Microsoft

BUILDING A DATA-DRIVEN ORGANISATION

How analytics can give

you a competitive edge

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01
THE RISE (AND RISE) OF DATA

Flexible working and remote-working options have long been enabled by the cloud. Network infrastructures, platforms and software are delivered as subscription services, available at scale and on demand. We're all used to connecting to smart objects through the Internet of Things (IoT), enjoying personalised services and routinely accessing immersive experiences, from anywhere.

We now have more tools than ever to transform information into actionable insight, even pre-emptively and in real time.

With the arrival of the pandemic, our digital patterns accelerated. Agility and resilience became new organisational watchwords. Schools started running curricula via online education platforms. Healthcare professionals started using Microsoft Teams to stay in touch securely.[1] Parliamentary proceedings became largely virtual. Consumers flocked to e-commerce sites to buy goods and services, driving new consumer categories, such as telemedicines.[2]

Data is the fuel of our digital era, and our increasing use of these digital platforms implies the exponential generation of data. In fact, by 2025 the estimated volume of the global datasphere will total 175 zettabytes, or 175 trillion gigabytes.[3] Our collective data spans the cloud, on-premises applications and the so-called 'intelligent edge' of devices.

At the same time, advances in data and analytics technologies are enabling organisations to draw new value from this data. We now have more tools than ever to transform information into actionable insight, even pre-emptively and in real time.

This offers organisations the opportunity to elaborate a data strategy and fundamentally rethink the way they operate and deliver services.

The estimated volume of the global datasphere will total

175
ZETTABYTES

By 2021

The Digitization of the World From Edge to Core, IDC, 2018

Benefits of a strong data and analytics strategy

A data-driven digital strategy can help organisations create entirely new business models, improve the customer experience and drive revenue growth. Its impact on the bottom line was demonstrated in a 2016 study[4] by economics and strategy consulting firm, Keystone.

Looking at data leadership in over 100 Fortune 1000 companies, the study found that those with mature data and analytics strategies outperformed their peers by a wide margin:

- **Nearly double their operating margin**
- **$40k more revenue per employee**
- **Over 50 percent higher average net income on revenue**
- **The most digitally transformed enterprises generated on average $100 million in additional operating income each year**

"91%
of global executives said effective data and analytics strategies are essential for business transformation. "

Pulse Survey, Harvard Business Review, 2019

Executives also seem aware that a data and analytics strategy goes hand in hand with business success. In a 2019 Harvard Business Review survey[5], 91 percent of global executives said effective data and analytics strategies are essential for business transformation. Fifty-one percent ranked self-service analytics for business users at the top of their investment priorities.

To make the most of these benefits, organisations can create a solid foundation for modern data and analytics. This means ensuring security, privacy and compliance through proper data governance and architecture. As an organisation nurtures this foundation, it will build trust among employees and customers alike, setting the scene for driving data value and performance.

With a data strategy and an inclusive, data-driven culture in place, an organisation can also start exploring the opportunities offered by AI. This technology is a game-changer and, according to IDC surveys, 67 percent of organisations globally have already adopted or plan to adopt it.[6]

For example, when unprecedented demand was placed on call centres during the March 2020 lockdown, some organisations were able to respond with agility.[7] By integrating AI into the front-end of their call flow, they could offload enquiries to natural-language bots, while still answering the calls and re-routing them where necessary.

As we collectively look to the future to see where growth, innovation and new opportunities may lie, significant value in data and analytics remains waiting to be unlocked.

So this e-book will look at our new world of work to explore how your organisation can get more value from its data. We'll start by recognising common pain-points and challenges before tackling four key questions:

1 **How can you build a solid foundation for modern data and analytics?**

2 **What's the most effective way to improve your decision intelligence?**

3 **How can your organisation use data to drive performance and innovation?**

4 **What does a data-driven culture look like, and how can you build one?**

We'll then show how pioneering organisations have already gained a critical edge by developing a data practice and, finally, we'll look at a future-facing, industry-led open-data platform.

CHALLENGES AND OPPORTUNITIES

In our unsettled times, we recognise the multiple challenges organisations are facing. It's no surprise that many leaders are more preoccupied with business or service development than building a data culture.

To create a culture in which data is securely and productively shared usually means transforming an organisation's existing operating model and use of data. So it's no surprise 55 percent of organisations name data silos and data-management difficulties as the biggest obstacles to data and analytics strategies.[9]

A key underlying issue is not about data itself, but about people and change management. In a world where data and analytics is poorly understood, promoting change to unlock the value of data requires not just a strategy and new tech, but a programme of communication, training and support.

This means that the role of a Chief Data Officer (CDO) may be changing fast. Overseeing data privacy, cybersecurity, data quality, governance and processes are traditional CDO responsibilities. So is choosing the right tech for the job. But it's no longer all about data governance and tech solutions.

Today's CDOs may well have responsibility for data-driven business transformation and ensuring data is used correctly to help meet strategic business or service objectives.

Moreover, as advanced analytics, AI and machine learning (ML) flourish, using data responsibly means being accountable, transparent, inclusive and secure.

Unlocking innovation to drive new revenue and gain a competitive edge is also now a task for data chiefs. Retailers, for example, that are working to understand new customer behaviours in the wake of COVID-19 will be turning to their CDOs for inspiration.

We recognise that you'll also be busy with tech-focused issues. A common problem is "shadow IT" – workaround systems used outside the IT department and without its knowledge. How can you control these improvised solutions without hindering innovation? Is it possible to let teams build new apps to solve problems while ensuring IT security protocols are followed?

Finally, in a world of remote working, you may also have to find the time and resources to secure endpoint data and deploy and manage devices securely.

Taking stock of disparate data

Before starting to explore governance, policies and controls, it helps to consider the basics: your data estate. What volume and variety of data do you have? How discoverable is it and how quickly do you need to access it? Do you have the right architecture in place, and is it cloud-ready?

A modern, cloud-based data foundation not only provides security and flexibility but also, due to its inherent scalability, future-proofs your growing practice.

Most importantly, it means you can break free of legacy databases (which tend to exist in silos) and integrate solutions to simplify management and achieve a more holistic view of your data.

You can also adopt a modern data-warehouse approach, which enables you to store unlimited data in a range of structured, semi-structured and unstructured formats.

Finally, by using cloud-based microservices, you can develop modern apps that call up purpose-built databases, which will empower you to innovate faster.

Building and managing effective data-governance structures is an important aspect of **creating a solid foundation for modern data and analytics** (section 3.0).

It's an ongoing task that ensures your strategy, process, activities, skills and technologies are fully aligned and delivering results that help achieve your strategic goals.

Managing the data overload

New, omnichannel customer services. Billions of new Internet of Things (IoT) devices each year. Bring-your-own-device (BYOD) policies at work. Evolving laws and data regulations, including the EU General Data Protection Regulation and Data Protection Act 2018.

Data is becoming ever more complex and voluminous, and this presents a challenge for organisations in today's accelerating markets. They need to rapidly process and interpret unprecedented volumes of data, and react equally fast to maintain their competitive edge.

A cloud infrastructure can help enable this while also allowing your organisation to automatically apply data security and compliance protocols. This less-is-more approach can also apply at the individual user level, where complex and dynamic data relationships can be presented in simple, at-a-glance visualisations.

Moreover, when combining cloud security with the power of AI, you can interrogate vast volumes of unstructured data, driving value from it with real-time insights that can empower your front-line workers to better serve customers. Read more about how you can **improve decision intelligence** in section 4.

> ❝
> **Tech intensity is a disruptive, forward-propelling force that doesn't stand still.**
> ❞
>
> Satya Nadella, CEO, Microsoft

Embracing the disruptive power of data

Many companies are still coming to terms with cloud adoption and its positive, if radical, impact on their business models. But as Microsoft CEO Satya Nadella explained in 2018, "tech intensity" is a disruptive, forward-propelling force that doesn't stand still.

The logic of digital transformation tends to do away with data silos, instead freeing up information to enable new innovations. That's why AI and ML are already opening up a new world of insights, smart services and automated workflows.

Organisations that embrace continuous change as a business opportunity can build rapid growth through these technologies. They can pool expertise, for example, and form technology partnerships based on shared and open data platforms to deliver previously unimagined results.

By sharing data responsibly and securely across organisational boundaries, its value can be unlocked for everyone's benefit.

In fact, that's the goal of our Open Data Campaign – to make data more usable, bridge the global "data divide" and allow more organisations, businesses and governments to realise the full value of data.

We believe it can play a leading role in tackling our biggest global challenges, from COVID-19 to climate change.

At the organisational level, whether you want to empower your employees, engage with customers, fine-tune your business or transform your services, data and analytics can help you **disrupt your business model to improve performance and innovate** (section 5.0).

Spreading the word

Some organisations lack experience with data and analytics, with key teams seeing the discipline as esoteric or niche. Others have started unlocking the power of data but perceive an invisible boundary, steering clear of automation, AI and ML.

To nurture a data culture in which everyone can benefit, self-paced skills training, in-house talks and old-fashioned encouragement can go a long way. For more uninitiated teams, you might invite them to solve a problem by analysing data they have available, and ask how else they could apply their findings, or agree a related challenge they could tackle.

Data scientists can help by showing colleagues how their solutions enable teams (or clients) to reach goals. It's worth following up regularly with new learning opportunities of all shapes and sizes.

The aim is to extend the power of data and analytics beyond an exclusive group of experts and make it a discipline for all.

At Microsoft, we're on our own journey to embracing a data-driven mindset. We recognise that it can be hard for employees to work with new platforms or processes, especially when they're happy with their existing set-up. To encourage digital adoption, we find one effective approach is to use communications campaigns and games. After an initial period, we also find it helpful to measure and review active usage – in other words, we check our data.[10]

In a spirit of partnership, we'd like to share our learnings and support your organisation to **spread data and analytics skills widely** (section 6.0).

03

CREATE A FOUNDATION FOR MODERN DATA AND ANALYTICS

This section looks at data governance, architecture and strategy, how you can manage the growing scale of data and the benefits of a "serverless" infrastructure model.

Data governance

Data governance is the foundation that enables organisations to manage their data as a strategic asset. In other words, solid governance will provide a springboard for business opportunities.

Proper governance gives you the chance to responsibly widen employee access to data. You can drive insights and intelligent decision-making across all disciplines, while ensuring protocols are in place to oversee data content, structure, usage and safety.

Sound governance comes with certain pre-conditions. You need to know what data exists, whether it's good quality and usable, who's accessing it, who's using it and what for, and whether usage is secure and compliant.

Inevitably, these requirements become more challenging as the volume, velocity and variety of data grows. At every step, security needs to be assured.

As we've mentioned, a common governance challenge is posed by shadow IT, systems deployed outside the IT department as workarounds for problems. Unfortunately, these solutions can threaten both data and network security.

To protect data integrity and privacy while supporting business agility, you can use Microsoft Power Platform. All of Power Platform's low-code/no-code apps are governed and authenticated through Azure Active Directory, so you can secure your data, retain visibility and stay in control.

> **Data governance is the foundation that enables organisations to manage their data as a strategic asset.**

Data architecture and strategy

Business requirements will shape your unique data architecture – that is, the set of rules, policies, standards and models that determine what data gets collected and how it's stored, used, processed, distributed and so on.

Typical business architecture elements include infrastructure, networks, data centres, hosting, cloud storage and apps.

At Microsoft, we take account of five key architectural principles when thinking about any Azure-based product or service. We call these our Azure Well Architected Framework:

Security

Security provides confidentiality, integrity and availability assurances against deliberate attacks and abuse of your data and systems. Losing this trust can negatively impact your business operations and revenue, as well as your organisation's reputation.

Cost optimisation

An effective architecture helps achieve business goals and ROI requirements while keeping costs within budget.

Operational excellence

To ensure your applications run effectively over time, think about both application and infrastructure perspectives. Your strategy must include the processes that you implement, so that your users are getting the right experience.

Performance efficiency

Prioritise scalability as you design and implement phases. This leads to lower maintenance costs, better user experience and higher agility.

Reliability

In a cloud environment, you scale out rather than buying higher-end hardware to scale up. Preventing all failure is desirable, but focus on minimising the effects of a single failing component.

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While these Azure principles are a handy architectural checklist, enterprise data can, of course, be stored in multiple systems, and not only in the cloud.

For example, you may have structured business data stored in enterprise resource planning (ERP) or customer relationship management (CRM) systems, such as Dynamics 365 Finance or Sales or Customer Service.

Data strategy

Just as with data architecture, data strategies are as varied as organisations themselves, since each reflects its organisation's unique business goals.

A robust strategy sets out how your organisation will generate a return on investment from data-driven initiatives, how data will support new products or services, and how data regulations and secure practices will be observed.

It will also include considerations of ethics and responsibility, and technology can support you in this. For example, if your solutions run on the Azure cloud, you can deploy fully governed environments throughout your organisation by using Azure Blueprints.

This solution enables you to apply and audit your policies for any Azure service, ensuring that your data stays compliant with internal and external regulations (including ISO-27001).

Too much information: managing scale

As we've outlined, our era of digital transformation is driving an exponential growth in global data generation, consumption and storage. A major challenge for organisations is to manage this avalanche of (largely unstructured) data in a way that allows them to take advantage of it.

This means deploying scalable resources to maintain visibility and control of the data, as well as easy and secure access to it.

One management approach is to adopt a "hybrid cloud" strategy – that is, an environment that combines on-premises infrastructure, private cloud services and a public cloud. Orchestration among the various platforms is then needed so that automated workflows and processes can be co-ordinated.

In a scenario like this, Azure can support your on-premises infrastructure as needed, providing a single view across your hybrid cloud for the control and configuration of automated functions.

Equally, our customers are increasingly migrating their existing on-premise Dynamics systems to Dynamics 365 in the cloud, which unlocks the ability for the Microsoft analytics services to delve into its structured data.

You may already be running a hybrid cloud with on-premises infrastructure that includes a legacy data-warehouse platform. If growing data, workload and user requirements are over-taxing it and compromising performance, the Analytics Platform System is designed to scale with your needs. This data-warehousing solution uses massively parallel processing to store and analyse any volume of data.

Today's data is extensive in breadth, as well as depth. Organisations typically ingest and store information of diverse sources and types, including data from multiple vendor solutions and legacy systems. Azure Data Lake lets you securely draw on and store data from all these sources – structured, semi-structured or unstructured.

Azure can provide a single view across your hybrid cloud for the control and configuration of automated functions.

Look, no server

In a "serverless" model, a cloud provider runs the server and provides computational resources. You can then choose to hire serverless runtimes – "function as a service" (FaaS) – or databases.

If your infrastructure management is not cost-efficient or core to your business model, this kind of pay-as-you-go computing can be effective. Benefits include IT savings on OS licensing and maintenance costs, "elastic" on-demand resources and simplified software development.

For example, your developers can build apps faster, while your IT team doesn't have to worry about infrastructure management.

With Azure serverless, developers can quickly and securely build, deploy and operate serverless apps on a fully managed, end-to-end platform. And by using Azure SQL Database serverless, you can simplify performance management and drive cost-savings for relational databases.

You'll only pay for computing resources used per second, in line with your workload demands.

IMPROVE DECISION INTELLIGENCE

This section looks at driving more value from your data with new, intelligent services, how to understand your customers in real time and how to use data to empower front-line teams.

Getting more value from your data

In our increasingly data-rich world, it can be hard to see the wood for the trees, and valuable time can be wasted searching for data instead of analysing it.

If employees find their business data assets hard to discover and get value from, you can simplify that task with Azure Data Catalog. This managed solution applies metadata systematically, and also lets your people contribute their own insights to make the data richer – which helps widen data adoption across your organisation.

Employees can also work with data using the tools of their choice, while Azure applies Microsoft "Zero Trust" principles[11] (assume breach, verify explicitly, use least-privilege access) to keep you in control of who can discover data assets.

But it's not just consumer and external commercial data that has grown exponentially. The knowledge economy means our workplaces are also more complex.

Today's office employees typically engage in fast-moving, complex workflows, working with and generating data using multiple software tools, both individually and in teams, throughout the day.

Some even struggle to manage the data onslaught and keep up with the information that's relevant to them.

Intelligent services that make work easier

If your organisation uses Microsoft 365, Windows 10 and Enterprise Mobility + Security, you and your employees can cut through the forest of data with Microsoft Graph and Project Cortex.

To speed up and enrich your everyday work tasks, Microsoft Graph can help by tapping the knowledge and expertise of your organisation, using the data in the Microsoft 365 platform.

For example, you can use it to create an app that checks out your next meeting and shows you attendee profiles – including their job titles, managers and details about the latest documents they're working on. It could even display popular files trending around a particular user.

For some tasks, it may help to make content "smarter" – for example, when managing formal agreements, such as contracts. If so, Project Cortex can help save time and money. Drawing on Graph to surface content and AI for information structuring, Cortex creates a knowledge network and delivers relevant topics to you.

Employees can use it to keep more informed via the apps they use every day. For example, you can search for colleagues based on "topics", or for recent documents based on "sharing". You can have personalised "topic cards" sent to your Outlook or Teams account, keeping you up to date with chosen teams or projects.[12] Or if you have several calendars on the go, you could unify them into a single, seamless tool.

MOTT MACDONALD: THE POWER OF JOINED-UP THINKING

> **The idea of connecting people to content and content to people, powered by Microsoft 365 - it's going to be a game changer for us.**
>
> Jon Rains, Divisional General Manager, Digital Ventures

Mott MacDonald is a global engineering management and development consultancy with 47 practices worldwide. Seeking to provide people with the right working tools, the company started to identify the technologies it needed.

As Jon Rains, Divisional General Manager – Digital Ventures points out, "We're in the infrastructure business, so whether it be power, or water, or telecoms, or transport, you've probably touched one of our projects, whether you know it or not."

And the company has a particular goal. "Our mission is to open opportunities with connected thinking," says Rains.

Key to achieving that is Microsoft SharePoint Syntex. It uses advanced AI and machine teaching to amplify human expertise, automate content processing, and transform content into knowledge.

Simon Denton, Productivity Applications Architect says, "Connected thinking is our approach for connecting content to people and people to content; enabling just in time information to allow projects and their teams to get the best value for their clients and for the business."

On any given day, Mott MacDonald engineers can be involved in four or five projects. So facilitating the smooth and accurate sharing of information is vital.

SharePoint Syntex allows organisations to build no-code AI models that teach the cloud to read content the way people do, and find key facts within it to improve search and teamwork.

It uses advanced AI to capture and tag content, so it's easier to find. And it allows teams to streamline everyday content processes, by integrating with Power Automate to build workflows that leverage extracted metadata.

Security and compliance policies can also be enforced, with automatically applied sensitivity and retention labels.

Looking forward, Rains is clear: "We think knowledge sharing is going to change extensively over the next decade or so."

With Sharepoint Syntex supporting its knowledge management strategy, Mott MacDonald is well placed. Summing up, Denton says, "The idea of connecting people to content and content to people, powered by Microsoft 365 - it's going to be a game changer for us."

Helping starters hit the ground running

Faced with unfamiliar colleagues, processes, systems and in-house jargon, new starters can find it hard to get up to speed quickly with their new roles. In fact, the US Bureau of Labor reported in 2019 that the time taken to onboard employees could be reduced by one week.[13]

Cortex and SharePoint Syntex can use Graph data, connecting it with third-party apps, to help new employees become more productive more quickly. It will provide the information they need faster, and in the context of your business.

Identifying and sharing best practice

When you see best practice in action, it can be empowering to share that behaviour with your team, or even across the organisation.

Workplace Analytics (part of the Modern Workplace offering) provides insights that show how people are managing their work – for example, productivity levels, number of meetings or time spent on emails.

This data can help you drive better employee engagement, target support where it's needed and promote the right skills. Ultimately, it can also help improve customer service.

Looking after ourselves, in and out of work

As we all become more aware of the importance of mental health and wellbeing, personal insights from intelligent solutions can also be valuable. That's why Outlook offers a confidential MyAnalytics digest, which you can have delivered into the privacy of your inbox.

Other personal wellbeing tools are coming in Teams for MyAnalytics users in 2021, including a new emotional check-in experience for you and your colleagues.[14]

Understanding your customers in real time

Today's repeat customers expect their personal preferences to be taken into account. As many as 78 percent of customers only respond to offers or content if they've been personalised to their previous engagements. Yet over 60 percent of companies still struggle to personalise content in real time.[15]

This kind of customer loyalty can be supported through a customer data platform like Dynamics 365 Customer Insights.

The solution uses analytics, AI and machine learning (ML) to create detailed customer profiles, with actionable insights. For a more in-depth view, it also enriches customer data with the reach of Microsoft Graph.

To help you maintain customer trust and security, Dynamics 365 Fraud Protection also builds in proactive fraud and anomaly detection. It uses AI and ML to flag up potentially malicious activity rapidly, so you can resolve problems before your customer is even aware of them.

Empowering your front-line to delight customers

Many organisations gain significant business advantage and resilience by empowering their front-line workers. Rapidly providing front-line teams with the information they need helps drive customer service and, in retail environments, can help close sales.

The custom tools in Microsoft 365 for Firstline Workers can securely and quickly speed data to your workers, while sophisticated, built-in analytics capabilities give them contextual insight that supports customer engagement. This solution protects your sensitive data, even when you're on the move.

Security management options let you control how your data travels, so you can also respond to and combat cyberthreats.

For workers in field roles such as sales, repairs and maintenance, timely and relevant data can help drive efficiency and customer service. For example, Microsoft Dynamics 365 for Field Service provides a single interface, so that agents can work efficiently with remote technicians.

Work orders that stream in from email, phone and other channels are shown on a role dashboard in real time.

Adding in service tasks and estimated times is simple, ensuring a quick turnaround for customers. And it's all securely logged and tracked within your asset management system.

Delivering premium customer experiences on the move

Sellers and other front-line workers often need to make decisions remotely and with real-time data. Microsoft Surface Pro X helps make this task easy and secure.

Wherever customers are, Surface Pro X enables a more efficient service, with a reliable, always-on mobile connection that can deliver high-quality video calls.

With touch-first, pen-enabled tablet, a portable studio or a laptop with full keyboard, employees can choose how they work best. They have the convenience of Instant On and Windows Hello sign-in, and can rely on 13 hours of battery life.

Endpoint security is a key issue with mobile front-line work. Surface Pro X has a removable hard drive, making it easy for workers to safeguard company and customer data. It also builds in cloud-powered, remote-management security tools.

In a case study commissioned by Microsoft, Forrester found that adopting Microsoft Surface devices delivered 2 hours in weekly firstline worker productivity gains on common daily tasks. It also saved 3 hours in weekly manager oversight and collaboration efficiencies.

Wherever customers are, Surface Pro X enables a more efficient service, with a reliable, always-on mobile connection that can deliver high-quality video calls.

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05

DISRUPT BUSINESS MODELS TO IMPROVE PERFORMANCE AND INNOVATE

This section explores how you can drive an AI culture based on ethical AI and ML principles, take advantage of digital automation and use the power of integrated apps.

Leveraging AI and ML at scale

What does it mean to scale artificial intelligence? The question sounds systems-focused. But, like many issues relating to data and analytics, it's also about people, organisational culture and desired outcomes.

That's because, to use AI effectively and at scale in an organisation, everyone needs to contribute evidence-driven insights to solve challenges and identify opportunities – and then share their knowledge.

This 'sharing' takes several forms. It can include moving from siloed teams (using siloed data) to cross-disciplinary collaboration (using integrated data).

It can also mean that, instead of being driven largely by intuition and experience, organisational projects and initiatives will be shaped by data, which will be routinely integrated into all decision-making.

And because the cost of trialling innovations in the cloud is relatively low, a more agile and experimental mind-set can emerge, with teams trialling new solutions – and, if they work, extending them.

Becoming intelligence-driven

Building AI and ML into your organisation will mean digitising selected processes to deliver the business outcomes you seek. An effective approach is to continuously monitor, measure and refine these processes, improving them incrementally over time.

When organisations use data to drive process in a digital feedback loop like this, we call them "intelligence-driven". We've learnt that making the feedback loop a reality means integrating four factors:

1 **The executive strategy and culture.**

2 **The right technical capabilities.**

3 **The day-to-day execution of the digital transformation or operating model.**

4 **The business scenarios or use cases that will be enabled.**

This model sees strategy, culture, technology, operations and innovation as one dynamic whole. We use it to help organisations plot their own journeys towards becoming intelligence-driven. It enables them to identify their 'north star' – that is, the set of business outcomes they wish to achieve and where they want to go in the future.

Strong cybersecurity

Developing a strong cybersecurity culture based on "Zero Trust" principles (assume breach, verify explicitly, use least-privilege access) goes hand in hand with your data-driven culture as it grows. All Microsoft products are built on these principles, which underpin our cybersecurity strategy.

Ensuring responsibility

We also recommend tailoring responsible AI and ML principles for your particular organisational mission. We'll look at principles and practice in section 5.2, 'AI and ML: an ethical approach'.

Three steps to scaling an AI culture

A three-step approach can help you scale your AI culture beyond a small group of specialists:

Demystify and personalise

Introduce AI to everyone and offer a simple demonstration of how it can practically help improve your employees' day-to-day effectiveness.

Train and educate

To change attitudes from 'they do' to 'we do', try starting with no-code/low-code technologies (such as AI Builder in Power Apps) and help employees build them into your process.

Communicate and collaborate

Trust is the bedrock of AI, so constantly share updates on your AI transformation to bring your workforce with you.

In this context, effective support includes empowerment – that is, providing people with the right tools and resources at the right time, so they can deliver innovations based on organisational intelligence.

Microsoft Teams, for example, provides quick and simple ways for remote teams to stay in touch via video calls, chat and file-sharing, using any device.

It includes tools like Together mode (which places meeting participants in a shared space) and Dynamic View (which lets you control how you see shared content and other participants). These human touches, enabled by AI, can help to personalise virtual interactions.

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Scaling business resilience with AI

Scaling AI can help increase business agility and improve customer service – including in industry sectors in which volatility risks are higher.

For example, when demand for advice and support rocketed in the US during the early stages of the COVID-19 health crisis, Microsoft's Healthcare Bot service scaled to help more than 39 million people.[17] This AI-powered service provides a compliant, conversational healthcare experience, including symptom checker, trustworthy medical content and natural-language capabilities.

Other examples of COVID crisis-triggered rapid innovation include a Microsoft Power Apps template, developed in just 48 hours to enable instant company-employee communications.[18]

At the same time, a European beauty products retailer used analytics to accurately predict the impact of the crisis. It rapidly scaled down order volumes by 30 percent, while avoiding stock-outs. The retailer is now using ML to refine its demand-management capabilities.[19]

> **Microsoft's Healthcare Bot service scaled to help more than 39 million people.**
>
> Microsoft AI blog, 2020

AI and ML: an ethical approach

At Microsoft, we're committed to developing both AI and ML in line with ethical principles that put people first and enhance society.

Responsible AI

We have six ethical principles that we apply to all our AI systems development:

1 **Fairness**. AI systems should treat all people fairly.

2 **Reliability & safety**. AI systems should perform reliably and safely.

3 **Privacy & security**. AI systems should be secure and respect privacy.

4 **Inclusiveness**. AI systems should empower everyone and engage people.

5 **Transparency**. AI systems should be understandable.

6 **Accountability**. People should be accountable for AI systems.

While we believe AI is a technology that can improve the quality of life, we also recognise it can be applied in ways we don't support. That's why we and our partner ecosystem work to ensure AI is used to create responsible innovation, empowering people and delivering a positive social impact.

We also help organisations to build a responsible AI-ready culture. You can learn how to tailor your own responsible AI strategy and principles at our AI Business School.

We put our Responsible AI principles into practice through the Office of Responsible AI (ORA) and the AI, Ethics and Effects in Engineering and Research (Aether) committee. ORA sets our rules and governance processes, while the Aether committee advises on the ethical merit of AI innovations.

Responsible ML

Just as with the broader topic of AI, we also support the responsible development and application of ML. Our "Responsible ML" approach follows three principles:

1 Understand machine learning models.

2 Protect people and their data.

3 Control the end-to-end machine learning process.

We believe ML can offer benefits to society, from the automation of time-consuming and tedious tasks to the fast-tracking of accurate medical diagnoses.

At the same time, if the vast data-sets used to train ML models contain biases, it can lead to unfair outcomes, including biased decision-making.

To minimise this possibility, we advocate assessment and mitigation through the open-source package FairLearn.

Find out more about fairness in ML

Digital innovation and automation

We've looked at reimagining data culture, but organisations can also gain from innovating processes.

For example, many data scientists needlessly spend an estimated 60 to 80 percent of their time on the repetitive and tedious preparatory task of "cleaning" data for modelling.[20]

Automation technology can help streamline processes like this. They can take care of data discovery, structuring, cleaning, enriching and validation, so that little or no human intervention is needed. This can free your people to concentrate on more valuable tasks.

An example of automation technology is Microsoft Power BI. This solution uses dataflows to ingest, cleanse, transform, integrate, enrich, and schematise data from many different sources.

The data is stored in Azure Data Lake Storage, which means multiple data scientists can make use of it with the powerful tools of Azure Data Services – Azure Machine Learning, Azure Databricks and Azure SQL Datawarehouse for advanced analytics and AI.

Aspects of data and analytics work can profit from automation. However, human intelligence is still needed to ask questions, approve models and sign off actions from insights.

Automating in-house functions

Automation offers benefits beyond the data team. For example, McKinsey estimates that with currently available technology, up to 42 percent of finance operations can be fully automated, and another 19 percent can be partly automated.[21]

A significant part of this increased efficiency can be achieved using robotic process automation (RPA), which can handle aspects of cash-flow statement preparation, tax reporting, inventory accounting and many other tasks.[22] Companies are already taking note:

"By 2020, 31% of companies plan to introduce some form of financial automation, with another 26% anticipating that their automation efforts will be in full swing."[23]

Here again, human intelligence is still needed. For example, RPA tools can't fully automate exchanges between procurement, finance and other silos. And when their programs encounter software updates in the apps they connect with, they simply stop.

> "
> By 2020, 31% of companies plan to introduce some form of financial automation, with another 26% anticipating that their automation efforts will be in full swing.
> "
>
> Microsoft report, 2018

Better customer experiences

Automation can also help organisations cut costs and improve customer service. For example, self-improving chatbots can field customer queries 24/7, transferring customers to live agents only when needed.

They can also monitor calls and prompt agents with optimal, scripted answers.

Businesses can use automated solutions to become more agile and responsive to customer needs. With Microsoft Azure and Dynamics 365, you can connect your data right across the value chain, enabling you to manage changes and predict and respond more quickly to trends.

RIP CURL: BARRELLING AHEAD WITH DATA TRANSFORMATION DELIVERING INSIGHT EVERYWHERE

"
Our team can connect to anything and pull in whatever we need.
"

Stuart Connell, Lead BI Architect, Rip Curl

As Rip Curl's Lead BI Architect, it's Stuart Connell's job to help staff get as much out of data as they do from a day at the beach.

Over the last couple of years, the surfwear company has been consolidating its data collection to deliver instant insights to executives and retail managers. And by creating a data warehouse on Azure and deploying Power BI across the organisation, Rip Curl now has enterprise-wide clarity.

Connell worked with Microsoft to use Azure Data Factory to handle the ETL (extract, transform, load) processes needed for the transition to Azure.

"Microsoft always has a solution," says Connell. "So we've got a virtual machine that sits inside the architecture where we use some open source Python scripts to connect to some of the more tricky infrastructure."

With its focus on growth supported by intelligent analytics, Rip Curl ultimately wants to use Power BI to handle all its data analysis.

The company is currently tackling data integration to its point of sale information and retail store door counters, to deliver granular insights about who is buying what and when.

Surfing the data wave

Store managers can now use Power BI to get instant information. The data warehouse links Rip Curl's eCommerce system and image database, so they can even see a picture of the products people are buying. That visual component lets managers work out where to locate stock.

Initially, around 200 people had access to Power BI. But Rip Curl has expanded its licence to cover the whole organisation, with data access on a need-to-know basis.

In terms of data analysis, Connell says, "Our team can connect to anything and pull in whatever we need."

Pilot projects are now underway, exploring how external data sets could help develop broader insights. Connell also sees a role for artificial intelligence in inventory automation and machine learning supported decision-making – all to help Rip Curl stay on a roll.

Empower your teams with integrated apps

> **55%**
> of senior executives said their main hurdle to effectively using data and analytics for business decisions was data silos.
>
> Pulse Survey, Harvard Business Review, 2019

In a 2019 Harvard Business Review survey sponsored by Microsoft[24], 55 percent of senior executives said their main hurdle to effectively using data and analytics for business decisions was data silos and difficulties managing data from multiple new systems.

The problem with data silos is that information becomes locked in individual departments. This prevents all teams, and not just data scientists, from acquiring a deeper, more holistic view of business opportunities and changing customer expectations.

Unfortunately, the dynamic can work both ways – siloed teams create siloed data, and siloed applications tend to create siloed teams. To open up the data flow for the benefit of all, access to information across systems can be integrated to offer a single view and encourage collaboration.

The Azure cloud is a core integration solution, because it allows you to combine a very wide variety and diversity of technologies.

For example, Project Cortex (discussed in section 4.1) automatically connects and categorises organisational content into useful topic areas. It will then create "topic pages" (like wiki pages) and topic cards within popular Microsoft 365 applications, such as Outlook and Teams.

Using this knowledge network, you can clarify an unfamiliar term or project in an email, for example, just by hovering over it – out pops more detail, including documents and videos. Then you can click for deeper information, curated by AI and your organisation's specialists.

By connecting information and people, knowledge is better shared across your organisation.

Another example of integration is Microsoft Teams, which brings together all workplace tools, apps and services, whether built by Microsoft or not.

Integration through the Open Data Initiative

We've seen how data can empower employees and, even in unsettled markets, help drive better customer services and growth.

But it's at its most powerful when it can be securely consolidated from across all your organisational systems, delivering real-time intelligence back into your applications and services.

The Open Data Initiative, a partnership between Microsoft, Adobe and SAP, aims to make this vision a reality, helping to create a single platform with a comprehensive view of all its data.

Users can securely send data from applications like Microsoft Dynamics 365 into the Azure Data Lake warehouse. Azure then cleans and aggregates it, enabling AI to use it for powerful predictions that can be sent back into Microsoft, Adobe and SAP systems.

SPREAD DATA AND ANALYTICS SKILLS WIDELY

What's the best way to build a data-driven culture? This section looks at nurturing team-wide data and analytics skills and the different learning opportunities available.

How to build a data-driven culture

Studies have shown that when organisations embrace a data-driven culture, they can generate over three times more revenue and gain a four-fold boost in customer satisfaction.[25]

But every organisation is different. So how can you start building the culture that's right for you and delivering insights to everyone in your organisation?

It can help to look at this question from a skills and development perspective.

Even if your people were equipped with the latest analytics solutions, they would still need the skills to use them. So a culture that provides and supports opportunities to learn – whether from data specialists at work, through self-paced learning or formal training – is already laying foundations.

Taking one or more of these learning steps also helps employees adapt to the cultural changes you envision and see more potential in the data they use.

Successful data-driven organisations often start by getting the basics right and building out from there. For example, one or more employees could be encouraged to imagine a simple business goal and think about the data they need to support it. The next step is to try it out and see if the results validate their analytics strategy; if not, they can try again.

> **If there's something inside an organisation that people can try their skills on in a low-risk environment, that can give people real passion and drive when it's rewarded.[26]**

Any insights gained will suggest new ways in which the organisation can fine-tune operations or engage with customers. It's a virtuous cycle of development in which each step enriches the next.

At Microsoft, we partner many data-driven organisations and invest heavily in data skills. Whatever your level and learning style, we invite you to find suitable courses and materials for your needs.

Microsoft

Opening up data and automation for all

Our Learning Paths are available to everyone and we warmly invite all-comers to try them. You can choose your path by role or topic, so whether you want to become a data analyst, explore SQL Server or just get a quick intro to data, it's all yours.

Modules allow you to customise a path, choose a level (beginner, intermediate or advanced) and learn at your own speed and at a time that suits you. If you need help creating a path, just click on our menus and we'll create recommendations based on your answers.

We want to help users learn the way they prefer, so we've included bite-size sessions, deep-dives, videos and lots of other engaging content. For presenter-led training options, you can check out our UK Virtual Training Days.

It's also worth exploring Microsoft Certifications, formal qualifications that are recognised across the industry and can help accelerate a career in data and analytics from any starting-point.

AI training options

It's no surprise that demand is rising for AI-related learning opportunities. AI and cloud technology are likely to play a significant role in helping business and society navigate the aftermath of COVID-19.

Yet, in a recent Microsoft report[27] on AI skills in the UK, only 32 percent of UK employees felt their workplace was helping to prepare them for an AI-enabled future (below a worldwide average of 42 percent), while 68 percent did not (compared to 58 percent worldwide).

These and other report findings raise concerns about a lack of AI skills and its potential effect on the future competitiveness of UK companies. That's why we offer a range of AI learning options for different needs.

At our AI School, learners can explore conversational AI, AI services, machine learning, autonomous systems and responsible AI.

For industry leaders, our AI Business School offers six paths to help you achieve lasting business impact with AI. Topics cover strategy, culture, responsible AI, scale AI and AI for business users. There are also industry-specific learning options.

07

BUILD TRUST WITH DATA

In this section, we look at industry threats and opportunities, including the global tech skills shortage, UK economic prospects and business competitiveness, new skills initiatives and the Open Data Initiative.

Advanced tech skills: filling the gap, now and tomorrow

We've mapped the increasingly central role of data in today's organisations, considering the power of data to drive agility and resilience in an unpredictable market. Having looked at how organisations can lay a secure foundation for data and analytics, we've reviewed new ways to improve decision intelligence, organisation-wide.

We've also seen how responsible AI and ML, alongside automation and integration, can help drive customer trust while giving businesses opportunities to innovate.

These opportunities are enabled by a new organisational culture of continuous learning. In this more open knowledge culture, everyone understands the role of data and routinely uses it to drive performance. But what does this mean in practice?

At an individual level, it might mean checking MyAnalytics to fine-tune your work-life balance. At an individual employee level, it could involve using Project Cortex to boost your topic knowledge on the spot. And at an organisational level, it might mean deepening business intelligence by securely enriching your data with customers' and partners' data, via Azure Data Share.

However, significant challenges continue to face the industry and the economy as a whole.

Data skills in demand

Data science is a proven asset for business decision-making, and AI is one of its fast-growing opportunities. Yet the UK market currently has significantly lower AI maturity and adoption than the global average. A key reason is lack of skills:

> **Only 11% of UK employees had completed training to improve their understanding of how to use AI in their job... Only 17% say they have been part of re-skilling efforts.**[28]

AI Skills in the UK, Microsoft report, 2020

Leaders can help correct this course through upskilling and reskilling programmes – that is, by creating formal opportunities for employees to extend existing skills and learn new, digital skills.

Employees can also pursue learning paths independently, as we saw in section 6.2, 'Opening up data and automation for all'.

But continuous learning also means experience-based learning – learning on the job.

Unfortunately, 61 percent of UK managers currently say they prioritise the AI they deploy, compared to 39 percent who say they focus on their people and how they work with AI. (Worldwide, this trend is reversed – 44 percent prioritise the technology, compared to 56 percent who focus on the people.)[29]

We know, however, that a key way to empower employees is to open up opportunities for them to use their new AI knowledge in solving business problems. People benefit from applying new skills without judgment and learning from the results. That way, they can gain practical insights into the potential and limitations of AI.

In an effective data-driven culture, this will tend to enrich the wider business, build agility and fuel growth.

Boosting competitiveness

The global economic downturn triggered by COVID-19 has deepened the skills shortage, and in the UK, business uncertainty surrounds post-Brexit trade arrangements. So how can British companies, and the UK as a whole, reimagine themselves to build economic recovery and growth?

When it comes to competitiveness, the potential rewards of investing in people are both long-term and significant. Our 2020 economic recovery report[30], Creating a blueprint for UK competitiveness, identifies two kinds of organisational growth model: "hollow growth" and "sustainable growth".

"Hollow growth" organisations tend to have more rigid, hierarchical structures. Their employees are seen as units of production, to be exploited rather than nurtured. Their existing technology is siloed and they fail to embrace the potential of digital.

In contrast, "sustainable growth" organisations embrace talent from diverse backgrounds and experiences. They tend to build an inclusive, purpose-driven culture of innovation. And they deliberately nurture new skills, taking advantage of high-value opportunities such as the cloud, data and analytics, and AI.

Our report shows that this model delivers long-term agility, innovation and competitiveness. It concludes that "simply by making a few basic changes" to adopt a more sustainable growth model, British organisations could boost the UK economy by more than £48 billion. However:

The gains offered by modern solutions like robotic process automation (RPA), cloud computing and artificial intelligence are being missed. So too is the way in which data analytics technology can help organisations boost their resilience and agility, especially during times of disruption...[31]

Addressing the digital skills gap, on this view, is critical to national and global economic recovery.

Driving skills, worldwide

In June 2020, Microsoft launched an initiative[32] to bring more digital skills to 25 million people worldwide by the end of 2020. Our approach uses data to identify in-demand jobs and the skills needed for them. It also provides free access to learning resources, such as LinkedIn Learning, Microsoft Learn and the GitHub Learning Lab, that will help people gain those skills. This is one of many skilling initiatives and programmes we support globally.

A single, trusted view

The new, data-driven workplace model we have proposed embraces all employees, whatever their role. Integrated solutions enrich business intelligence, bringing all data together, silo-free. Similarly, our global skills vision will create a connected, inclusive system of continuous digital learning that can help empower everyone.

We bring the same connected vision to the Open Data Initiative, a solution built on shared intelligence between partners.

It provides a common data model that connects suppliers to customer needs, in real time. It offers a single, comprehensive view of customer data, protected by security protocols and the regulations that govern data privacy. And it uses data to build two-way trust across the value chain, from solutions providers to brands to customers.

08

CUSTOMER STORIES

See how secure, automated and intelligent Microsoft data solutions have helped organisations in different industry sectors achieve their goals.

Microsoft

WALGREENS BOOTS ALLIANCE: FINDING THE SWEET SPOT FOR REACHING CUSTOMERS

> **I think it's going to be a bit of a game changer.**
>
> Dean Riddlesden, Senior Data Scientist

Walgreens Boots Alliance (WBA) is one of the largest retail pharmacies across the USA and Europe. Programmes like the Boots Advantage Card are key to WBA's ability to break through in an increasingly competitive retail landscape.

Data-rich, resource-challenged

Since its launch, the Advantage Card has seen membership grow to nearly 18 million active customers. And the data that the scheme provides can help Boots increase revenue, improve customer experience, and offer greater ROI for brand partners.

However, processing data from millions of point-of-sale transactions is a real challenge. The company's automated machine learning solution was resource-intensive, and lacked the required compute power. So Boots turned to the Microsoft Azure Machine Learning service.

Bringing it all together

The company's IT and data science teams used Azure Machine Learning Compute to build automated machine learning propensity models, Azure SQL Database to handle downstream analysis, and Azure Machine Learning pipelines to pull it all together.

The Azure Machine Learning service is an open-source platform that provides access to feature-rich applications and tools. Boots used it to scale compute power to handle large fluctuations in model requests.

As Dean Riddlesden, Senior Data Scientist says, "Now we're on the cloud, workloads that we were struggling to run efficiently on-premises can be spun up quickly and at a lower cost."

A win-win-win for Boots, partners, and customers

With Azure, the company's IT and data science teams are now better equipped to scale out modelling for corporate campaigns, which means they can increase promotion revenues, help brand partners, and offer customers more meaningful incentives and promotions.

WBA is now working to expand the use of Azure tools into other areas, such as logistics for warehouse systems and customer support centres.

As Riddlesden says, "I think it's going to be a bit of a game changer."

CHARTERHOUSE HOLDINGS PLC: FLEXING A NEW WORK FROM HOME CAPABILITY

> " We wanted a solution that would give us a single platform for sales and marketing and finance and operations. Microsoft Dynamics 365 was the best fit. "
>
> Mark Bartlett, Chief Finance and IT Officer

Charterhouse Holdings plc has a rich history in garment manufacture, supplying some of the biggest names on the High Street. Today it operates as three successful brands: Kustom Kit, Xpres and Vanilla, delivering quality products in the personalised clothing sector, visual communications industry and garment retail.

Streamlining to one platform

The steady growth of Charterhouse brands led to a patchwork of 13 or 14 legacy systems used across the business. So it was clear that streamlining could drive efficiency and improve sales and marketing. As Mark Bartlett, Chief Finance and IT Officer says, "We wanted a solution that would give us a single platform for sales and marketing and finance and operations. Microsoft Dynamics 365 was the best fit."

More meaningful marketing

The firm began rolling out Dynamics 365 in autumn 2019. Starting with the sales and marketing functions, it quickly started putting together more meaningful campaigns. As Miles Carter, CEO explains, "We're able to get much, much better targeting. The guys can analyse the information that is going in, and they can trust that information."

Flexibility brings resilience

In March 2020, Charterhouse expanded the roll out into finance and operations functions. The move couldn't have come at a better time. When the company went into COVID-19 lockdown, Dynamics 365 meant that work could continue.

And looking ahead the company can plan. Bartlett says, "I think the return to normal office working is some time away. But we can bring people back to work and flex this working from home capability that we now have."

Charterhouse is already seeing efficiencies. Staff love the integrated view of business information, the ability to personalise dashboard views, the reduction in paper flow, and improvements in the time spent on tasks.

DR. MARTENS: "JOINING THE REVOLUTION" WITH MICROSOFT DYNAMICS 365

"We've been able to leverage Microsoft Power BI, Power Pivot, and self-service to create accurate reporting in an instant."

Jackie Reid, Program Lead for Project Reboot

Dr. Martens is an iconic British footwear brand with over 100 stores worldwide.

With ambitious plans for growth, it embarked on Project Reboot: Join the Revolution to replace all its legacy applications with Microsoft Dynamics 365.

As Jackie Reid, Program Lead for Project Reboot explains, "Dr. Martens consumers expect modern retail experiences. Microsoft Dynamics 365 gives them the ability to buy online, return in-store, and Click & Collect, while simultaneously supporting our global colleagues to make smarter decisions."

Initially implemented in the UK and North America, the benefits are now being realised across all areas of the business. Reid expects threefold growth over the next five to ten years.

Insights through data

One of the biggest benefits is the improved visibility of business data.

"On our legacy applications, our analysts would spend all their time creating reports," says Reid. "Now, we've been able to leverage Microsoft Power BI, Power Pivot, and self-service to create accurate reporting in an instant."

It's clear that the shift to Microsoft Dynamics 365 has delivered major retail benefits.

As Reid explains, "We've implemented virtual warehouses, giving us visibility of stock as a whole, but also stock per channel. Combined with our new automated overnight store replenishment capability, we're able to get the right products to the right stores in a very short lead time."

Best-in-class technology

Having a robust and scalable solution is also important when it comes to integration. Andrew Donnell, Solution Architect for Project Reboot explains, "We have confidence the solution will stand up 24/7, 365 days a year. We can also scale when we need to, which is especially crucial through peak trading periods."

Dr. Martens can now expand into new markets. "Moving to Dynamics 365 has been a major business transformation," says Reid. "The resounding success is a testament to great teamwork and great technology."

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