Building the Cognitive Enterprise: Nine Action Areas

Core Concepts Australia and New Zealand

IBM **Institute for Business Value**

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This Core Concepts Australia and New Zealand document is abridged from the in-depth version, "Building the Cognitive Enterprise: Nine Action Areas, Deep Dive" that also contains full-length case studies.

Accelerating your digital transformation for the new normal

We are at a tipping point in history where the impact of technology is so significant it can completely transform the way business is done. The convergence of technologies such as artificial intelligence (AI), automation, Internet of Things (IoT), blockchain and 5G have the power to change business models, reinvent processes, and reimagine the way we all work. IBM calls this the emergence of the Cognitive Enterprise™.

Add the extraordinary pressures in Australia and New Zealand organisations are facing with current global uncertainties, and we find significant disruption in nearly every industry, with some companies barely surviving and others thriving.

Since the start of the COVID-19 pandemic, the rate of change has shifted into warp drive. Office towers emptied, with many people still working remotely. Supply chains were broken, and many businesses are still scrambling to piece them back together. Industries changed overnight, with some enjoying sudden booms and others resigned to months or even years of suppressed demand.

Accelerating change

While most organisations had already embarked on digital transformations, the pandemic has made the need for change much more urgent, with organisations turning to digital technologies to either help solve pressing issues or scale up for growth.

Before the pandemic, the organisations seeking major transformations were typically either those struggling or high performers ahead of the curve. Now, we are seeing the business performance bell curve turned upside down, with even greater discrepancy between the leaders and laggards.

This division is reflected in a recent IDC survey of IT decision makers. By 16 June, 35 per cent of Australian organisations and 29 per cent of New Zealand firms were in a "return to growth" phase in the COVID-19 response, the survey found. But one third of the organisations in both countries are still in a recessionary stage, where the focus was on building business resiliency and dealing with the uncertainty of how and when the economies will fully reopen.[1]

Accelerating your digital transformation for the new normal

Deciding how to change

To enable rapid transformation, some organisations are looking to dramatically reduce costs through automation or process optimisation, while others are transforming their supply chains or implementing new capabilities due to the effects of the pandemic.

For example, Telstra has implemented a supply chain 'control tower' using cognitive technology to decide how and where to distribute spare parts and other materials needed to build and maintain its network. This technology has helped Telstra navigate challenges caused by last summer's bushfires and COVID-19, such as distributing face masks and sanitising gel to its workforce.[2]

Removing roadblocks

The problem for many business leaders is that they are no closer to solving the transformation issues that they were faced with before the pandemic. They are challenged to engage their wider organisations and transform their enterprises in meaningful and sustainable ways.

The areas that most organisations are struggling with as they embark on the journey to become Cognitive Enterprises are (a) how to really get started at scale, (b) which execution and funding vehicles to use, and (c) how to orchestrate the complexity of the change.

IBM has been helping enterprises solve these issues through a next-generation business model designed to help accelerate organisations' journeys to becoming Cognitive Enterprises.

This entails wholesale business and technology change and the reimagining of the mission-critical components of the company.

Following through on this will require engaging all parts of our organisations in new coalitions of executive sponsors and teams working across departments. This journey calls for strategic partnerships and extended open ecosystems.

It demands new, more agile approaches for co-creation, co-execution and co-operation. We are on the cusp of the next period of true technology-enabled business transformation.

Revolutionising how wine drinkers find the perfect drop

Engaging customers with AI has become even more important through the COVID-19 disruption. An example can be seen in the Fine Wine Delivery Company based in New Zealand. The company is using IBM Watson to help people find the right wines that will suit their taste and occasion using natural language and enrichment. It understands, for example, Barossa is a geographical term, and it also understands Kiwi colloquialisms, so customers get more relevant results.

The system also thrives on complexity and categorisation – in effect the more complicated the information they input into the AI system – the closer it will get to recommending the best wine for that moment. In fact, the company has been able to ingest more than 20 years of tasting notes into the Watson system to get real insights and better serve their customers.[3]

AI-driven tools help make selecting wines more enjoyable and reliable, including a chatbot, "Smart Search" and a new AI-driven "Flavour Wheel" that enables customers to dynamically and intuitively choose the flavour profiles of their favourite grape variety online. As a result, whilst many retailers are struggling, Fine Wine Delivery has seen a 70 per cent increase in online purchases in an already significant online business.[4]

Driving change from the inside out

For much of the past decade, organisations have been striving for 'outside-in' digital transformations. They have been connecting themselves more deeply to customers and external stakeholders, using the power of the internet for pervasive connectivity and driving these digital capabilities deeper into their businesses.

Today, leading enterprises are building on these capabilities by driving 'inside-out' transformations (see Figure 1). They are unlocking the power of their data through new technologies that offer exponential gains, such as AI, blockchain, automation, IoT, 5G and edge computing.
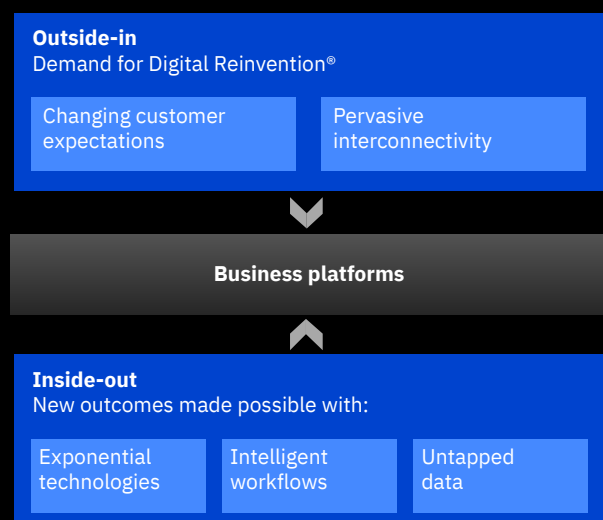
Leading enterprises are combining these two forces in a new wave of change and structuring themselves around reimagined business platforms.

These platforms are not just a place for proof of concept or outlier projects. They are core to the organisation, with many designed to redefine the business.

Figure 1:

The platform-centric business model

As organisations attempt to navigate the market, the next era of business reinvention emerges with platforms at its heart.

Outside-in
Demand for Digital Reinvention®

Changing customer expectations

Pervasive interconnectivity

Business platforms

Inside-out
New outcomes made possible with:

Exponential technologies

Intelligent workflows

Untapped data

Using intelligent security automation to reduce threats

Increased remote working and digital footprints have accelerated the importance of cybersecurity in today's business world. While the cost and risk of a cybersecurity breach are increasing year-on-year, there are measures companies can take to minimise the threat.

According to the Ponemon Institute 2020 Cost of a Data Breach Report, the average cost of a data breach in Australia was AU$3.35 million per breach, increasing by 9.8 per cent from 2019. Eighty per cent of these incidents resulted in the exposure of customers' personally identifiable information – and took an average of 211 days for businesses without security automation to identify and contain a breach.

Businesses that had fully deployed security automation technologies leveraging AI, analytics and automated orchestration to identify and respond to security events experienced less than half the data breach costs compared to those who did not have these tools deployed. They were also able to respond to breaches over 27 per cent faster than companies that have yet to deploy security automation.[5]

Accelerating your digital transformation for the new normal

Three key components

The journey to becoming a Cognitive Enterprise starts with data and the technologies that allow teams to extract its full value. Those insights are then used to create smarter workflows. But success depends on human interactions and capabilities – creating deep, trusted customer relationships and enriching employee skills.

The problem for many business leaders is knowing how and where to start, as they struggle to escape from the "cognitive chaos" of multiple experiments and proof of concepts from early innovation endeavours.

The Cognitive Enterprise demands a new kind of leadership, emboldened by deep technology insights, and new skills and culture to embrace this exponential potential. Perhaps the biggest challenge and opportunity will lie in the capacity to make the necessary changes in the pools of expertise, mindsets, and ways of working to bring this vision to life.

Having worked with many industry leaders, IBM has identified three key components that underpin this new business model:

1. **Market-making business platforms –** the clear North Star for the investment priorities and change initiatives required to shift to the future, these focused, critical and impactful platforms reinforce competitive positioning within an industry, shape a new role in an industry context, or open up cross-industry market opportunities.

2. **Intelligent workflows –** the extended end-to-end or front-to-back processes that, through the application of technology at scale, define the customer experience and economic outcomes at the heart of the new business platforms, and clearly differentiate the company or industry.

3. **Enterprise experience and humanity –** extending customer experience to the employees that serve the customer, the enterprise itself, and the entire ecosystem to provide a seamless environment of value and purpose using human-centred design.

The Cognitive Enterprise framework

Within the three components are action areas – nine in total – that we see as critical to creating a framework for success (see Figure 2).

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Figure 2:

Nine action areas for creating a framework for success

Action Area			
Market-making Business Platforms	Double Down on "Big Bets"	Create a New Business Blueprint	Orchestrate Compelling Change
Action Area			
Intelligent Workflows	Embed Exponential Technologies	Drive Value from Data	Deploy Through Hybrid Multicloud
Action Area			
Enterprise Experience and Humanity	Elevate Human-Technology Partnerships	Cultivate Smart Leadership, Skills, and Culture	Perform with Purposeful Agility

Action Areas to build Market-making Business Platforms

1. Market-making business platforms

These platforms are vital for leveraging data to reinvent competitive positioning and create new market opportunities. To establish market-making business platforms, organisations need to instil new rigour and focus to move beyond experimentation and balance stability with agility.

A Cognitive Enterprise typically has a primary platform that is built around the organisation's core strategy, acts as connective tissue with ecosystem networks and technologies, and gets smarter over time through AI. It also uses supporting platforms for tasks such as back-office processes and applications that interact with third parties.

Many of these platforms are designed to leverage internal data. After all, an estimated 80 per cent of the world's data remains proprietary. Others, however, straddle organisations and industry boundaries.[6]

To build market-making business platforms like this, organisations need to:

— **Double down on "big bets"** – choosing a platform likely to deliver results and aligning their organisation, assets, resources and investments to rapidly scale and then evolve the platform.

— **Create a new business blueprint** – embedding governance in a more open and transparent way to inform decisions made at the edge of the business, and reconfiguring organisational components to create a new target operating model.

— **Orchestrate compelling change** – establishing 'control towers' to monitor early warning indicators, orchestrate change in real time, and develop iterative and proactive change management.

As every company becomes a platform and technology company, the relationship between technology competence and business strategy changes, reinforcing the need for the talent and capability agenda to be reimagined. This means that a whole ecosystem of partners and joint venture collaboration is required.

Lygon

From paper to blockchain

Backed by a consortium including ANZ Bank, Commonwealth Bank of Australia, IBM, Scentre Group and Westpac, Lygon is a new digital platform that uses blockchain technology to transform how businesses obtain and manage bank guarantees. Digitising this process reduces the risk of fraud, decreases the potential for errors and significantly reduces the time it takes to issue a bank guarantee.

Results

90 to 95% faster turnaround time for bank guarantees

The platform features a digital workflow, standardised terms and the security to resist fraud. And the speed is exceptional – in the Lygon pilot using real customer data, what used to take up to a month took less than a day to process.[7]

Action Areas to create Intelligent Workflows

2. Intelligent workflows

The new business platforms are built on new and dynamic workflows that connect front- and back-office processes end to end. These intelligent workflows are transformed by exponential technologies – including AI, blockchain and IoT – that use multiple data sources to generate insights that can help improve processes and allow employees to make better and more timely decisions (see Figure 3).
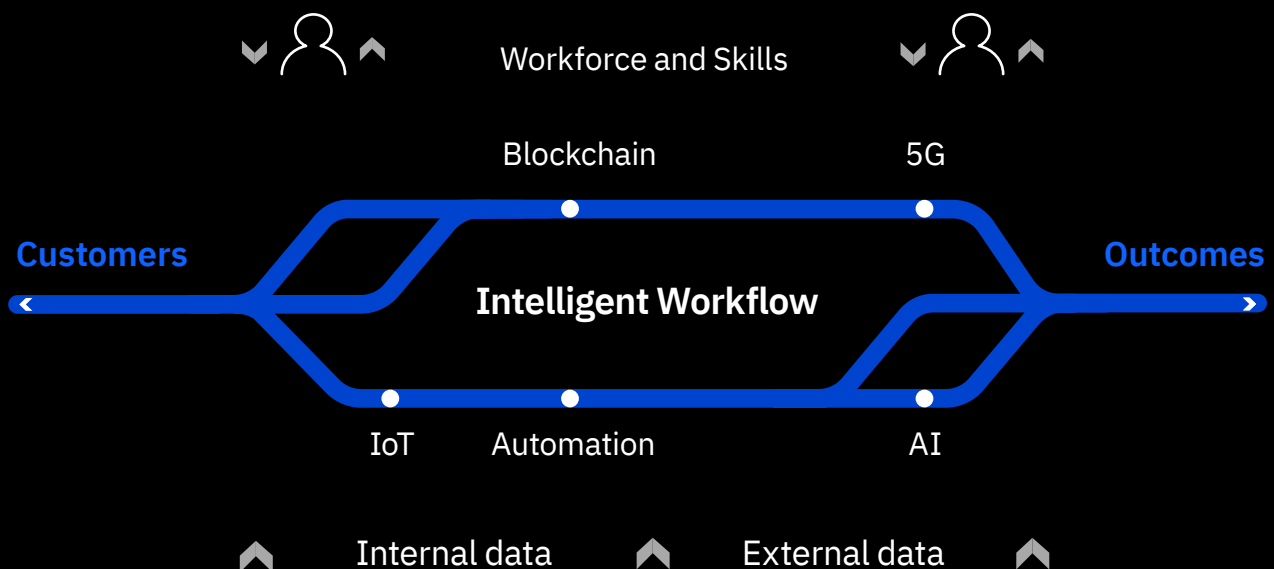
Next-generation enterprise applications, such as SAP S/4HANA, Salesforce, and others will be enhanced by intelligent workflow thinking, which adds colour, differentiation, and higher value to the core process functionality of these software solutions.

To create intelligent workflows, organisations need to:

— **Embed exponential technologies to change ways of working** – building highly dynamic workflows with multi-functional teams that can work in parallel, iteratively and with autonomy to unleash exceptional productivity and innovation (see Figure 3).

— **Drive value from data** – using the most valuable information and establishing robust governance to build trust in data and AI models and move decisions to the organisation's frontlines.

— **Deploy platforms through hybrid multicloud** – using the most valuable information and establishing robust governance to build trust in data and AI models and move decisions to the organisation's frontlines.

Figure 3:

Exponential technologies embed intelligence into workflows

Workforce and Skills

Blockchain   5G

Customers   Intelligent Workflow   Outcomes

IoT   Automation   AI

Internal data   External data

From the start of the pandemic, IBM offered Watson Assistant for Citizens for no charge for at least 90 days and assisted with the initial set up, which could typically be done in a few days.

La Trobe University, a public research institution based in Melbourne, Australia, needed a way to communicate critical information about the university's pandemic resources to its students – so looked quickly to take advantage of the offer and engaged the IBM Garage to help it develop a virtual advisor based on Watson Assistant to supplement its existing COVID-19 resource site, ensuring information was synthesised and available to its students really quickly. La Trobe also lays claim to being the first organisation in the southern hemisphere to migrate to a SaaS student information service and enjoys partnering with innovative organisations.

Working together with IBM Garage, the organisation established remote teams, and within two weeks had created a minimum viable product (MVP). Using IBM Watson Assistant, La Trobe expanded on a previously delivered IBM Garage project, the Bachelor of Arts Explorer,[8] which is a discipline evaluation site that uses Watson AI services and IBM Cloud to deliver predictive responses that map student queries about majors to potential careers.

Needing to give Academic researchers better tools, La Trobe is breaking from traditional legacy systems through the articulation of a research centric user experience with their Project for Research Information Management enablement, PRIME. La Trobe University deployed a first of its kind Salesforce solution to streamline its entire grant and research management practice, inclusive of, grant opportunities, research activity and progression, through to measurement of impact and success of their research outcomes.[9]

Action Areas to create Intelligent Workflows

Intelligent hybrid multicloud solutions

Cognitive Enterprises, with their business platforms and intelligent workflows, will be fundamentally enabled by hybrid multicloud applications and infrastructure. At heart, these new business models are what the cloud is for.
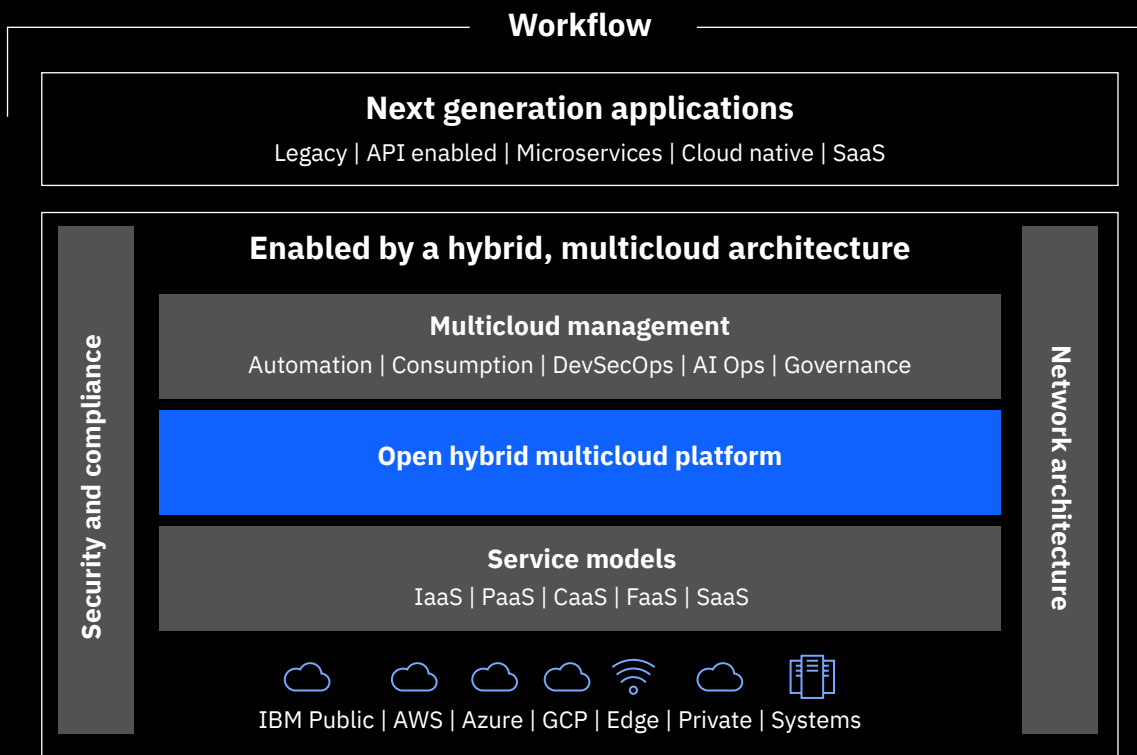
Hybrid cloud architectures straddle the worlds of on-premise systems, private clouds, and public clouds. Many organisations already have multiple environments in play as individual components of their legacy are renewed (see Figure 4). To date, this has often happened in a relatively piecemeal and limited way. The enablement of intelligent workflows at scale is the primary driver to a more wholesale architectural change.

We are also seeing the emergence of industry clouds. IBM recently launched the IBM Cloud for Financial Services, a significant milestone in IBM's collaboration with Bank of America. With the availability of the IBM Cloud Policy Framework for Financial Services, this establishes a new generation of cloud for enterprises with common operational criteria and streamlined compliance controls framework specifically for the financial services industry, allowing IBM's growing financial services ecosystem to transact with confidence.[10]

"We have had great success with our proprietary, private cloud, that currently houses the majority of our technology workloads," said David Reilly, Bank of America's Global Banking & Markets, Enterprise Risk & Finance Technology and Core Technology Infrastructure executive. "At the same time, we have been looking to identify a financial services-ready solution that offers the same level of security and economics as our private cloud with enhanced scalability. That's why we're partnering with IBM to create an industry-first, third party cloud that puts data resiliency, privacy and customer information safety needs at the forefront of decision making."

Figure 4:

Dynamic orchestration with hybrid multicloud drives flexibility and speed

Workflow

Next generation applications

Legacy | API enabled | Microservices | Cloud native | SaaS

Enabled by a hybrid, multicloud architecture

Security and compliance

Multicloud management

Automation | Consumption | DevSecOps | AI Ops | Governance

Open hybrid multicloud platform

Service models

IaaS | PaaS | CaaS | FaaS | SaaS

Network architecture

IBM Public | AWS | Azure | GCP | Edge | Private | Systems

Action Areas to advance Enterprise Experience and Humanity

3. Enterprise experience and humanity

Ultimately, the success of these next-generation applications – and the platforms themselves – hinges on their human interface.

Organisations need to create a new enterprise experience for employees, customers and other stakeholders. Doing this requires seamlessly applying AI and other new technologies for the people who use and benefit from them, while also cultivating an agile culture.

To create an enterprise experience such as this, organisations should:

— **Elevate human–technology partnerships** – embedding the enterprise experience everywhere; reshaping the customer, employee and ecosystem partner experience; and establishing a human-centred design.

— **Cultivate smart leadership, skills and culture** – developing leaders who have a combination of business and technology acumen, who can redeploy skills to support intelligent workflows, and who can create a culture that fosters continuous learning.

— **Perform with purposeful agility** – enabling the organisation to move quickly to reinvent its core and optimise value and time to market, while avoiding "agile chaos."

As more companies become technology companies and exponential technologies scale to open up more strategic opportunities – as well as threats – business leaders will need to move beyond being merely tech-savvy. Leaders need to understand the range of technologies involved in the transformation, along with their likely future potential and development path. This involves deeper awareness of an extended ecosystem of fast-evolving concepts and solutions, and the ability to apply that knowledge both offensively to seize opportunity and defensively to manage disruption.

Enhancing human performance

The Cognitive Enterprise, with its smart business platforms and intelligent workflows, is massively technology-enabled. But for all the value created by technology, it is apparent that the most successful organisations will be the ones that are able to fuse the power of technology with an enhanced human performance and enterprise experience.

Automation will take over repetitive tasks. AI will undertake instant analysis. IoT and 5G will allow organisations to gather information remotely. Blockchain will alleviate administrative burdens and the need to manually check processes.

All of this will change the roles and activities in organisations. New platforms and workflows will surface new spaces for insight, create new areas for humans to add value, and continue to require empathy, relationships, and other soft skills to differentiate them.

How people align behind the technology potential of the new models and approaches will be as important as, if not more important than, the technology's robustness.

Experience in the Cognitive Enterprise will be delivered by humans and technology in partnership. As humans adopt better tools, they will "up their game;" as the technology becomes even more intuitive, they will increase their adoption of it. New technology solutions and their application to platforms and workflows will set a higher and higher bar for professionals who work with them, driving upskilling and reskilling. In turn, people will demand ever better design and functionality from their tools.

Design thinking, experiential learning, cocreational models that incorporate agile feedback loops, and continuous learning and improvement will all need to become embedded in the Cognitive Enterprise. These will drive the ongoing evolution of business platforms and intelligent workflows. Human-centred design approaches—that engage wide bodies of stakeholders to understand and evolve needs and expectations—will become the default for such transformations.

An organisation's purpose and intent will also be important drivers of the human-technology partnership in the Cognitive Enterprise. The ethical application of technology to do good and the transparency of an organisation's positive impact on a wide range of stakeholders are becoming more and more important. Issues such as sustainability, inclusion, and trust demand attention.

New way of building:
IBM Garage

IBM has created a new approach to digital transformation called IBM Garage. The Garage is designed to help organisations move at the speed of a startup and become Cognitive Enterprises.

In the Garage, IBM experts help your organisations develop new business platforms, operating models and architectures at greater pace and lower risk – and benefit from continuous learning.

Start-up speed. Enterprise scale.

The Garage has a durable position in the full lifecycle of business change from Co-creation, through Co-execution and into Co-operation.

— **Co-create to envision the future** – Uncover a new business opportunity or drive critical new insights into an existing situation. Ideate with an organisation's entire ecosystem, or with relevant smaller squads, to co-create a visionary, compelling, and energising solution that fits within clear architectural guide-bars.

— **Co-execute to build out and scale up** – Expand and create additional squads to build out the team that will realise the future vision. Develop the MVP prototype into a first production-ready release and launch the solution into full production. At the same time, be ready to improve your solution based on what we learn from users and scale up rapidly with robust architectures.

— **Co-operate to iterate and continuously improve** – Keep sharpening and hardening your tools, architecture, and reliability, while monitoring and testing for continuous improvement. This leads to continuous delivery that is crucial to deeply transform your culture. Much of the work can be done with distributed squads throughout the enterprise.

The Garage provides the perfect vehicle for the building of the Cognitive Enterprise. It can help to define and build the market-making business platforms, reinvent and re-engineer the intelligent workflows, and create the enterprise experience where the humanity of the company is able to fully take advantage of the power of the exponential technologies at its heart.

Frito-Lay

Delivering snackable innovation

Frito-Lay must get the right product to the right place at the right time. With 25,000 frontline employees, 300,000 customers, and 2,500 SKUs, it needed to manage its complex value chain including logistics, distribution, and sales challenges.

IBM and Frito-Lay employees completed hundreds of hours of user research, interviews and field visits. By co-creating the backlog with value as the key factor, executives were able to make decisions more quickly.

The teams built and delivered proofs-of-concept focused on select verticals into pilot markets and now Frito-Lay has more than eight garage tracks and is focused on scaling its solutions to its frontline employees.

Results

Frito-Lay reduced the average duration of a request-in-market from 240 weeks to less than 30 days

New features can now be pushed weekly

Customer-facing workflows are increasing and driving adoption[11]

Creating the trust advantage

A key attribute of the Cognitive Enterprise is creating a culture of data trust. The IBM C-suite Study for Australia and New Zealand has highlighted that organisations that have truly learned to trust their data drive better business outcomes. Clearly, when important processes, decisions, and customer and stakeholder interactions rely on automation and algorithms, the requirement for trust is heightened. In Australia and New Zealand, 92 per cent of leading organisations — those that excel at extracting value from data — have a singular focus on how they use and safeguard data to strengthen customer trust.[12]

Global C-suite Study
20th Edition
Insights from Australia/New Zealand

IBM Institute for
Business Value

Build Your
Trust Advantage

Leadership in the era of
data and AI everywhere

IBM

The IBM C-suite Study draws on input from 13,484 respondents – including 430 in Australia and New Zealand – across six C-suite roles, 20 industries and 98 countries.

69	67	90	80	64	60
Chief Executive Officers	Chief Financial Officers	Chief Human Resources Officers	Chief Information Officers	Chief Marketing Officers	Chief Operations Officers

3,363 Europe

3,755 North America

1,910 Greater China

858 Japan

915 Middle East and Africa

1,750 Asia Pacific

933 Latin America

430 Australia and New Zealand
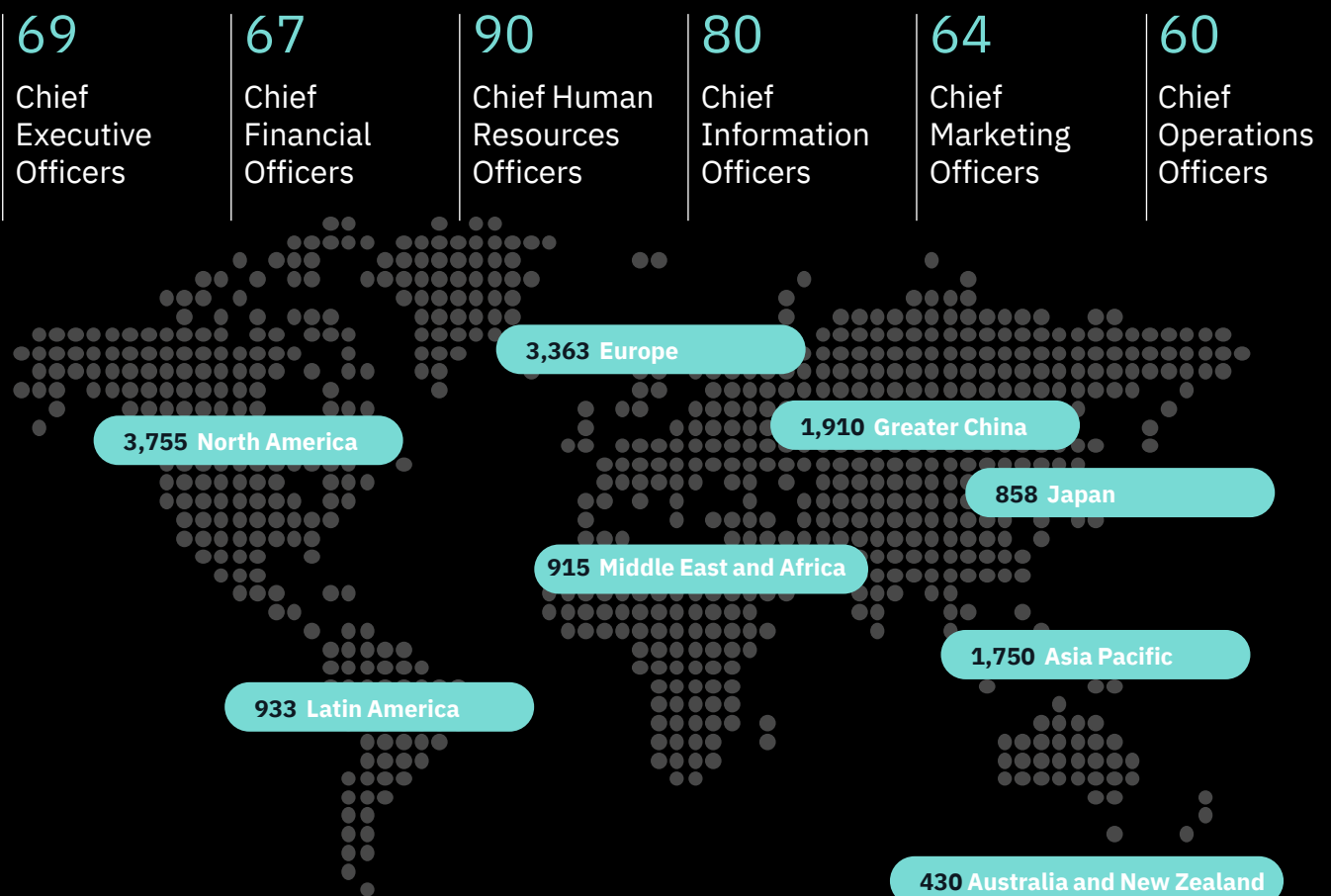
Notes and sources

1   IDC. "COVID-19 Impact on Australia and New Zealand ICT Spending Intent and Prioritisation." May 2020. https://www.idc.com/getdoc.jsp?containerId=AP45227220

2   iTnews. "Telstra turns to IBM to help reshape its network supply chain." May 2020. https://www.itnews.com.au/news/telstra-turns-to-ibm-to-help-reshape-its-network-supply-chain-547954

3   Newshub. "The family-run Kiwi business revolutionising how wine drinkers find the perfect drop." July 2020. https://www.newshub.co.nz/home/lifestyle/2020/07/the-family-run-kiwi-business-revolutionising-how-wine-drinkers-find-the-perfect-drop.html

4   Techweek 2020. "Working smarter – how AI is changing the way we work." August 2020. https://play.stuff.co.nz/details/_6176841541001

5   Ponemon Institute and IBM. "2020 Cost of a Data Breach Report." August 2020. https://www.ibm.com/security/digital-assets/cost-data-breach-report/#/

6   Rometty, Ginni. "We need a new era of data responsibility." World Economic Forum. January 2018. https://www.weforum.org/agenda/2018/01/new-era-data-responsibility

7   IBM. "The Shift: How Lygon took bank guarantees from paper to blockchain." September 2020. https://youtu.be/IPnWUMXXW2Q

8   iTnews. "La Trobe Uni builds AI "Explorer" to help Arts students visualise a career." May 2020. https://www.itnews.com.au/news/la-trobe-uni-builds-ai-explorer-to-help-arts-students-visualise-a-career-547781

9   CRN. "IBM releases free AI to support COVID-19 queries, Australia's La Trobe University signs up." April 2020. https://www.crn.com.au/news/ibm-releases-free-ai-to-support-covid-19-queries-australias-la-trobe-university-signs-up-546001

10 IBM. "IBM and Bank of America Advance IBM Cloud for Financial Services." July 2020. https://newsroom.ibm.com/2020-07-22-IBM-and-Bank-of-America-Advance-IBM-Cloud-for-Financial-Services-BNP-Paribas-Joins-as-Anchor-Client-in-Europe

11 Based on IBM client engagements.

12 IBM Institute for Business Value. "Build Your Trust Advantage: Insights from Australia/New Zealand." July 2020. https://www.ibm.com/downloads/cas/MVD3WDNZ

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For more information

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