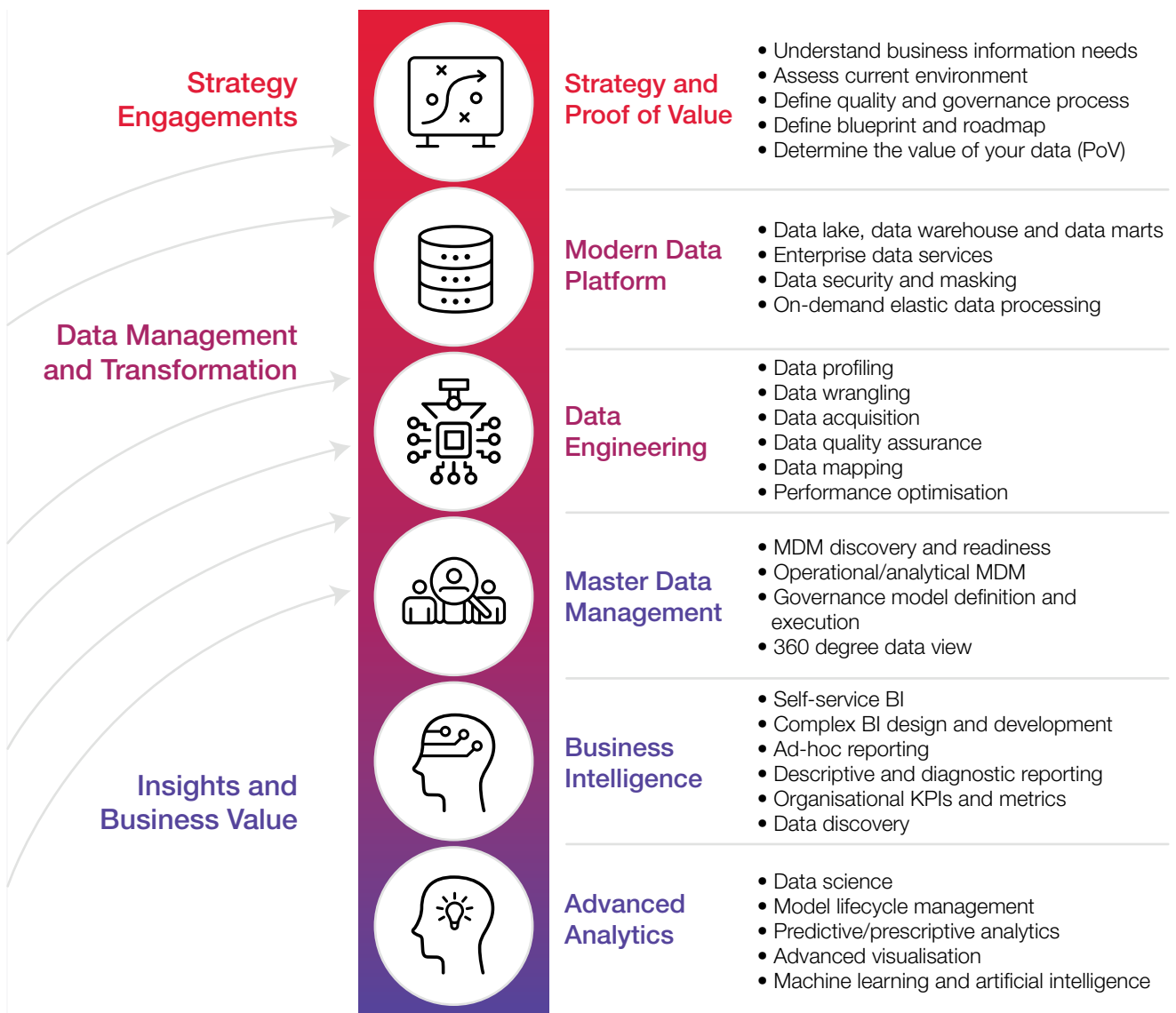
AI and analytics supporting always-evolving transformation

Make better decisions by moving from "what happened" to "what is best" with machine help:

Descriptive and diagnostic	Interactive	Predictive and prescriptive	Automated	Cognitive
Make information come to life visually to **increase insights**	Let data answer new questions with **self-service analytics**	Transform processes with **predictive and prescriptive analytics**	Accelerate analytics insights and business value with **deep learning and machine learning**	Leverage human-like computer capabilities for critical tasks, such as **decision-making** from images, words and sounds.

Analytics providing a full spectrum of digital insights services and solutions

Strategy Engagements

Strategy and Proof of Value

- Understand business information needs
- Assess current environment
- Define quality and governance process
- Define blueprint and roadmap
- Determine the value of your data (PoV)

Data Management and Transformation

Modern Data Platform

- Data lake, data warehouse and data marts
- Enterprise data services
- Data security and masking
- On-demand elastic data processing

Data Engineering

- Data profiling
- Data wrangling
- Data acquisition
- Data quality assurance
- Data mapping
- Performance optimisation

Master Data Management

- MDM discovery and readiness
- Operational/analytical MDM
- Governance model definition and execution
- 360 degree data view

Insights and Business Value

Business Intelligence

- Self-service BI
- Complex BI design and development
- Ad-hoc reporting
- Descriptive and diagnostic reporting
- Organisational KPIs and metrics
- Data discovery

Advanced Analytics

- Data science
- Model lifecycle management
- Predictive/prescriptive analytics
- Advanced visualisation
- Machine learning and artificial intelligence

Maximising the university asset base to drive new business opportunities

The Digital Led University can rethink its asset base without impacting its core purpose: delivering a world-class education to students.

- Delivering safe and fit for purpose locations to incubate more IP as SMEs are created from research.

- Turning accommodation and leisure facilities into managed income generation vehicles that offer secure locations for a wider funding base, then advertising, marketing and managing this income using the latest digital techniques.

- Repackaging and rethinking pedagogy expertise for a global audience, creating exciting learning environments for anyone, anywhere to engage with.

- Reaching a wider demographic beyond the typical audience of undergraduates and postgraduates, and becoming known for inclusion and accessibility.

Inspiring innovation across the locality

The university is the perfect "mini city", with an entire ecosystem that mirrors the wider location in which it is located. However, plans for "smart cities" are stalled, and it is essential that the implementation of smart technologies is accelerated in order to create more sustainable, efficient societies.

The Digital Led University is therefore the ideal location to highlight all of the irrevocable benefits that smart technologies bring, and will help to inspire scaled deliveries of transformations across cities.

- Developing the Digital Led Campus and sharing outcome data with local partners.

- Establishing the university within its locality as a place that adds value, innovation and specialisms, inspiring logical hubs of SME activity.

- Sharing assets that will excite citizens, such as EV innovations and smart lighting to make journeys safe.

- Developing the university "digital twin", using AR to trial virtual changes that help to inform and encourage transformation across society.

Security

An essential feature of the Digital Led University is ensuring that people, data and operations are secure.

Managing these security risks in an increasingly connected and open academic environment demands an insights-driven, integrated security approach that extends across the whole university. The Digital Led University includes security as the highest priority:

- Integrated risk management - Managing risks and linking near real-time source data to risk assessments, supported by custom visualisations for unique user needs.

- Cyber transformation service framework - Using a programmatic approach to provide a holistic view of security risks and maturity that enables you to balance, scale, prioritise and justify your security investments.

- Privacy and compliance assessment - Including privacy impact, privacy risk, health assessments and recommendations.

- Supply chain resilience and risk assessment - Assessing the confidentiality, integrity and availability of university suppliers and their services, recommending an approach for managing them.

- Cyber security crisis preparedness - Using our library of up-to-date crisis scenarios and crisis simulations to help you prepare for crises before they happen.

The security operations centre (SOC) is a key part of delivering stakeholder security and confidence across the Digital Led University, and must be embedded throughout the transformation roadmap in order to continuously consider risk as the university evolves.
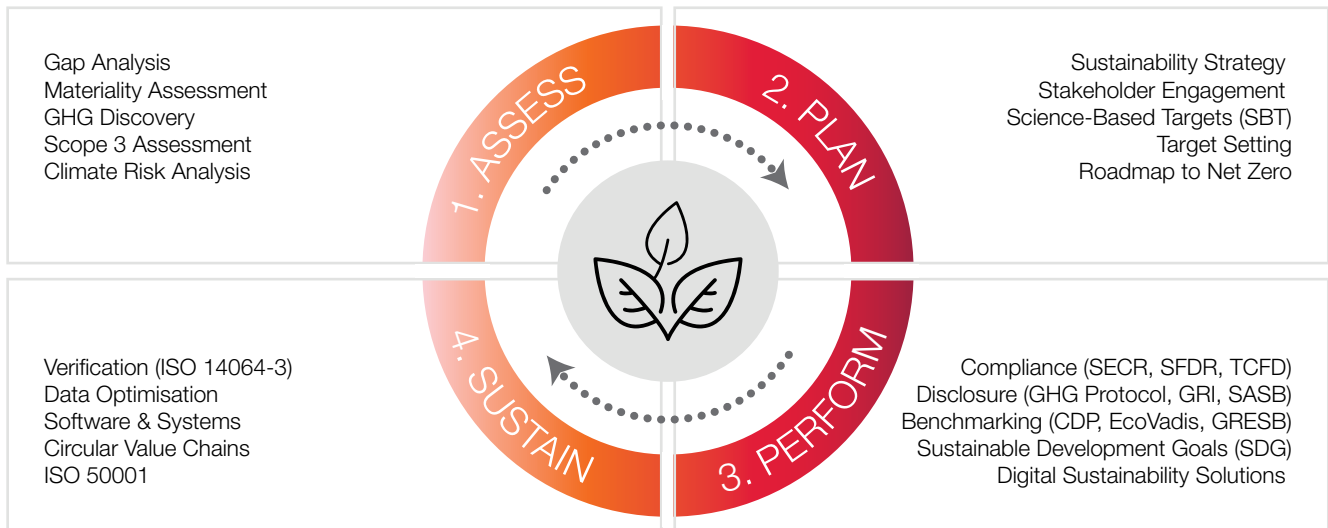
Sustainability

Drive to net zero

The higher education sector needs to lead when it comes to sustainability.

Beyond simply understanding that embracing sustainable operations is the right thing to do, a commitment to net zero increases competitiveness, stimulates innovation, enhances business value and reputation, and attracts and retains funders (whether students or research partners). Now more than ever it is therefore critical that universities begin to consider not only their sustainability ambitions, but the path which they need to take to realise them.

Whilst the challenge of climate change is not easy to negotiate, CGI's Sustainability and Climate Change Advisory experts are here to support clients on this journey to becoming leaders in this important area. We can help you to develop a robust and aligned sustainability strategy, and as your university begins to openly report on targets, plans and achievements, you will inspire society and become a university of choice for future leaders.

We will support your university using our four-step approach:

Gap Analysis
Materiality Assessment
GHG Discovery
Scope 3 Assessment
Climate Risk Analysis

1. ASSESS

2. PLAN

Sustainability Strategy
Stakeholder Engagement
Science-Based Targets (SBT)
Target Setting
Roadmap to Net Zero

Verification (ISO 14064-3)
Data Optimisation
Software & Systems
Circular Value Chains
ISO 50001

4. SUSTAIN

3. PERFORM

Compliance (SECR, SFDR, TCFD)
Disclosure (GHG Protocol, GRI, SASB)
Benchmarking (CDP, EcoVadis, GRESB)
Sustainable Development Goals (SDG)
Digital Sustainability Solutions

CGI UK's net zero programme targets and goals

To achieve our 1.50°C emission reduction science-based targets by reducing our absolute GHG emissions by 46% for our own operations (scope 1 and 2), and by 46% for business travel (scope 3) by FY26 (from an FY19 base year).

To neutralise our remaining residual emissions through investing in verified, carbon removal projects.

To achieve our scope 3 engagement target by the end of FY26, ensuring that 50% of our suppliers by spend (covering purchased goods and services, and capital goods) will have set science-based targets by the end of FY26.

To align with the latest climate science and put in place operational practices, policies, partnerships and actions that protect our environment.

CGI Advisory Services

For 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, two years ago 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.

It is here that our vision for the Digital Led University was developed. In our ever-evolving world, technology provides higher education institutions with unlimited opportunities to continuously adapt, and we understand that this digital transformation isn't simple! Our Digital Led University approach supports our clients with the right solutions that are aligned to their institution; the university experience is simplified, seamless and secure for the convenience of students, staff and investors, and your university benefits from an increased reputation, cost savings, sustainable operations and much more.

Our Digital Led University offering includes multiple PoVs to help inspire your higher education organisation's visions for the future. Each incorporates empowered ICT delivery throughout to deliver the successes you seek to achieve:

The Digital Led Campus	Emerging Technology	User Experience
The growth of the Digital Led University has revealed a multitude of opportunities for developing the inclusive, dynamic and safe Digital Led Campus. This campus is not just a place for inspiring learning; it is a complete transformation of university life that supports improved health, wellbeing, safety, convenience and sustainability.	From augmented reality that transforms learning, to geospatial technologies that assist research, the higher education sector is increasingly looking to innovative technologies as a means to dramatically address efficiencies and improve the university experience.	The "user" within the higher education sector is an extremely wide range of stakeholders, from students and alumni, to staff and investors, all with vastly differing needs. Your organisation needs to deliver a consistent, world-class service and experience to suit the wide-ranging expectations, requirements and touchpoints of all stakeholders as they navigate through their university experience lifecycle.

The Higher Education Digital Backbone	Sustainability	Cyber Security
The "digital backbone" is CGI Advisory Services' methodology for digital transformation, helping your university to evolve, compete and achieve its desired outcomes by implementing robust technologies and innovative solutions throughout all aspects of university life, systems and operations.	Our Sustainability and Climate Change Advisory combines CGI's in-depth knowledge and leading IT service offerings to provide robust sustainability solutions, helping universities turn the challenges associated with climate change into opportunities to create positive economic, social and environmental impact, and enabling sustainable competitive advantage.	The higher education sector faces a greater cyber threat than most other industries due to the very nature in which universities need to operate, nevertheless, CGI's proven range of cyber security services will meet all the potential needs of your university.

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 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

For more information enquiry.uk@cgi.com

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