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Disrupt: *Deliver*
Automation

People naturally look to innovate to reduce their workload or gain an edge over the competition, whether it be the invention of the water mills to grind grain, using steam power in manufacturing, or adopting hydraulic systems to make heavy lifting easier. These are all forms of the most basic type of automation: mechanisation.

The invention of electricity, and wireless connectivity has facilitated the introduction of automation, whereby more complex tasks can be completed without human intervention. The 'robots' that complete these tasks can manifest physically or as software, but typically rely on some form of artificial intelligence programmed in to their systems to enable them to carry out their functions.

Disruption in action
Automation affects employers and employees alike. For employers, adopting technologies to automate routine functions could reduce costs and improve output, for employees, it could save them from dull, dirty and dangerous parts of their jobs.

	Automation technologies	Description
Robots	Autonomous vehicles	Autonomous vehicles, also known as driverless cars or self-driving cars can navigate and sense the environment using sensors without any human input.
	Manual materials handling	Robots that can perform repetitive tasks and transport goods including people from one location to another.
Robotic Process Automation (RPA)	Robotic Process Automation	The use of programmed software (a 'robot') to mimic human inputs in many types of end-to-end data-processing activities. Robots can relieve humans of more repetitive, data-driven, rules-based tasks, thus freeing capacity for people to focus on their more challenging responsibilities. Moreover, robots' capacity for greater than 99 per cent error avoidance, and their ability to cope with seasonal demand fluctuations, makes them a highly cost-effective option for many organisations' operations.
Intelligent Automation	Natural Language Processing (NLP)	NLP enables computers to derive and understand meanings from human language or other natural language inputs such as document texts.
	Deep Learning	An advanced form of technology using artificial neural networks that learn to undertake specific tasks, generate insights and uncover patterns, from huge amounts of data (text, audio, video, images).

Embedding disruptive technology

The CIO may be the obvious senior exec with the responsibility for getting to grips with the detail of automation efforts within their business, although the benefits of its adoption will quickly reach well outside the traditional boundaries of the IT function. Therefore, it is important for all C-suite stakeholders to have a sound understanding of automation and related technologies. The opportunity to reduce costs, improve outputs, and – above all – remain competitive is one that will have a profound impact in various parts of the organisation.

Strategy

• How do I assess which processes, in which parts of my organisation, may be 'ripe' for automation?

• How can these systems be integrated with legacy systems?

• What is the return on investment for adopting these new technologies?

• What mixture of technologies is right for my business?

Operations

• What will be the HR implications of adopting intelligent systems? What new or different skills will the human workforce require to work alongside robots, what sort of work should the human workforce be doing?

• With increasing automation, what safeguards exist to protect the business from cyber attack or connectivity failure?

Customer engagement

• How does this technology impact the customer journey?

• Can automation give deeper insight to customer preferences, and enable more focused research and development projects?

• How can this technology help to increase market share?

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