Deloitte.

IDO Playbook 2022

Everything we do is focused on enabling fast, confident decisions and pioneering actions. We transform our clients with end-to-end data analytics and AI fueled services, orchestrating complex business transformations that drive impact and shape the future.

Embedding AI, Data and Analytics across an organisation

Do you think about the future?

Do you think about how the way you will live, and work, will change? What role does data, information, human and artificial intelligence have to play?

Huge disruption has already taken place, the methods in which people and businesses interact, the types of services being delivered, and the channels through which these services are secured, have fundamentally changed within a blink of an eye.

Our familiarity with technology and information access in our personal lives has caused a seismic shift in our expectations as customers, as employees and as citizens.

Every industry and public sector body is facing challenges to the status quo. It's no longer enough to experiment with AI and its potential – organisations without a concrete plan on how to scale their use of AI will face significant threats from new business models and services.

This playbook offers food for thought and aims to help shape your organisation's data and AI agenda. It will help you to assess what kind of organisation you want to be, which capabilities and fundamental building blocks are required, and how to structure the way forward.

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An Insight Driven Organisation

Transformation is more about people than technology

IT'S TIME TO ACT NOW

In a world where disruption is the status quo and technology is advancing at an exponential rate, it is critical for organisations across all sectors to make the smartest business choices possible, maximising efficiency and effectiveness.

The global context in which businesses operate today means that competing with industry rivals is more challenging than ever. Many industries contain players who offer similar products, utilising comparable technologies. Global competition has reduced location-based advantages and proprietary technologies are quickly mimicked. Similarly, the public sector faces increasing pressure to provide services which deliver tangible impact, via the most efficient means possible.

Organisations that will not only survive but thrive in this ever-evolving reality understand the critical importance of incremental gains. Leaders of the organisations of the future are constantly searching for new sources of advantage, differentiation and impact, at a time when they have more data than ever before. In order to remain relevant, competitive and deliver their purpose, organisations will need to invest in data, analytics and AI capabilities and take their organisations on an insight driven journey. Those who lead and innovate will do so by integrating data and analytics into core business and decision-making processes, utilising insight at every available opportunity.

HOW TO SUCCEED?

In a world where information is often incomplete or ambiguous it is imperative that organisations collect high quality data, undertake effective analysis and develop and test hypotheses to aid decision making. Leaders must understand the impact of these decisions, continuing with the hypotheses if successful, or failing fast to learn even faster. Organisations which embrace disruption through insight will innovate, grow and out-perform their competitors.

In order for this to be possible, businesses need to nurture a culture that values insight, curiosity and taking risks. They should not shy away from conflict – having insight means debate will naturally occur on the best way forward. When functional business teams begin using insights to debate the best course of action, it is an indicator of success!

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An Insight Driven Organisation

Winning organisations understand innovation goes further than just the technical

INNOVATE BEYOND THE TECHNICAL

Digitally mature organisations recognise that data & insight is just part of the tool kit for innovation and growth. Whilst becoming insight driven can help to promote more technical innovations such as cost savings or greater visibility over supply chains, organisations that understand innovation stretches beyond the technical into anything useful to business, are the ones which see the greatest impact from insights.

Organisations which have placed time and effort on creating a winning culture and attracting the best talent through building the ethos of challenging the status quo, or creating distributed teams that are empowered by ownership over their decision making, can lead to innovations far greater than the technical ones, creating whole new experiences, products & services.

ORGANISATIONS THAT CREATE A WINNING CULTURE ADOPT:

1. A detailed and nuanced understanding of the customer
2. A culture that prioritises insight over instinct
3. A challenger mindset and willingness to disrupt
4. Distributed decision-making and co-creation
5. Constant Innovation and learning which inspires and engages talent
6. Proactive governance and ethical decision-making

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An Insight Driven Organisation

Leading means integrating strategy, people, process, data & technology

IDO ACCELERATES

Becoming an IDO is not about replacing human judgement or experience with technology. It is about augmenting, accelerating, and enhancing decision making with technology. Insight Driven Organisations don't entrust data and analytics activities to one group or team, they manage analytics at an enterprise level with an end-to-end view across strategy, people, process, data and technology. Organisations who fail to make their transformations stick lack integration across these, sometimes taking a blinkered view to digital transformation that focuses heavily on data and technology.

Becoming an IDO means adopting a holistic view to analytics transformations, with five crucial dimensions to an Insight Driven Organisation:

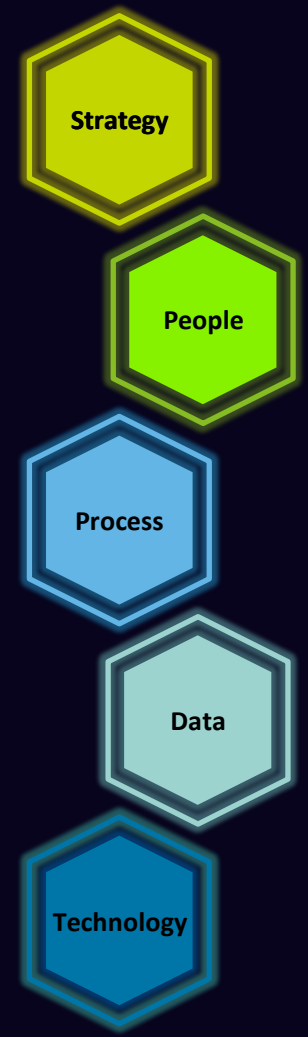
Strategy - It is essential to identify the key strategic priorities to pinpoint which data & analysis need to be put in place to attain core organisation objectives

People - Insights derived from AI and other forms of big data have now become an organisation's key currency and determinant of success. Organisations depend on employees up the entire leadership hierarchy to have the capacity to comply with the expectations of an IDO-led culture

Process - A successful IDO depends on leaders and employees who communicate, apply, and model well-defined practices

Data - Organisations that use insight driven approaches to decision-making rely on comprehensive research or data gathering, to build trusted insights that can be used by leadership

Technology - A robust and secure technology infrastructure is the foundation of a successful IDO



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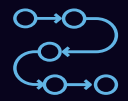
An Insight Driven Organisation

Human intelligence is accelerated, augmented and enhanced with AI. The potential is limitless. Let's make AI our greatest human ally

IDOs enhance decisions *with* people *and* technology

Automation *with* Intelligence

Automate data workflows, analytics and models to supplement human decision making



Your business processes *with* speed and precisions

Embrace AI across business processes considering speed and precision as value drivers throughout

Data & AI *with* ethics

Work ethically with machine learning models and ensure risk of bias is appropriately dealt with

Collaboration made greater *with* the machines we invent

Innovate AI & data capabilities that empower workforces to work better together – this is about AI working hand in hand with humans

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An Insight Driven Organisation

Now AI is everywhere – What's next?

In our previous edition of the playbook, we told you that AI would become the new electricity

Artificial intelligence has changed the way we work, the way we communicate, the way we make decisions and the way we interpret the world.

Organisations have leapt at the opportunity to embrace AI – 93% of organisations agree that AI is important to remain competitive in the next 5 years and 85% of them are increasing their investment in AI in the next fiscal year.

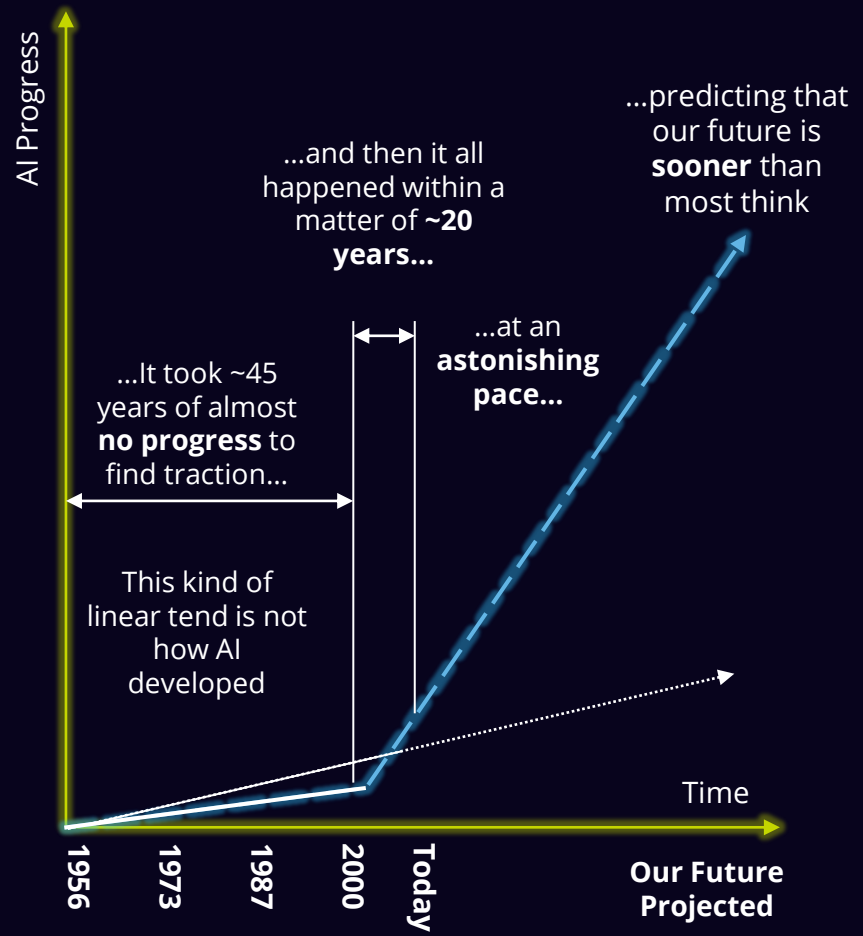
Now we're telling you AI at scale is next

Organisations now face the task of shifting from AI Experimentation to AI at Scale. While most organisations have begun the process, few are fully transformed.

As companies experience the limitations of big data as a critical enabler of analytics and AI, new approaches known as "small data" and "wide data" are emerging.

Handled correctly, the value that AI generates should pervade the way an organisation operates, beyond affecting only hard metrics such as cost or revenue. The journey and vision to fully realise the potential of AI at Scale will differ by industry and global region.

That's where we come in.



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An Insight Driven Organisation

Many organisations have already begun their journeys to becoming insight driven

SCALE MAXIMISES IMPACT

Many organisations today accept that richer insights delivered in a timely manner will benefit them exponentially, however executing the large scale transformation programmes required to become an Insight Driven Organisation is challenging for most.

The transformation required for insights to be utilised at scale, consistently and continuously, until they are embedded into the very fabric of the organisation is no mean feat. Many leaders face a common challenge of demonstrating the value of the investments required to become an IDO.

Some of these investments may take the form of new technical architectures, which are not utilised to their full potential or recruitment of top talent into Data & Analytics teams, who fail to gain traction with business functions.

Delivering at scale is therefore a critical component of demonstrating the value of becoming an Insight Driven Organisation.

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An Insight Driven Organisation

An IDO leader will ask themselves key questions when evaluating a new analytical initiative

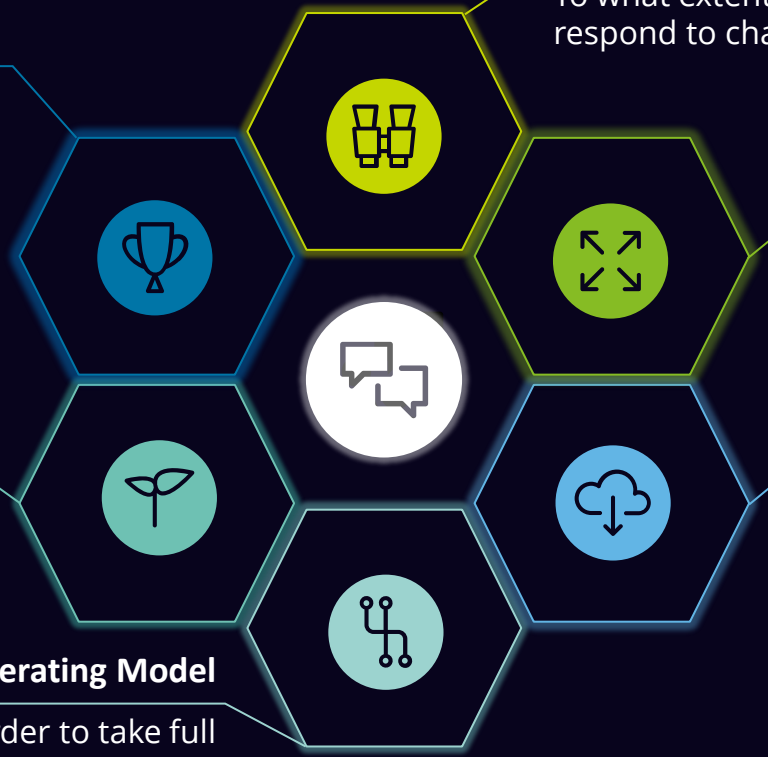
Market Conditions

To what extent will this investment make us **more agile** to respond to changing market conditions?

Competition

How will this investment make us more **competitive**?

How will it help us **win** and **differentiate** ourselves against competition?



Scalable

How does the initiative improve our **enterprise-wide** analytical capabilities **at scale**?

Innovation & Growth

How will the investment foster greater **innovation** and **growth** opportunities?

Data & Technology

Does the **right data** exist? If not, can we get it or create it?
Is the data timely, consistent, accurate and complete?

Is the **technology reliable**? Is it cost effective? Can it be **scaled** and **distributed** across my enterprise?
Is this the **right approach** or tool for the right job?

Operating Model

What **complementary changes** needs to be made in order to take full advantage of new capabilities, such as skills, better IT, training, process re-design or job redesign? Is my **operating model** fit for purpose?

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An Insight Driven Organisation

Organisations continue to search for improvements to become a leading IDO. Where do you stand?

	1 Analytically Impaired	2 Localised Analytics	3 Analytical Aspirations	4 Analytical Companies	5 Insight Driven Organisation
Strategy	No enterprise vision and strategy that embeds data, analytics and AI. Poorly integrated systems, ad hoc work and no innovation created	Little awareness of analytics vision, value and analytics. BI operates independently with little structure. Benefits identified but not measured	Vision for insights developed and communicated, benefits documented, existence of siloed analytical strategies, and a decision taken as to the model through which analytics is delivered	Enterprise wide vision and strategy with benefits identified. Analytical solutions align to strategy. Senior leaders interested in data driven culture	Mature insights strategy and vision, all leaders and employees live and breathe analytical solutions. Effective, scalable, agile, regularly challenged and optimised
People	Few skills attached to specific functions, no active recruitment for data, analytics and AI. Insights not supported, no knowledge management capability	Isolated analysts, unmanaged mix of skills, local recruitment taking place. No roadmap to support change and resistant culture	Analysts recognised as key talent in key areas. Basic capability and ad hoc training provided. Immature knowledge management framework exists	Highly capable analysts recruited. Upskilling plans in place. Executive champion spearheading analytics transformation	Professional analysts and citizen data scientists. Data and analytics is a democratised skill all can contribute to. Clear career paths for employees
Process	Minimal automation. Most data processes manual or unchanged. Data not used in decision making, no SLAs or governance for analytics	Some effort to automate regular processes. Some business partnering activities and informal SLAs. Sporadic data use for decision making. Analytics op model not agile	Considerable effort to automate regular processes. Formal SLAs, comms and governance structure but not fully integrated. Op model limited by legacy IT, processes and data quality	Analytics activity linked to business objectives and prioritised. 90% solution processes automated. Analytics teams work closely with business to change existing processes, formal SLAs in place	Formal SLAs, governance and analytics with key goals and objectives defined and communicated. Data key for decision making across all functions. Process automation a core functionality
Data	Inconsistent, poor quality, unstandardised; siloed. Limited integration. Difficult to access. No ethics, security and privacy policies in place	Some metadata management exists, no senior executive discussions, data is accessible, privacy and security polices defined on project level, limited data collection and quality	Key data domains identified, central repositories created. Sources mapped and recorded, quality is acceptable but inconsistent. Insights developed using models, privacy and security polices, ethics	Integrated, accurate, common data in central repositories. Information model allows quick and easy access to data sources. Integrated data from multiple sources. Single data definitions, quality is proven, strong focus on ethics	Search for new data integrations to enhance decision making, structured/unstructured (wide) data models in place, highly accessible at scale, fast querying, master data, enterprise wide security
Technology	Analytics production environment non-existent, no sandbox environment or tools testing and solutions. Manual Ad hoc reports. Limited BI. Little cloud awareness	Limited analytics production environment with isolated usage of static dashboards. New technologies adopted on ad-hoc basis. BI accessible but driven by complex processes	Production environment, advanced data storage, real time processes, ETL and visualisation, test environment, pre-built reports and dashboards manually updated. Cloud solutions deployed	Cloud based tech, sandbox testing integrated into IT strategy, advanced BI dashboards, stable technology and optimised, cloud solutions for advanced analytical modelling	Sophisticated analytical architecture, AI tech, prescriptive, sandbox environments, democratised BI tools, predictive technology, cloud analytical techniques, scalable and auto-optimised around demand

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An Insight Driven Organisation

Business improvement can be simplified to five value pillars developed by becoming an IDO

Enhance efficiencies across the business

Provide superior customer service and satisfaction using data driven approaches

Provide a future-proofed data ecosystem able to deliver analytics which enrich insights

Impact beyond the bottom-line

Provide greater data quality & transparency improving risk management and reducing margins of error

What does this mean in practice ?

- An enhanced bottom line and higher degree of efficiency, as resources are utilised within the scope of comprehensive, well-planned initiatives
- Senior management have the data which provides visibility on people, processes & performance across the business allowing for the identification of savings and improvements from a board level

- Superior customer service and satisfaction, as data provides a deeper understanding of target audiences, which promotes customised, relevant and highly engaging consumer experiences
- The greater understanding of the customer allows C-suite executives to have the relevant data to decide where to start, stop, and continue within the business

- A comprehensive data eco-system that provides all descriptive and explanatory analytics the business needs, when it needs it
- The same eco-system is future-proofed and capable of delivering predictive and prescriptive analytics where required, to enrich the insights of your organisation

- Focusing on delivering change outside of the technical is a key part of becoming an IDO. As a C-suite this translates as a greater ability to outwardly improve the impact your organisation has on society as well as your ability to inwardly to retain and attract new talent

- Working to increase data quality drives increased trust of reporting right up the leadership chain, which delivers data driven decision-making right to the top
- Less time spent on duplication and reworking of datasets across the organisation enhancing productivity, reducing risks and driving a data-led mindset

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An Insight Driven Organisation

Business improvement can be simplified to five value pillars developed by becoming an IDO

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How we deliver

BT Legal

Deloitte in partnership with BT used AI for fast and accurate analysis of 4,500 documents to identify and categorise key risks, helping achieve a 50% time saving while also delivering a more exhaustive review of the documents

Lawn Tennis Association (LTA)

LTA was able to connect with over 1 Million fans directly by 2022, directly adding an extra 100,000 users through revolutionising LTA's online presence with personalisation

Department of Health & Social Care

COVID-19 Response solution resulted in an increase in tests returned within 24 hours from 30% to 75% within 1 month of the first InSightIQ dashboard being delivered

Scope Retail Estate

Scope wanted to positively disrupt the charity sector. In partnership with Deloitte Scope developed an optimisation & innovative community impact assessment. The novel approach resulted in the estimated positive impact for at least 10,000 disabled people

Network Rail

Previously with the introduction of a new train timetable caused hundreds of cancelations. Deloitte and Network Rail worked together to build a virtual way to test new timetables saving the 22,000 trains carrying 4,000,000 passengers a day from disruption

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An Insight Driven Organisation

Becoming an IDO is not achieved without overcoming barriers along the way

Challenging the status quo

When embarking on an IDO journey, it is important not to underestimate the potential for resistance and the levels of education and change which need to take place across the organisation.

Cultural Change
The bigger and more mature the organisation, the more difficult it is to drive a cultural change or transformation.

Inefficient Delivery
Not having a strong operating model where centralised and decentralised resources work seamlessly together.

Inaccurate Metrics and Models
Over simplistic models, overconfident analysts, ill-defined outcomes/assumptions lead to incorrect results.

Technical Perception
Image is 'Techy', complex, and related to math and statistics, and hence difficult to comprehend or thought to be IT-only.

Talent Crunch
There is a large supply gap of data analyst and data scientist talent, organisations are shifting towards hiring talent who generate insights - not just number crunchers.

Data
Confidence in data is low due to inconsistent definitions. Reluctance to share data and inability to get timely access to it.

Customisation leading to unnecessary complexity
Re-inventing the wheel rather than exploring the market for off-the-shelf elements can increase complexity as well as time to market.

Siloed Implementation
Analytics is developed in silos and effort is duplicated. It lacks implementation vision and strategy for enterprise-wide integration.

Buy in
Is often stuck in ROI discussions, change inertia, scepticism, fear of being challenged, and under cost considerations.

Tackling the Jargon
Organisations are distracted by the hype and are confused by what Big Data, AI and Robotics really means to them and how best to apply them.

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An Insight Driven Organisation

What does success look like for an IDO?

1. Utilise accessible insights at scale, consistently and continuously, until they are embedded into the very fabric of the organisation
2. Have strong, visible leadership within the organisation for Data, Analytics and AI
3. Understand the impacts of key decisions, with the ability to integrate across processes and functions to predict outcomes, understanding: what will happen?
4. Test hypotheses, learn from them and use insights to solve problems and identify new growth and value areas
5. Understand their customers or users intimately, blending internal and external data sets to create richer insights
6. Operate in an Agile and Reactive manner, embracing disruption with the ability to continuously optimise operational processes
7. Can clearly demonstrate the value insight is unlocking across the organisation

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So, how do you adapt?

The IDO Playbook provides a flavour to becoming an IDO and how organisations can face some of the common barriers to do so

START WITH THE BASICS - THE IDO PLAYBOOK

1. Understand what it **means** to be an "IDO"

2. Examine whether you are :
   a) **Asking the right questions**?
      - Do you have an insight-fuelled vision that generates value?
   b) **Are you taking the right actions?**
      - Are you building trust and digital ethics into your AI stack?
   c) **Are you making the right impact?**
      - Is your culture set up to become data driven at scale?

3. Identify the key **operating model** building blocks your organisation needs to focus on to become an IDO (Strategy, People, Process, Data, & Technology)

4. Check out our **IDO Scaling Labs** propositions in order to accelerate your transformation towards becoming an IDO, and put theory into practice.

ORGANISATIONS ARE TALKING!

50% of our global IDO survey* respondents have told us developing improved data, analytics & AI strategies as well as driving support for digital transformation – the "distributed enterprise" – are the top two areas of investments

52% of respondents express defining value and prioritising projects as a strong barrier when trying to generate analytical insight

57% state they do not have the right data available or accessible for analysis within their organisations, closely followed by the challenge of managing data quality

55% expressed the need for AI skills that they cannot source – over 10% increase on last year. This was also reflected for data science skills

60% told us they do not use AI in any of their business functions predominantly due to a lack of priority and skillsets

20% of respondents stated that there is "no visible and active leadership" in the field of AI, driven by a lack of clear accountability towards AI within organisations

*Global IDO Survey 263 total respondents across 17 countries

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What kind of IDO
does your organisation
want to become?

What is an IDO?

An organisation driven by **Intelligence**, **Insight** and **Information**, in order to be **Innovative** at an **Industrial** scale

An IDO is an organisation that has a **'data first' mindset**, seeking to **infuse AI, analytics and robust data into all parts of the organisation**, especially within their decision-making processes. They do not view this as a project with a start or end date, but rather, will continuously ask how they can **systematically leverage data to improve or reinvent processes to enhance business efficiencies**. IDO's see AI and analytics as **core capabilities** across their organisation, to provide improved products and services, to support business development and process optimisation; to tackle their **most complex business problems**; and to address growing analytical trends..

The **I** in IDO now covers the following **5 areas**:

Information

Robust, **secure** and **reliable** data storage, good quality data with strong ETL, reporting and BI capabilities leveraging the right tools, platforms, architecture.

Insight

Strong **analytical** capabilities, leveraging descriptive, predictive and prescriptive analysis.

Intelligence

Leveraging **intelligent** automation, cognitive analytics and AI to supplement and augment human decision-making.

Innovation

A **culture** of ideation and knowledge sharing, with a strategy that leverages the latest technologies and stays ahead of the competition.

Industrialisation

Enterprise-wide collaboration, integrated architectures into core systems, process, and behaviours with robust processes and workflows.

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Information Driven Organisation

Robust, secure and reliable data storage, good quality data with strong ETL, reporting and BI capabilities leveraging the right tools, platforms, architecture

What does good look like?

Strong foundational data capabilities may seem like the bread-and-butter of a successful organisation, but in today's landscape this is getting increasingly complex.
The key features are:

- ✓ Coherent application architecture, with a roadmap in place to decommission legacy/duplicate systems
- ✓ Accessible internal and external data sources, structured for business consumption through reporting and BI
- ✓ BAU operations which are reducing manual effort where possible, automating data wrangling and ETL processes
- ✓ Data quality addressed at source, with validation and on-going monitoring
- ✓ A focus on securing enterprise data assets from any unauthorised infringement
- ✓ Everyone understands their role in keeping the organisation compliant with regulation

Are you asking the right questions?

- Does the information available, and the way it is used, contribute to your strategic objectives?
- Are you investing in data as an asset?
- Are you challenging the information paradigm?

Are you taking the right actions?

- Does your technology stack to support your business objectives and aspirations?
- Does your data governance cover ethical and privacy related concerns?

Are you making the right impact?

- Do you have the right technical talent and training to support analytics capabilities?
- Is your organisation empowered to make decisions through the use of trusted information?

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Insight Driven Organisation

Trust in insight, leveraging descriptive, predictive and prescriptive analysis and driving data-driven decision making

What does good look like?

Driving business change through insights requires more than data and technology. Transforming analytics to streamline decision making across all functions requires a cultural shift. The key features are:

- ✓ A documented, published and embedded insights strategy that is adopted by the business and IT communities
- ✓ Leadership-level support of the agenda, understanding, prioritising and tracking the value of insight initiatives
- ✓ An ecosystem of talent with the right blend of business and technical skills
- ✓ Aggregating and combining data from broad sources into meaningful content and new ideas
- ✓ A repeatable insight process to test and industrialise analytics
- ✓ Human-centered design to deliver visual and intuitive insights
- ✓ Redesigning processes, operations and products based on the insights generated

Are you asking the right questions?

- Are benefits clearly identified, recognised across the organisation and have business owners?
- Do insight capabilities exist across your organisation and are they used effectively?

Are you taking the right actions?

- Is the most fitting type of analysis being applied, for example, leveraging edge analytics or wide data where required?
- Are insights being used to re-engineer, augment and improve business processes?

Are you making the right impact?

- Is there a culture of using data to answer business questions and inform decision making?
- Are insights delivered to enhance the brand experience for your organisation?

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Intelligence Driven Organisation

Intelligent automation, cognitive analytics and AI to supplement human decision-making

What does good look like?

Existing ways of working are made more efficient, focusing human input on making decisions and acting on them, rather than collecting and analysing data. Emerging technologies can automate traditionally manual processes and begin to learn and improve based on feedback. The key features are:

- ✓ Proof-of-concept ideas leveraging emerging technologies are explored as part of 'business-as-usual' (e.g. scripted task bots, natural language processing, speech and image recognition, machine learning enabled analytics)
- ✓ Effective proof-of-concepts are being piloted and productionised to improve operational efficiency or develop new products and services
- ✓ Ethical governance forums test the long-term implications of new solutions/ways of working
- ✓ Tools and technology are well integrated – i.e. there is minimal FTE to maintain systems

Are you asking the right questions?

- Does leadership understand the opportunities offered through emerging technologies?
- How do you see intelligence as a value generator within your business?
- How do leaders in your industry leverage data as a competitive differentiator?

Are you taking the right actions?

- Are your processes intelligently optimised?
- Are ethics and privacy concerns addressed within your processes?
- Are you testing new AI capabilities?

Are you making the right impact?

- Do you have the right blend of business and technical skills to identify, develop and embed intelligent solutions?
- Do your intelligent solutions cater for dispersed employees, customers and assets?

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Innovation Driven Organisation

A culture of ideation and knowledge sharing, with a strategy that leverages the latest technologies and stays ahead of the competition

What does good look like?

A culture of continuous innovation is embedded into the organisation, enabling it to adapt to market changes. The team rigorously challenges status quo and has an established feedback loop for transformation initiatives. The key features are:

- ✓ Innovation is integrated into regular business activities and consistently is seen to update products and services
- ✓ Employees are empowered and provided training on the latest technologies
- ✓ There is space for innovation within teams, whether this is virtual or actual, to build a community around new ideas
- ✓ There are processes in place for new ideas to be tried, tested and productionised
- ✓ The organisation has adopted a 'fail-fast' agility
- ✓ Innovation is seen as a priority for all, not just specific innovation or incubation teams

Are you asking the right questions?

- Is there leadership investment for innovation initiatives?
- Is your vision well understood to support valuable innovation in the right areas?

Are you taking the right actions?

- Do you have an ideation process?
- Do you have a sandbox environment for rapid development?

Are you making the right impact?

- Are you using new insights to continuously enhance the products and services you offer?
- How do you ensure lead time remains competitive?

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Industrialisation Driven Organisation

Enterprise-wide collaboration, integrated architectures into core systems, process, and behaviours with robust processes and workflows

What does good look like?

A culture of data literacy is present throughout the organisation, teams are working collaboratively to understand and deliver value from data. The key features are:

- ✓ Knowledge management forms a key part of the insights culture, sharing of algorithms, visualisation and reporting best practices and troubleshooting is common across the organisation
- ✓ The business, analytics, data and IT teams work together, especially in times of high demand or transformation
- ✓ Analytics solutions exist within an operating model which incorporates their governance, alongside lifecycle management
- ✓ There are continuous quality assurance processes, checking-in on ethical bias and algorithm accuracy, adopting continuous self-learning and making adjustments
- ✓ Service Level Agreements are in place with the customers of analytical solutions
- ✓ Change management is in place to embed any new solutions and ways of working, and reap the rewards
- ✓ There is continuous benefit tracking for each analytics solution

Are you asking the right questions?

- Are you making better decisions by joining the dots across business siloes?
- Are you enriching the depths of analysis by learning and sharing across teams?

Are you taking the right actions?

- Do you have the appropriate design authorities in place to make organisation wide changes?
- Are you integrating ethics, security and support into your development capabilities?
- Are you democratising analytical applications?

Are you making the right impact?

- Are there sufficient resources with the right skills to deliver at scale?
- Do you have strong relationships across the business to monitor, understand and adapt to business need?

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What is an IDO?

An IDO builds a culture of asking the right questions and constructs an ecosystem of data, digital, cognitive and innovation capabilities to support an analytical culture

The building blocks required to become an IDO

A structured approach is essential for achieving both pace and quality in creation and adoption of analytics solutions at scale.

An IDO's capability goes far beyond technology – it considers strategic alignment, talent and leadership, business processes and the entire information lifecycle and systems associated.

In its entirety, the IDO building blocks helps define your organisation's target operating model

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What is an IDO?

Considering AI with a wider lens than just technology

Asking the right questions

To fully embark on your organisation's analytics journey, you must first build a strong strategic direction and an understanding of the value proposition

Vision
Ensuring the AI vision aligns to and supports corporate goals and objectives.

Value Generation
Understanding the value of AI and prioritising initiatives appropriately to support a business case.

Insight Driven Performance
Evaluating how businesses should be using insight to manage their business performance and how to unlock value through effective decision making.

Taking the right actions

In order to improve the analytics maturity of your organisation, you must select and invoke the right data and analytics initiatives in order to support this journey

DIY Data Analytics
Organisations can unlock value at pace by combining capabilities from different cloud vendors to build their technology stack whilst democratising analytics.

Digital Ethics and AI
Digital Ethics can be embedded with AI to ensure insights are trustworthy and technology aligns with company values.

Start Small, Scale Fast
Shifting towards less data hungry models or combined structured and non-structured data to overcome limitations of large data sets and optimise costs.

Analytics on the Edge
Capture more insights by tapping into assets distributed outside your cloud environment and reduce analytical latency by performing analytics locally.

Secure Collaboration
Share and access more data whilst preserving privacy and security – tap into datasets that traditionally are difficult to access due to regulatory concerns and high sensitivity.

Making the right impact

Success can only be achieved when your organisation is supported by the right capabilities. Education and culture are key, as well as managing ever-changing business and customer models

The War for Talent
Creating an ecosystem of analytical talent with the right balance of business and technical skills – attract more data scientists and AI experts into your organization.

IDO Culture
Designing and enabling the appropriate behaviours to ensure IDO is embedded within the organisation and continues to deliver long term value.

Total Experience
Combine MX, CX, EX and UX to create an all-round exceptional experience. Architected correctly, organisations cam unlock powerful insights from total experience technology.

Distributed Enterprise
How can we organise to deliver value in a dispersed business model with employees and customers in varying locations? What technology should you be investing in?

IDO Playbook 2022 27

What is an IDO?

How do you address key organisational challenges as an IDO?

Any organisation, regardless of size, industry or focus, will encounter hurdles on their journey to embedding data and analytics into their business. The IDO Playbook can help reshape your thinking as you address these challenges while providing some insight into the art of the possible.

		Asking the Right Questions			Taking the Right Actions					Making the Right Impact			
Theme	**Problem Statement**	Vision	Value Generation	Insight Driven Performance	DIY Data Analytics	Digital Ethics & AI	Start Small, Scale Fast	Analytics on the Edge	Secure Collaboration	War for Talent	IDO Culture	Distributed Enterprise	Total Experience
Talent Crunch	"I am having difficulty finding the right skills internally and / or hiring externally that are needed to embed advanced analytics into my organisation"									●	●		
Data Quality	"The data quality in my organisation is poor, and thus, nobody is using it as confidence in the data is low"					●							
Data Democratisation	"I can't access the data I need in a timely manner / at all, and my colleagues are reluctant to share data with me"				●		●	●				●	
Governance	"I want to be confident that our data governance initiatives adequately address all ethical, privacy and biases-related concerns"				●	●			●				
Culture	"We don't have a culture of using analytics across the organisation, and adoption of data is slow to non-existant. Instead people are fearful of change"	●								●	●		●
Siloed teams and insights	"Production of analytics is dispersed across the organisation and sometimes duplicated. Processes aren't standardised and tend to be slow and manual"	●										●	●

IDO Playbook 2022 28

What is an IDO? (cont.)

How do you address key organisational challenges as an IDO?

Any organisation, regardless of size, industry or focus, will encounter hurdles on their journey to embedding data and analytics into their business. The IDO Playbook can help reshape your thinking as you address these challenges while providing some insight into the art of the possible.

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Conflicting priorities	"I don't think my analytics team understand what we are trying to achieve as a business, and my various business units have conflicting data priorities"	●	●										
Lack of leadership & accountability	"There is no one in the business championing analytics, no data ownership, and no accountability around the production and use of analytics"	●		●		●					●		
Customer Experience	"How can I use analytics to enhance the customer experience?"		●										●
Benefits realisation	"How can I utilize analytics to run my organisation more efficiently and effectively, and how do I measure these benefits?"		●	●					●				
Cost vs innovation	"How can I remain innovative and competitive while remaining cost effective?"	●			●		●	●	●			●	
Poor understanding of analytics	"There's too much jargon in analytics to understand its application to my business, and it's hard to differentiate it from the IT function"	●								●			
Scalability & Agility	"How do I keep up with the market in terms of methods and technologies in such a fast-moving world, and ensure these are scalable and agile?"			●	●		●	●				●	

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Asking the right questions

Vision

What does becoming an IDO mean to our business?

THE VISION: MORE THAN JUST DATA AND TECHNOLOGY

Organisations often fail to realise the true potential of data and AI due to the assumption that successful AI and data delivery is exclusively IT driven; only considering the gathering of data from source systems into an analytics or customer-facing solution. This can lead to a disconnect between the decision-making process, business value, and analytical insight. An AI and data vision needs to support the overarching business strategy, embedding insight into the underlying drivers which move an organisation towards its goals.

WHAT DOES SUCCESS LOOK LIKE?

To deliver successful analytical insights, organisations need to develop solutions that are underpinned by the right capabilities; organised in an appropriate operating model; governed in a structured way; and supported by people with both technical and business literacy who can translate knowledge into clear business value impacting decision-making within the organisation. Technology is used as an enabler (but not a driver) of this process.

Developing a clear vision and narrative for the IDO journey will help organisations align behind a set of common objectives and invest only in capabilities which support these strategic goals.

Failing to articulate an AI and Data Vision is a common reason for failing to make analytics 'stick' in organisations.

IDO Playbook 2022 31

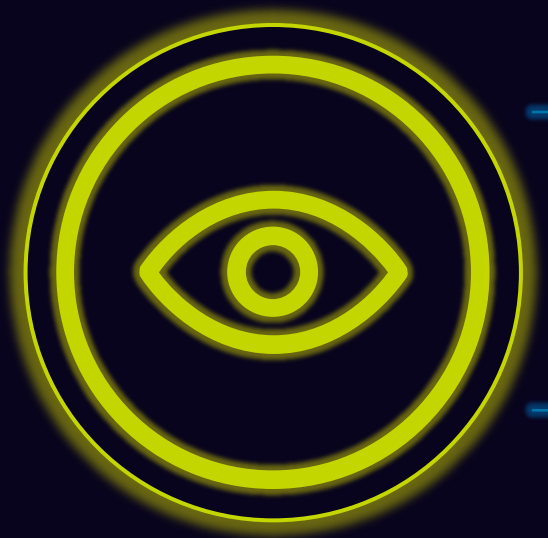
Vision

What does becoming an IDO mean to our business?

Future proofing your IDO vision

A clear vision helps to drive towards a common goal. This means avoiding the traditional temptations of a 3-5 year transformation programme is necessary to ensure responsiveness.

Organisations need a malleable AI and Data vision which is flexible and durable as the organisation learns more about the disruptive environment it is operating in. This flexibility will allow insights to be adopted along the way. Other considerations and constraints when future proofing the AI and Data vision include:



- A demanding, expensive workforce who find traditional structures increasingly prohibitive.
- Policy-makers and regulators are reacting inconsistently to data privacy and security issues.
- Markets and ecosystems reluctant to relinquish traditional means of quantifying success.
- Technology breakthroughs happening faster than ever before. Data explosion leading to a lack of innovation.
- Disruptive, agile start-up organisations which use digital means to revolutionise service offerings.

IDO Playbook 2022 32

Vision

What does becoming an IDO mean to our business?

New revenue streams

Effective use of an organisation's data, including the incorporation of AI where appropriate, can open up opportunities for new business models to broaden and increase revenue streams. Organisations can begin to assess the type of business model which might best apply by answering the following 4 questions:

1. Which other companies in the industry ecosystem apply data-driven business models successfully and what value do they derive?
2. What is the approach to implement the business model and how significant is the required change?
3. What methods exist to assess the monetary value of data assets?
4. What constraints and regulations with respect to data privacy apply to these business models?

Whilst the latest trend of data monetisation can look attractive, it is not suitable for many organisations – and they could end up selling their most valuable asset.

By understanding which business model suits the organisation best, a strategy to generate revenue and efficiencies from data can be defined that is tailored to the company.

Better together?

Looking at data opportunities as a multi-stage value chain, companies can decide at which stage they want to operate, depending on maturity levels.

TOP TIPS

- In a low-level maturity business model, multiple stages are owned by a single company, because no other players exist
- When competition increases and the data value chain matures, stages tend to be owned by separate, specialised companies
- Knowledge about industry maturity, which companies work together to enable a data value chain, and the company's own capabilities, can help to decide which business model to pursue

IDO Playbook 2022 33

Vision

What does becoming an IDO mean to our business?

Having effective use of your data has delivered clear value and has helped to establish market leaders. A failure to address the increasing prevalence and effectiveness of technology can lead to your organisation falling behind. Possible organisational gains from putting AI and Data at the heart of your business can be split in to five categories:

Intelligent Automation

Automate the "last mile" of automation by removing humans from low value and often repetitive activities (often in service of machines)

Gigster automates software development project management by quickly estimating the work required, organizing experts, and adapting workflows in real time

Gigster

Cognitive Insights

Improve understanding and decision making through analytics that are more proactive, predicative, and able to see patterns in increasingly complex sources

By equipping trains with AI-powered sensors that leverage advanced analytics, Trenitalia streamlined its unplanned maintenance and increased productivity

TRENITALIA TPER

Transformed Engagements

Change the way people interact with technology- allowing businesses to engage on human terms rather than forcing humans to engage on machine terms

Amazon Go enables retail customers to enter a store, automatically add items to their virtual cart, and leave store without needing to check out

amazon

Fueled Innovation

Redefine "where to play?" and "how to win?" by enabling creation of new products, markets and business models

OakNorth's "ACORN Machine" analyzes alternative data to quickly originate bespoke loans for small and medium sized businesses, growing its loan book to ~$1B in two years

OakNorth

Fortified Trust

Secure the franchise from risks such as fraud and cyber, improve quality and consistency, and enable greater transparency to enhance brand trust

HP's Aruba Introspect analyzes network traffic to identify subtle anomalies using behavior-based attack detection to proactively quarantine affected devices

hp

IDO Playbook 2022 34

Vision

What does becoming an IDO mean to our business?

Often it is difficult to see how a vision can have the impact and work in practice in transforming your organisation to put analytics at the heart of your business. Here we can see that the articulation of a clear vision will have a cascade of effects on your organisation right down to the people, process and ways of working.

Set Vision & Objectives

What are our analytics goals and aspirations?

Defining your vision to become an IDO organisation will allow you to set goals which deliver a clear barometer on success of your transformation.

Your vision and goals will allow you to understand the level of ambition and investment required, as well as considering often forgotten questions on ethics, privacy and transparency around data.

Define Mission Priorities

Where will we focus?

Establishing the focus, as determined by your IDO based goals will enable you to narrow the playing field and understand where you can deliver the best business outcomes.

Asking key questions like where we will deploy our analytics, and who exactly will benefit will help to determine where is best to focus in order to reach your goals.

How will we succeed?

Winning in the areas you have chosen to focus on is essential to deliver on your goals and thus vision.

Winning can be split in to three main areas which should be addressed within the IDO framework:

- Winning technically
- Winning organisationally
- Managing risks

Ensure Operational Alignment

What capabilities will we need?

Understanding the capabilities, you need to facilitate your success and in turn your IDO Vision means your analytics transformation will go further than just technology.

Considering not just the technology required, but the processes and people required to deliver for your transformation is key.

This will make analytics "stick" in your organisation.

What management systems will we need?

The final layer to executing on a vision is to understand the granular impact on the way your organisation works.

These are questions like: determining the operating model that best fits your capabilities; how can you create an IDO culture; and how can you measure success in practice are key to becoming an IDO and realising your IDO vision.

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Value generation

How can we understand and measure success?

What does success look like?

Organisations often find it difficult to measure and demonstrate the value of AI and data analytics projects back to the business. This inability to show ROI stems from one of 3 root causes:

1. **The project is not aligned to business needs or designed to answer a specific business question**

2. **Despite a well-executed project, the business has not adopted the insights or the solution in BAU**

3. **Unrealistic expectations were set in terms of results, timelines, outputs or user-experience**

A successful organisation leverages analytics across the business to gain value by:

- Identifying business process improvements
- Understanding and improving customer experience
- Guiding company strategy
- Deriving performance measurement / ROI metrics
- Informing marketing and communications strategies
- Creating or modifying products and services
- Monitoring the competitive landscape
- Targeting sustainability metrics and goals

IDO Playbook 2022 36

Value generation

How can we understand and measure success?

High level assessment → **Short list and prioritisation** → **Granular understanding**

Demand prioritisation

Each AI and data analytics project should be assessed on the value it delivers (strategic and financial) and the risk involved. To enable the business value to be consistently measured across all projects, they should be assessed against each value driver to establish a relative score for the perceived benefit to be delivered to the organisation.

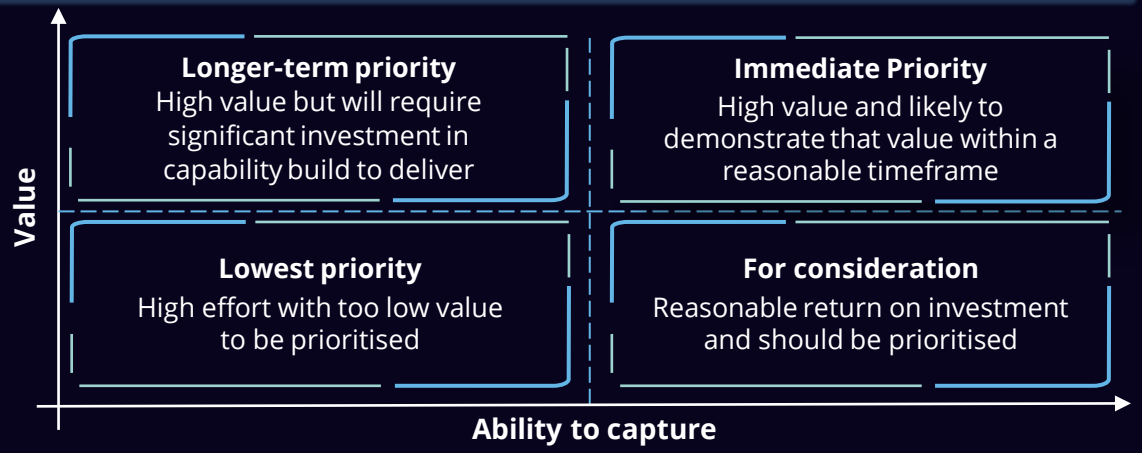
When assessing projects, the impact on people and organisation, the technology as well as the data and governance should be taken into consideration since change can create significant value as well as risk.

The prioritisation process

Often businesses have several AI and data analytics projects sponsored by different departments competing for the same delivery resource. This cross departmental demand makes it difficult to effectively prioritise projects which are attempting to deliver both direct or indirect benefits to the business.

An objective prioritisation process needs to be put in place, with cross departmental representation, to identify those projects that deliver the greatest value with the least risk and achieve business input and 'buy-in' on their execution. A prioritisation process has 3 key outcomes:

- Measure the value and risk for each potential project
- Cross departmental agreement of project prioritisation
- Clear list of projects for the delivery team to progress



IDO Playbook 2022 37

Insight Driven Performance

Making informed choices reliably and repeatedly using the industrialised generation of insights within an organisation

Effective decision-making is fundamental to realising success for any organisation. Each decision made – big or small, strategic or operational – is a nudge on the organisation's steering wheel. How well an organisation selects and co-ordinates those nudges will determine its direction of travel, how long or bumpy its journey is and whether or not it actually gets where it wants to go.

Insight Driven Performance connects Strategy to Execution in an iterative and self-improving system

1

Learnings from the operational level are fed into the strategic decision-making choices of the organisation

4

3

An iterative approach – from insight generation through action, tracking and learning – is established to help the organisation pursue strategy and learn-fast at an operational level

2

Prioritised areas of performance and clear accountabilities are embedded in the organisation's performance management approach to support the adoption of strategy

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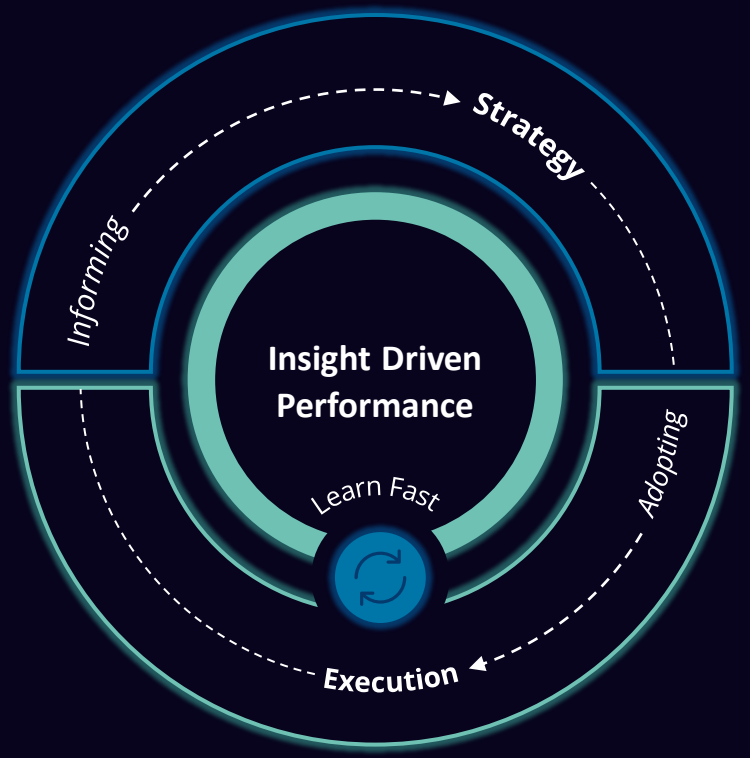
Insight Driven Performance

Insight Driven Performance requires the organisation to not only generate insights, but to take the informed actions necessary to turn those insights into enterprise value



Data — The facts and figures available to be reviewed

Dialogue — Discussion and analysis of the data in context

INSIGHT — **Accurate and deep understanding of the true nature of the situation**

Informed action — Insight Driven choices put into action

Enterprise value — Positive outcomes for the business as a whole, be it improved sales, profitability or reputation

IDO Playbook 2022 39

Insight Driven Performance

Thriving in a dynamic environment: The insight-driven qualities of leading organisations

Disruptors to all organisations

- Demands of the Connected World
- Emerging Technologies
- Exponential Data Growth
- System-Shocks

Qualities of organisations primed to succeed

Collaborative
Collaboration – within an organisation and within its business ecosystem – unlocks both innovation and opportunity and is a source of competitive advantage for those organisations who can get it right

Learning-oriented
As successes and mis-steps come and go, it is an organisation's ability to learn that will determine the relative balance of the two – and which of the two an organisation is destined to repeat

Data-led
Organisations who acknowledge the importance of data as the raw material of insight generation and put it practically and culturally at the heart of their decision-making will consistently outperform those organisations who don't

Technology enabled
New technologies can make the generation of insight more rapid, reliable and repeatable across the whole of an organisation providing them with the tools to drive consistently improving performance

Agile
Agility and adaptability can't insulate against systemic-shocks, but they are qualities that allow organisations to adjust to those shocks faster and more effectively than their competitors

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Insight Driven Performance

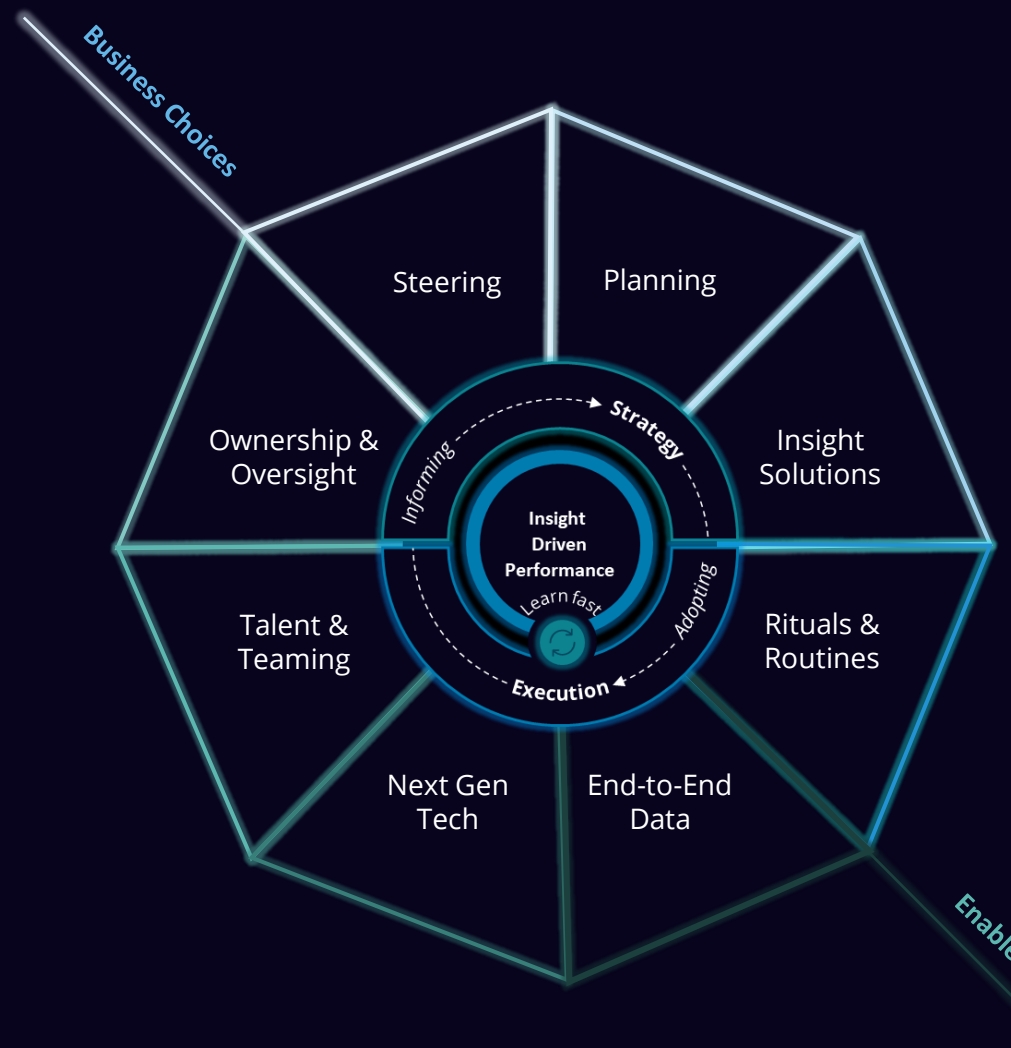
Insight Driven Performance depends on eight core components to realise enterprise value and iteratively improve

Rather than being overwhelmed into inaction, those who succeed will be those who understand the value of improvement and understand that the varied components represent ample ways to make a difference

Business Choices are where the organisation makes its up-front and ongoing decisions as they conduct their performance management

Enablers are the components which provide the organisation with the capabilities to generate insights

The maturity and effectiveness of an organisation will vary across the different components, but seeking to understand, assess and selectively improve the maturity and effectiveness of the different components is a vital step for any organisation seeking to optimise its decision-making



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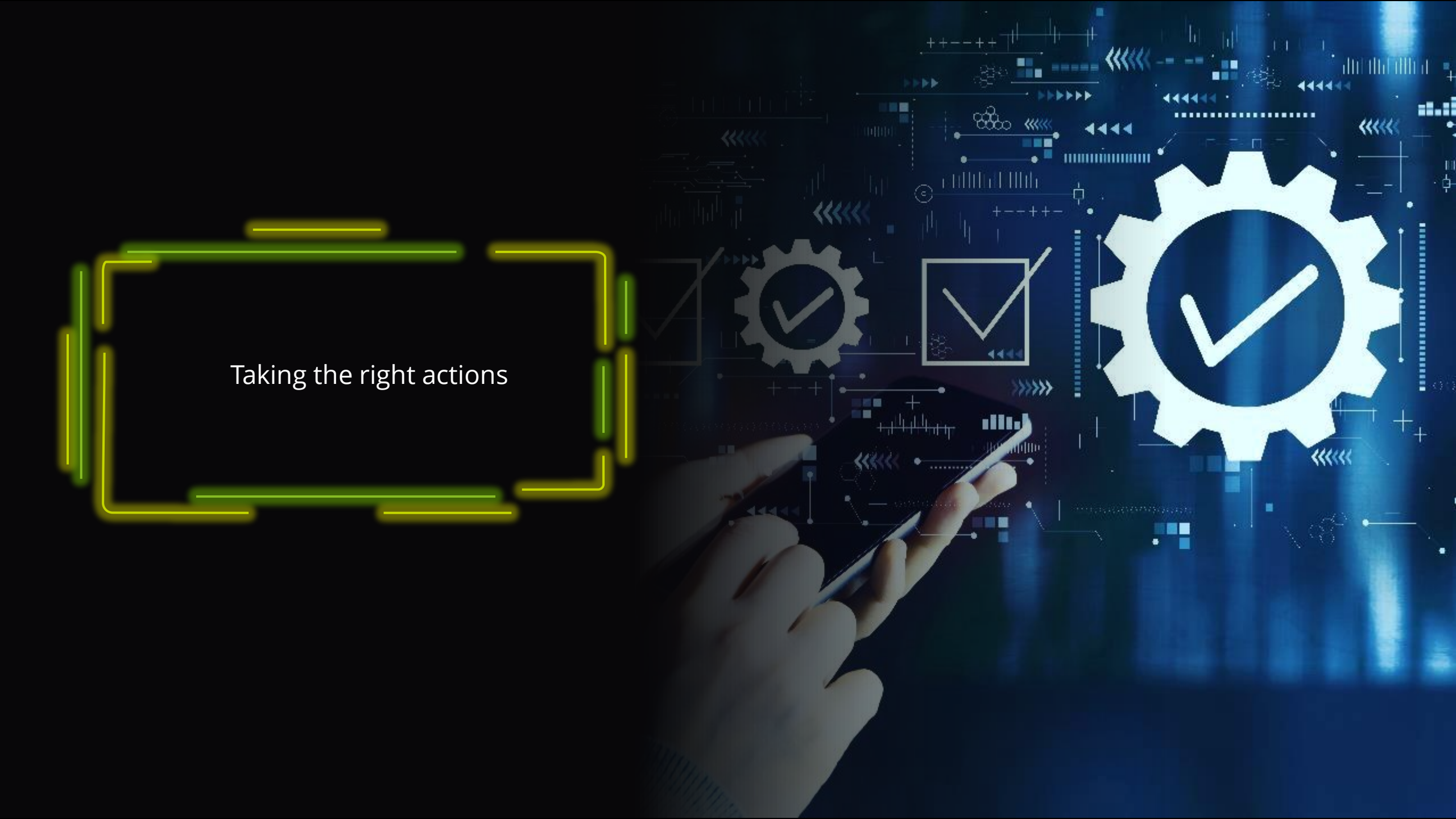
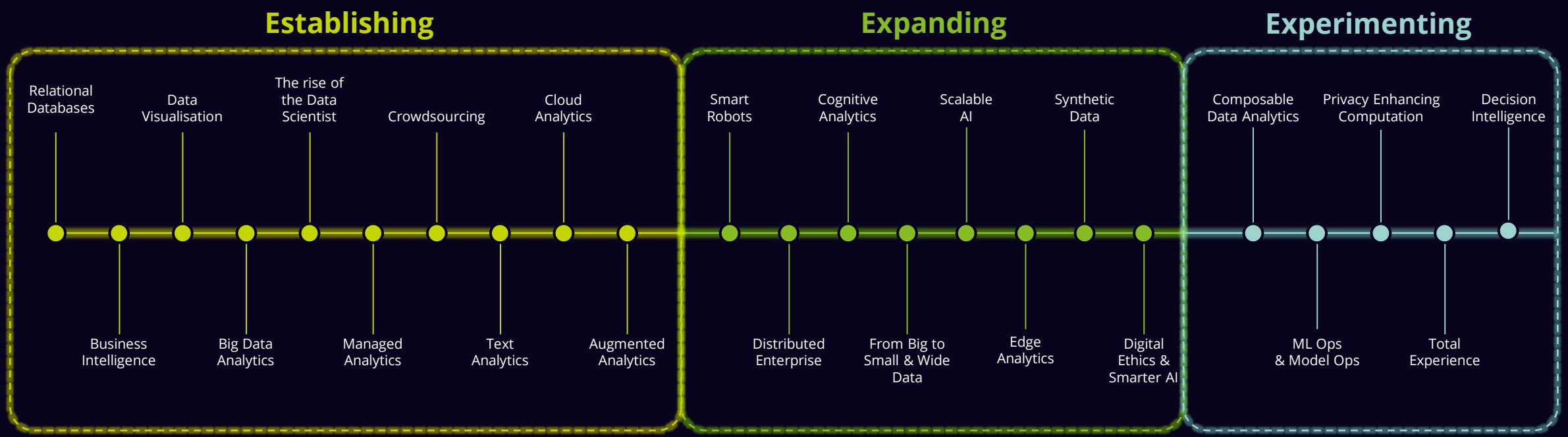
Taking the right actions



Taking the right actions

Following business disruptions of the pandemic, leading organisations are accelerating analytical capabilities at scale – don't get left behind!

Depending on whether you are an **established** organisation, looking to **expand** into new hot topics or **experiment** with cutting edge concepts and technologies, the below provides some examples of what organisations are talking about. In this section, we deep dive into some of these topics.



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DIY Analytics

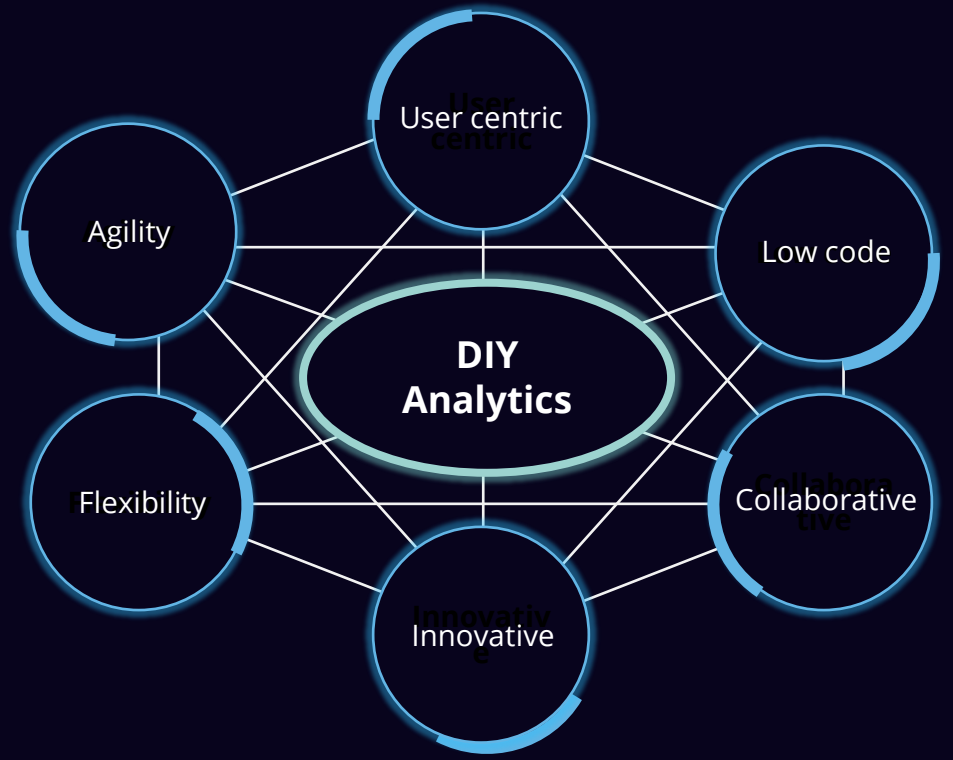
Shifting to a composable D&A (data & analytics) architecture enables businesses to build applications by interconnecting analytical capabilities via APIs so end users are provided with a catalogue of business intelligence applications to choose from based on use case

"Composable Analytics = Embedded + Low/No-Code + Consumerisation"

Composable D&A enabled by cloud computing

We are seeing more and more open D&A applications that enable cross communications with other applications via a cloud-based architecture. In fact, by 2023, Gartner suggests 60% of organisations will compose components from three or more vendor solutions to build comprehensive analytics applications.

The cloud is fast becoming an ideal place to achieve advanced analytics capabilities, such as composable D&A, due to its scalability, reduced operational effort required and open technology that sits behind it. It is however unrealistic to implement a full analytics stack at once and many companies will do so in stages. Businesses with complex and unpredictable needs can adopt composable D&A to bring analytics closer to the end user or business process. This improves decision making, creates analytical flexibility and allows more advanced analytic capabilities to be hand picked by users for a business process.



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DIY Analytics

Composable analytics drives innovation

1 Improved APIs democratise powerful analytics

Growing technology partnerships between vendors enables tools to communicate better with each other making it possible to package them within applications – for example – deploy a predictive model from vendor X into Tableau dashboard to enable more users to use interactive predictive analytics

2 More Open Data Models brings capabilities together

Enables analytical tools to coexist with other tools while running on the same data model. With convergence of ABI platforms and DS (Data Science) or ML (Machine Learning), increased openness of the data model structure that sits behind is important to provide more opportunity for composition

3 Data Governance: Analytics catalogue

Analytics catalogues are emerging through adoption of container-based services and business intelligence. Provides user friendly interfaces to access reports, models, dashboards from a diverse range of applications. This enables collaboration and drives increased usage of an organisation's analytical portfolio

4 Bridging data science components into analytic applications

Taking augmented analytics to the next level. More connecting mechanisms will be made available to bridge components from different analytic domains without rearchitecting the existing production process in each platform

5 Transitioning from integration to innovation

Instead of building new dashboards or embedding new analytical tools, innovate solutions to business problems by combining existing analytical capabilities

6 Encapsulating packaged capabilities with a composable mindset

Lots of analytical tools is great but this cause complications when they are not organised properly into business understandable analytic blocks. Composable analytics combines and optimises these blocks as packaged capabilities from which users can access the analytical power of multiple blocks

Source: Gartner

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DIY Analytics

Leaders should consider Composable D&A techniques in order to...

DEMOCRATISE ANALYTICS

Building using low to no code tools involves more employees in the build of analytical solutions

BRING USERS CLOSER TO DEVELOPERS

Development involves business users throughout to deliver the best solutions

RAPIDLY INNOVATE

Re-usability of analytical capabilities through connections enables business to build new applications at pace

PROVISION MOST ACTIONABLE INSIGHTS

The culmination of intelligent applications working together enable organisations to provision most actionable insights possible

REDUCE COSTS

Build new capabilities from existing applications removing the need to invest in solutions from scratch

BE CONSUMER DRIVEN

Build bespoke solutions that are shaped to solve specific consumer problems

IDO Playbook 2022 46

DIY Analytics

Data and analytics leaders should explore piloting composable D&A in the cloud and enhance analytical capabilities by establishing composability within existing analytical portfolios

Impacts	Recommendations
Microservice based analytics, BI, ML and data science platforms with improved APIs enables assembly of analytics capabilities across platforms	• Extend analytics capabilities by establishing composability within existing analytics porfolios • Leverage composable analytics to drive innovation by incorporating advanced data science and machine learning content into analytics applications
Low and no code capabilities enable more customer focused analytic application design, improves collaboration with business user and developer	• Explore opportunities to add analytics capabilities to applications by building a joint team of application developers and business analysts
Popularity of cloud-based marketplaces drives organisations to explore innovative analytic capabilities. Adds value to cloud-based applications	• Pilot composable analytics in the cloud, establishing an analytics marketplace to drive and support collaboration across business users, developers and citizen data scientists

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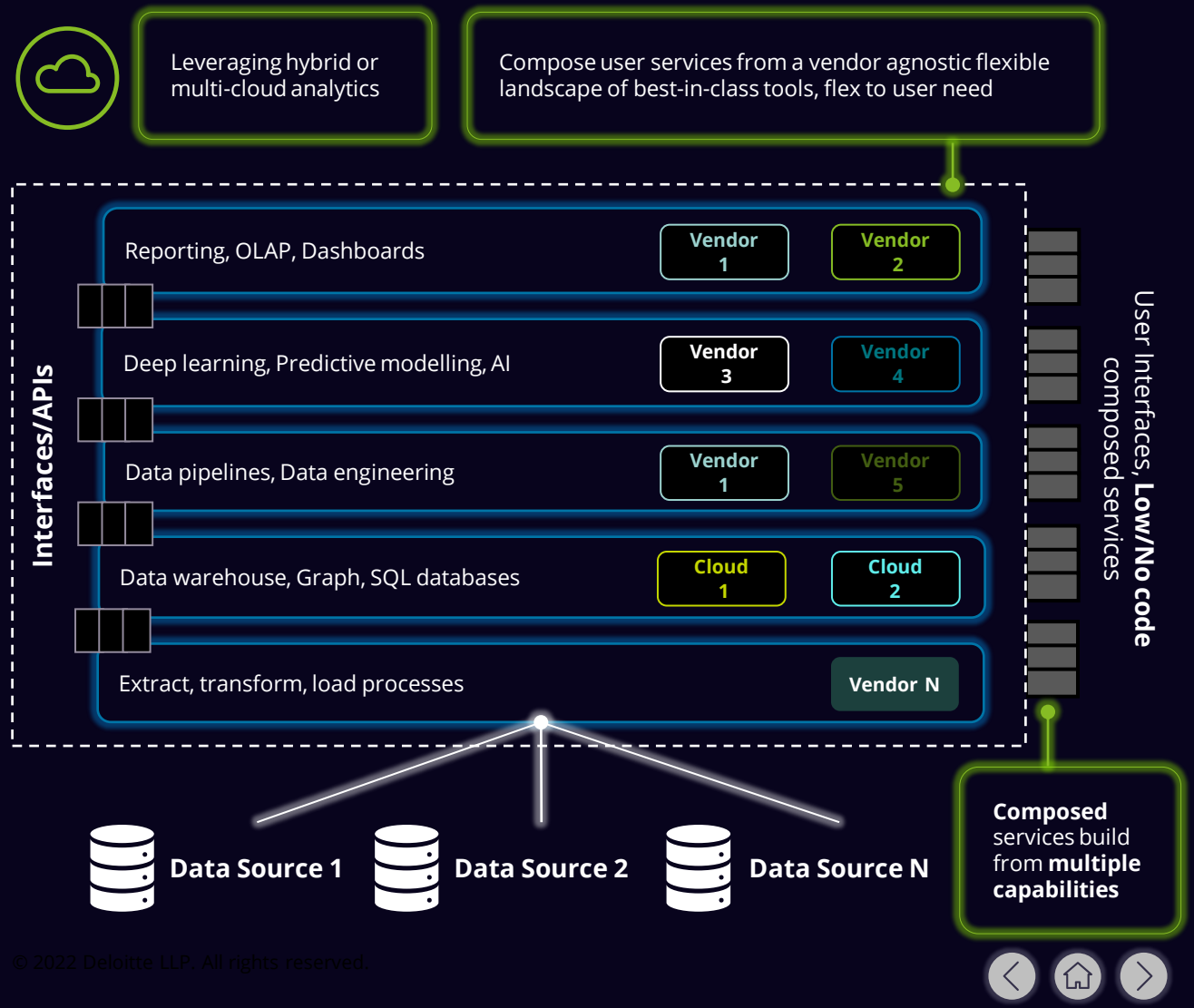
DIY Analytics

A composable data architecture is built ground up, combining the best of D&A capabilities via open APIs into low code platforms from which services are accessed via bespoke user interfaces



User Journey: solving an insight-based problem

Composable D&A Adaptation

Identify business problem	A multi vendor landscape enables a more wholistic approach and a wider perspective
Assess analytical solution required	User rapidly able to identify existing capabilities or composable opportunities to solve the problem
Engage data team	Analytical solution democratised, less engagement with specialists required
Data team builds solution	Collaboration with data team improves, time is significantly reduced if bespoke solution needed, drives innovation and expose solution in user friendly manner
Data team carries out analytics	The user carries out the analytics themselves through low/no code interface
User receives output	User with understanding of business problem is closer to and helps shape the output with developers

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DIY Analytics – Distributed Analytics

Larger organisations that want to scale their data & analytics capabilities at pace should start to consider distributed analytics strategies

DRIVERS FOR DISTRIBUTED ANALYTICS

- Larger organisations that encounter more uncertainty and changes in operations
- Organisations shifting towards becoming more distributed & decentralised enterprises
- Organisations that want to scale quickly
- Organisations that work with wide and frequently changing data sets
- Organisations that have legacy data platforms that are slowing down innovation efforts
- Organisations looking to move away from big centralised data teams and monolithic data lakes or databases
- Companies that already have domain driven development techniques
- Companies that have already started working with micro services
- Organisations with a culture that makes it difficult to scale centralised services

BENEFITS OF DISTRIBUTED ANALYTICS

Agility: Decentralised teams can be more agile and operate independently, reducing time to deploy and cutting down IT dependence

Innovation: Domains are able to focus on their data products, bring new data sources and solutions that otherwise wouldn't have been thought of

Quality Control: Overarching governance principles encourage teams to deliver high quality data products in a common format

Faster Product Delivery: Self-serve platforms provided by the data mesh infrastructure handle complexities like data storage & management

Domain independence: Business functions have independence over prioritisation and data products that fit their needs

Cross functional collaboration: A data mesh encourages collaboration between data experts on the business function side and developer teams

Users close to development: The understanding of the operations and business side of data is as close to the development as possible

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DIY Analytics – The Data Mesh

Compared to composable D&A, a data mesh is a strategic approach to data management. Shift your organisation beyond centralised data methods to a decentralised one by empowering data producers and consumers to manage & access data without a central team

DOMAIN ORIENTED OWNERSHIP & ARCHITECHTURE

- A domain is a group of people organised around a common business function
- Here, we propose that the domain is responsible for the management of data created by the business function itself
- They are responsible for the composition, transformation and provision of data to end users, eventually exposing the data as data products
- The entire data lifecycle is owned by a domain

DATA AS A PRODUCT

- This is where the value is drawn from the data for the users and data products are created and owned by the various domains across your organisation
- They are self contained and each domain is responsible for the security and management of their products' ensuring data is relevant, secure and up to date
- They have a clear line of ownership and can be consumed by other data products or end users to support business intelligence and AI

SELF SERVICE DATA INFRASTRUCTURE AS A PLATFORM

- A domain is a group of people organised around a common business function
- Here, we propose that the domain is responsible for the management of data created by the business function itself
- They are responsible for the composition, transformation and provision of data to end users, eventually exposing the data as data products
- The entire data lifecycle is owned by a domain

FEDERATED COMPUTATIONAL GOVERNANCE

- Data governance standards are defined centrally, but data governance is applied at the domain level in a decentralised approach
- Domains have autonomy over data governance specific to their own products while adhering to a set of global rules that ensure a joined-up approach
- Autonomous data domain teams and centralised data governance functions collaborate in order to best meet the data needs of the organisation

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Digital Ethics and AI

Digital Ethics can be embedded in the entire organisation from the strategic to the operational level to ensure insights are trustworthy and technology aligns with company values

Digital Ethics

Digital Ethics ensures that digital solutions are designed and implemented in a responsible way.

It encourages organisations to align their processes and practices with relevant values and principles to safeguard innovation and **mitigate potential harm** to stakeholders

Digital Ethics considerations follow a solution throughout its lifecycle to monitor the technology and avoid risks of downstream consequences

It establishes **accountability** for how technologies are used and designed across the entire organisation, creating processes to explain when it proves unsuccessful

This generates responsible insights, allowing an organisation to build trust and improve regulatory readiness to streamline implementation to **unlock growth**

Strategy

Responsible Innovation Strategy

Aligning values and vision through Digital Ethics guides responsible business strategy

Governance

Digital Ethics Governance

Embedding Digital Ethics principles and governance structures ensures successful implementation of strategy and future-proofs ROI

Digital ethics culture

Digital Ethics Culture and Values

Instilling a Digital Ethics culture promotes inclusivity and effectively leverages diverse talent to create responsible technologies

Responsible insights

Responsible Insights: Smart, Scalable AI

Centring Digital Ethics as the focal point of design and implementation processes yields trusted insights

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Digital Ethics and AI

Responsible Innovation Strategy: A Digital Ethics lens uncovers the long-term implications of AI for the organisation and its stakeholders

The value of a digital-ethics led strategy

- The leading innovative organisations of tomorrow align their actions to their values
- A digital ethics-forward strategy can leverage your **ESG** goals to drive more resilient strategy development
- A strategy centered around digital ethics considerations starts with determining what matters to stakeholders; customers, employees, regulators, and the general public to **guide responsible business**
- This **builds trust with consumers** and business partners that fosters collaboration for more productive and efficient relationships that will ultimately benefit everyone involved
- Simply meeting the regulatory standards is not enough – proactively addressing digital ethics considerations grows brand trust and **prevents reputational damage** from the use of data in business

Questions leaders can ask when refreshing strategy

How can we future-proof the implementation of our strategy?

While algorithms may be susceptible to risks with Digital Ethics implications, when combined with appropriate human oversight they can provide many benefits to society and wider-society

How do our values guide technology selection and adoption?

A responsible innovation strategy should cascade through use case selection that aligns with strategic priorities which flow from organisational values and differentiated based on compatibility

How can we build an inclusive "digital" brand?

Becoming a digitally responsible brand starts with ensuring digital ethics is a part of the DNA of the organisation and effectively communicating internally and externally how the organisation is using digital ethics to be a more responsible business

Strategy
Governance
Digital ethics culture
Responsible insights

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Digital Ethics and AI

Introducing Digital Ethics governance that is principles-based is an effective first step towards responsible use of AI

Governing technical systems with digital ethics

Creating Digital Ethics governance structures based on principles is an important step in enabling an organisation to effectively deploy technology to produce responsible insights. Governance policies should consider three key aspects when operationalising governance principles:

Accountability and compliance

Digital Ethics governance identifies ownership and accountability chains across the organisation, instituting Digital Ethics advisory capabilities in existing governance processes allowing escalation to board-level as required. This ensures organisations can meet regulatory obligations and manage reputational risk

Aligning actions with values

Digital Ethics governance increases robustness and confidence in internal processes to drive responsible business practices. Governance allows organisations to align their actions with their values

Mitigating sociotechnical impact and building trust

Unlocking the opportunity of technology requires also addressing the risks posed to internal and external stakeholders, including the public. Proactive governance builds trust and ensures responsible technology use

Governance principles

Human-Centered & Fair	Value-sensitive design creates internal and external checks to help ensure equitable application of technology across all participants
Robust and Reliable	AI systems have the ability to learn from humans and other systems and produce consistent and reliable outputs
Transparent & Explainable	All participants are able to understand how their data is being used and how technology systems make decisions; algorithms, attributes, and correlations are open to inspection
Privacy	Consumer privacy is respected, and customer data is not used beyond its intended and stated use; consumers are able to opt in/out of sharing their data
Responsible & Accountable	Policies are in place to protect human agency and determine who is held responsible for the output of AI system decisions
Safe & Secure	AI systems can be protected from risks (including Cyber) that may cause physical and/or digital harm
Inclusive & Sustainable	Systems are designed to be inclusive and ensure individual, societal and environmental wellbeing

IDO Playbook 2022 53

Digital Ethics and AI

Embedding digital ethics principles in governance structures is critical to the reputation, brand trust, risk mitigation and effective monetisation of AI capabilities

How the digital ethics governance is implemented depends on the organisation, the technology in use, the context and its IDO maturity. The framework can help address the organisation's key pain points around ensuring insights are trustworthy

How can industry apply the framework?

How to Exceed Compliance

With increasingly digitalised economies, regulators are pushing more and more towards safe and secure AI technologies and are imposing guidelines and regulations on trustworthy AI. Digital Ethics governance that proactively addresses these issues ensure regulatory readiness, safeguarding your investment

How to Build Reputation/Trust

Would you trust an AI with your health or life savings? Many companies have developed good AI systems. Users however, struggle with trusting their results. Trust in AI, is more than model accuracy. It is also defined by how the AI came to its conclusion, how it influences decisions and who takes the consequences when something goes wrong

How to Generate Responsible Insights

Digital Ethics considerations such as transparency and explainability when formalised through governance processes highlight aspects such as understanding how a model comes to its conclusions and where it has its weaknesses that encourage fine tuning of models and boost model performance

What are the benefits?

Competitive Edge

The use of AI is highly restricted in many industries. Unpacking black-box AI models and putting in place proper frameworks dealing with AI systems enables companies to use artificial intelligence at the core of their business and go new ways where it was not possible before

Reduce Risk

Making trustworthy AI a core competency in your business helps to understand and address the vulnerabilities arising from adversarial model behaviour as well as arising risk of human misbehaviour when interacting with AI systems

Improve Revenue

Generating responsible insights open the doors to numerous business opportunities in the artificial intelligence space, which market size was valued at **$ 39.9 B** in 2019 and is expected to grow by **42.2%** annually from 2020 to 2027

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Digital Ethics and AI

Digital Ethics Culture and Values: Instill a reflective decision-making process

DOING THE RIGHT THING. TOGETHER.

Any new decision, model, product or service comes with risk as well as opportunity

With advances in AI, it is important not to underestimate the need for human and AI balance to mitigate harm and reap the benefits of innovation

Ultimately, an organisation needs to be comfortable with the societal impact of their technology and how that judgment call is made

A culture of reflection

A Digital Ethics culture encourages iterative reflection throughout the analytics and AI delivery lifecycle to ensure risks are anticipated, identified, escalated appropriately and mitigated

A culture of transparency

Stakeholders, including customers, often have high levels of trust in organisations that are open and transparent about their use of digital solutions. Ensuring external stakeholders are aware of how the organisation uses technology and what impact they can expect is critical to building trust

The impact of new solutions should be understood and communicated internally as well, to build awareness on how the organisation aligns its actions with its values. Responsible teams are adaptable, resilient and proactive

A culture of accountability

When having clear accountability chains is a priority and embedded in the culture of an organisation, customers, employees and others will be able to seek redress in the case they suffer harm from a digital solution. Demonstrating accountability builds a trusted relationship with all stakeholders

A culture of inclusivity and diversity

Creating diverse teams (e.g. different ethnicities, genders, disabilities, ideologies, and belief systems) at all levels of the organisation drives resilience and provides a broader base of perspectives to identify and mitigate problems and risks such as bias in data and models

...A DIGITAL ETHICS CULTURE

IDO Playbook 2022 55

Digital Ethics and AI

Responsible Insights: How operationalizing Digital Ethics delivers Smart, Responsible, Scalable AI

Smart scalable AI

Smarter, more responsible AI disruptions that scale to your long-term vision

Machine learning and AI have seen significant expansion in recent years, with advanced analytics being embedded into a broad range of processes and applications; from CRM systems driving enhanced customer experience to back-office systems to reduce fraud and drive efficiency.

As AI becomes more central to all aspects of society and business, there is also a **growing urgency to protect ethical use and privacy** when using AI. Ethical guidelines are important to establish as bias and discrimination in decision making are amplified when automated with AI.

Current **AI benefits can be difficult to achieve** in the face of new and evolving issues that accompany deployment of a production ML application. Machine learning applications encounter snags that other software projects do not. Resulting in AI projects **incurring delays increasing costs** and postponing benefits.

Digital Ethics can facilitate safe and successful implementation acting in tandem with the development process; utilizing Digital Ethics considerations to either signal issues to be addressed or to provide a Digital Ethics dimension to reinforce a solution

Smarter

Digital Ethics considerations promote AI that is more trusted, resilient, creative and less data-hungry

Highlighting the ethically risky elements of AI applications enables discovery of technical solutions

Scalable

Embedding Digital Ethics in the production process improves AI robustness, accessibility, productivity, deployment and operations ensuring risks are methodically addressed as the organisation matures

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Digital Ethics and AI

Responsible Insights: Digital Ethics considerations highlight the ethically risky elements of AI applications, enabling discovery of appropriate and effective technical solutions

Smarter AI – A Case Study: Overcoming Ethical Data Limitations with Synthetic Data

To overcome data availability concerns organisations looking to leverage data-intensive AI can opt for cutting edge solutions like synthetic data to meet innovation goals and mitigate stakeholder harm. Data security and privacy are key concerns for organisations who desire a high degree of stakeholder trust by decreasing the risk of exposing sensitive data to new vulnerabilities

Three main trends to meet the challenges of provisioning test data:

Trend 1: Data Subsetting

Using a subset of production data in non-production environments

- ✓ Distribution and testing faster*
- ✓ Most stable trend
- x Not representative of entire dataset
- x May not retain referential integrity*
- x Exposes production data to testers*
- x Requires data masking of PII*
- x Potential misuse/breach

Trend 2: Data Virtualisation

Creating virtual copies of production data in non-production environments

- ✓ Representative of entire dataset
- ✓ Increase in vendors offering data virtualisation
- x Less mature than other trends
- x Misunderstanding of data/coverage

Trend 3: Synthetic data

Combining the benefits

Generating synthetic data combines the benefits of both trends through synthetic representation of the full production database without compromising sensitive data.

This allows organizations to ensure key Trustworthy AI governance considerations are met:

- Monitoring and Oversight
- Data Minimisation
- Maintaining transparency
- Scaling governance

Coverage
Enhancing test coverage by mirroring production data and filling in "gaps" with richer datasets the first time
E.g. A Large Bank may generate large volumes of data to cover many test cases without compromising its current member's identities

Security
Avoids exposing sensitive data in testing, such as Personally Identifiable Information (PII)
E.g. A Hospital Network can use synthetic data to protect patient privacy in compliance with HIPAA while developing online health portals

Agility
Automatically creates new data, and effective, efficient distribution to testers, without relying on operations assistance
E.g. A Large-scale Enterprise can scale this solution to create large volumes of data for accurate performance, load and regression testing before going to market

Maturity
Tools now support complex environments and quick data access to keep pace with more rigorous development practices
E.g. An organisation using DevOps and Continuous Integration can use this to compliment their mature processes

* Applies to trend 1 and 2

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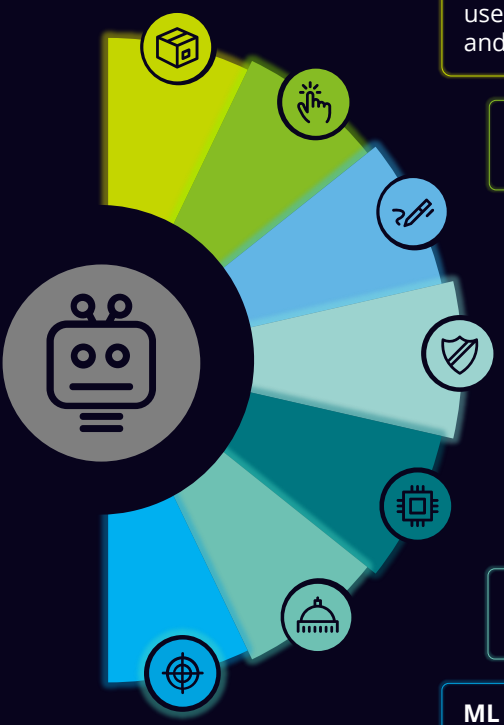
Digital Ethics and AI

Responsible Insights: Incorporating Digital Ethics into the production process builds trust by embedding a human-centric focus throughout the products lifecycle to systematically mitigate harm

Scalable AI – A Case Study: Revolutionising ML Development with Digital Ethics* MLOps

MLOps enables organisations building and deploying AI applications to decrease production delays, ballooning costs and missed benefits

Digital Ethics seamlessly embeds itself in this process; Safeguarding project value by creating AI that is resilient, reproducible and robust, ensuring risks are proactively addressed in an agile, timely manner for ease of implementation and trusted results



Model Packaging and Deployment simplifies deployment of models built using a variety of languages at scale on any cloud or on-premise. Successful user acceptance testing in preproduction triggers model deployment and integration with downstream applications. **Governance tools** are in place and **appropriate communications to relevant stakeholders** are cascaded

Model Monitoring and Management **enables continuous tracking of various performance measures** against appropriate thresholds and benchmarks identifying retraining needs. Business ROI and other business metrics are also tracked to demonstrate **benefits realisation**

Model Governance includes features such as model access control, an **audit trail to provide transparency** on the model's functioning and any other regulatory and compliance needs for model usage

Model Security ensures the **protection** of models from being exposed to cyberattacks or inappropriately accessed by unauthorised users

Model Discovery provides model registries or catalogs for models produced within the tool ecosystem as well as a searchable model marketplace that provides a way to locate consumable models, both internally developed as well as third-party models which are **vetted against the Trustworthy AI framework**

Data Preparation ensures **data governance practices** are enacted to collect, label, cleanse and process appropriate data and that these **measures are repeatable** as the model is deployed

ML Pipeline Development ensures use cases are **selected and prioritised in line with the organisation's strategies and values**. It allows users to define repeatable and reusable steps for model development

green text highlights Digital Ethics measures

Strategy

Governance

Digital ethics culture

Responsible insights

IDO Playbook 2022 58

Start small, scale fast

As companies experience the limitations of big data as a critical enabler of analytics and AI, new approaches known as “small” and “wide” data are emerging

Small and wide data enable organisations to drive value faster

With technology rapidly evolving enabling businesses to store more data and scale fast, one might think the solution is even bigger data. However, **experts believe the opposite** – companies have struggled to gain meaningful insights at speed where big data has clouded decision making and limited building bigger picture ideas and responding to fast moving market shifts.
Disruptions such as the COVID-19 pandemic can cause additional problems because historical data captured in big datasets become **obsolete** more quickly.

Small and wide data provides organisations the opportunity to gather more **specific, relevant** and **distinct insights** from a multitude of data components where big data has struggled to do so.

- **Wide data** focusses on **tying together disparate data sources** such as video, text, imagery and many other data types – this helps organisations generate more meaningful and contextualised analysis. Predictive maintenance of engines is a good example for wide data – a variety of data types are brought together to generate insights that forecasts engine failure
- **Small data** is what it says on the tin – using smaller datasets that enable organisations to drive value quickly and work with agility to solve problems – very useful if datasets need to be understood quickly with an iterative approach – many AI techniques are now being developed to cope with small data sets

Wide Data
X analytics of video, text, image, audio, tabular, json, temperature, …

Small Data
Time series analysis, snapshot learning, federated learning, adaptive, …

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Start small, scale fast

Small and Wide Data allow for more robust analytics and AI, at pace

Context

Predict passengers on train by combining sensor, timings, schedule, train capacity data. Add more context for better predictions!

Innovation

Reduce time and effort needed to deploy new analytical tools and data hungry barriers for ML models. Empower decision intelligence

360 view

Derive better decisions by building the full picture from multiple data types and sources. Improve situational awareness

Robustness

Forecast demand with frequently changing customer sentiments incorporating wider and smaller data into less data hungry models – remove bias of historical observations

Agility

Build, deploy, learn and fail fast. Build iteratively and adapt easily – at reduced costs!

Pace

Lower time barrier to entry for advanced analytics without requiring complex build of data storage architectures

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Start small, scale fast

Big data shouldn't be discarded, but the benefits of small and wide data are clear

Benefit	Small data	Wide data
Usually structured, easy to manage	✓	✗
Easy to use for testing and hypothesising	✓	✗
Use to show value at pace and low cost	✓	✗
Add contextual value to AI and analytics	✗	✓
Use in X Analytics*	✗	✓
Extract value from all enterprise data	✗	✓
Helps solve the age-old data silo problem	✓	✓
Proactively respond to changes in market conditions with agility	✓	✓
Critical to predictive analytics	✗	✓
Generate mores specific and creative insights with AI	✓	✗
Stay more personal	✗	✓
Get real time insights	✓	✗

* X Analytics is the ability to run any type of analytics on all of an organisation's structured and unstructured data, no matter where or in what format the data resides

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Start small, scale fast

Big Data is all about finding correlations by analysing the past. Small data gives organisations the opportunity to find the causation, the reason why

Small data is often best used by asking structured crunchy questions

- Organisations today are often collecting large amounts of data and find it **difficult to leverage value** or know where to start
- A structured approach involving small data is often the best way to start
- Organisations should begin by asking the right questions that can be grouped into logical themes which form analytical use cases, from MI to predictive models – such as:

"How can we use external and internal data to cross reference against target demographics to best locate a shortlist of locations to cut search time by 50%?"

- These often need specific datasets that one may find difficult to obtain from big data sources.
- These can be **tested with small data** using techniques such as generative AI, few shot learning, synthetic data and federated learning – these help build analytics and AI POCs quickly without requiring full blown big data architectures
- These can then be **prioritised and delivered** into production at scale once your organisation has understood value using small datasets first

Techniques are being developed to build analytics and AI capability from small datasets

Generative AI

Gen-AI systems are capable of outputting novel text or creative media content using existing text, audio video or imagery. These models can be trained on small data – e.g., a music album – to generate create content specific to the use case required

Synthetic Data

Use small data and extend the data by synthesising computer generated data that preserves the original data's statistical features

Time series analysis

Time series forecasting can be applied to smaller datasets so long as the data displays seasonality and trend that can be learnt by ML algorithms

Few shot learning

Few shot learning is a type of ML method where training datasets contain limited information. It aims to build accurate ML models with less training data – applications include computer vision, natural language processing, object recognition, translation and more

IDO Playbook 2022 62

Start small, scale fast

Organisations can benefit most from small and wide data by leveraging the right process and governance framework

- Sometimes, **breaking down both problems and solutions into bite size chunks** lets you derive more valuable, specific and distinct insights from your data at pace – rather than clouding thoughts and creativity by relying entirely on the processing of big data and complex data hungry deep learning models
- Collecting large volumes of data can be a challenge for organisations – **what if** you could start narrow and scale upon proven success?
- It is important to note from the below framework – small and wide data does not fall in the face of robust data governance!

Step 1

Start with the problem

- Start with defining the problem and the business ideas

Step 2

Ask the Crunchy Questions

- The crunchy questions break the problem into small chunks
- Questions should be specific, narrow and answerable quantifiably

Step 3

Analytic Use Cases

- Build the analytical use cases that can then be executed as proof of concepts
- This can be the build of an AI model to answer a crunchy question

Step 4

Test with small and wide data

- Build proof of concepts at pace and low cost using small and wide datasets
- Start small and wide, learn fast (fail fast!)
- Park the questions which cannot be answered or are incorrect hypotheses

Step 5

Prioritise and iterate with agile

- Prioritise POCs and use cases according to business value and complexity
- Iterate on a minimum viable product with agile methods, building on capability until value is proven and met

Step 6

Deploy and scale in production

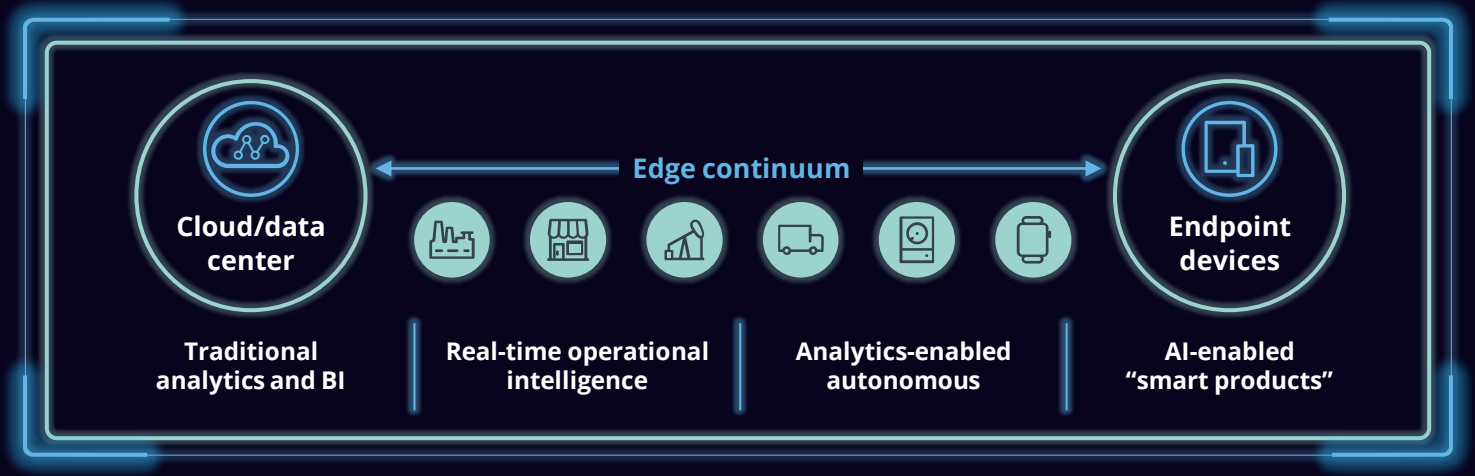
- Upon proving value, organisations can choose to invest the time and money into deploying production grade architecture, building necessary pipelines and completing full data set integrations

IDO Playbook 2022 63

Analytics on the edge

Computing environments residing closer to assets in the physical world and outside IT's typical purview

Increasingly, data and analytics and the technologies supporting them reside outside traditional data centres and cloud environments. This is where edge comes in: Deloitte defines edge computing as distributing functionality, such as computer processing and data storage, so that it's located closer to— or even embedded in—devices that produce data.



As this trend continues, there is both a requirement and a huge opportunity for organisations to enable greater flexibility in how and where data management and analytics are carried out. These changes will significantly impact D&A leaders and their teams, requiring new capabilities and skills while also opening up new opportunities to deliver value.

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Analytics on the edge

Edge computing unlocks the opportunity for multiple benefits to organisations

Speed and Lower Latency

By distributing data and analytics capabilities to edge environments, the need to move data from endpoints to the cloud and back again is eliminated.

Reliability and Resilience

Assets driven by edge environments can continue to operate on their own even when communication channels are slow, intermittently available, or temporarily down.

Scalability

With an established edge computing environment, the network can be extended by increasing the number of devices, data centres, and processors, without affecting other parts of the network.

Security and Privacy

Edge computing keeps data close to the edge instead of in centralised servers, holding limited amounts of data and incomplete data sets that are less compromising if hacked.

Cost Effectiveness

As data does not need to travel back to centralised servers for devices to function, edge computing provides savings in operational costs and reduces storage needs.

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Analytics on the edge

Computing at the edge powers new applications

Like cloud computing, edge computing can galvanise new applications and business models. Processing and analysing data at the edge reduces the distance data must travel, producing insights faster and sidestepping the privacy concerns and costs associated with transmitting and storing data in the cloud. Significant long-term cost savings can be realised leveraging edge-based processing instead of the cloud.

Edge computing use-case category		Representative use cases
Insights: Generate insights that cloud-based analytics cannot deliver because of latency, lack of connectivity in remote areas, privacy concerns, or other limitations of cloud computing		• Room occupancy sensors or cameras in smart buildings • Signals processing (e.g., detecting problems in infrastructure, such as oil pipelines) • Condition-based prescriptive and/or predictive maintenance • Thermal/temperature monitoring • Medical imaging
Experiences: Delivering highly responsive and immersive digital interactions or experiences		• Augmented reality (AR) for object status and maintenance • AR for in-store shopping • Vibrating warning (e.g., on a steering wheel for driver assistance) • Virtual reality (VR) and AR training • Multiplayer immersive gaming
Remote control: Enabling remote personnel to coordinate actions and responses		• Remote-controlled drones for aerial inspections • Remote fleet management for vehicle operations
Automation: Enabling devices to respond to and act on information generated from their surroundings		• Industrial automation (e.g., manufacturing or distribution centre control systems) • Autonomous cars • Home automation (e.g., smart speakers)

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Analytics on the edge

Understanding edge computing architecture

Edge computing architectures can involve processing data at multiple levels. Processing at different points has both technical and use case implications.

Where the data is processed	Description (typical latency)	Real world example
On-device	Data is processed on the device that generates it, such as a smart sensor, smartphone, or connected vehicle.	Medtronic's Guardian Sensor 3 leverages on-device processing to update users on their blood glucose levels every five minutes.
Processing at the "on-prem" edge (or local area network edge)	Data generated by a device is transmitted to and processed on another nearby device, such as a network gateway or server, that provides compute for devices within a small geographic area, like a warehouse or industrial facility.	Cree uses edge servers from Microsoft optimised for AI inference to support real-time image analysis for quality control in its manufacturing facilities.
Processing at the "near" edge (or wide area network edge)	Data is transmitted to and processed at a network gateway, such as a cell tower or switching station, for a wireless network that covers a wide geographic area, like a whole city.	AT&T and Dell are working together on open source technology that can automatically provision edge computing resources at cellular network sites to support various edge applications.
Processing at the "far" edge (a local data centre)	Data is transmitted to a physically proximate data centre specifically established to provide low-latency processing for devices and applications in its vicinity.	AWS recently announced Local Zones, an initiative to establish small data centres near metropolitan areas where enterprises can deploy low-latency applications closer to their customers. The first Local Zone went live in Los Angeles late last year.

IDO Playbook 2022 67

Secure collaboration

Powerful data-sharing and privacy-preserving technologies usher in a new era of data monetisation

NEW TECHNOLOGIES FUEL DATA SHARING TREND

You can now buy and sell valuable information assets in highly efficient, cloud-based marketplaces. Combining this data with a new array of privacy-preserving technologies provides the best of all potential worlds: sharing data while preserving security and privacy.

Stores of sensitive data lying fallow in servers around the globe due to privacy or regulatory concerns are starting to generate value across enterprises in the form of new business models and opportunities. During the next 18 to 24 months, we expect to see more organisations explore opportunities to create seamless, secure data-sharing capabilities that can help them monetise their own information assets and accomplish business goals using other people's data.

Though currently in an early stage, this data-sharing trend is picking up steam. In a recent survey, Forrester Research found that more than **70% of global data and analytics decision-makers are expanding their ability to use external data**, and another 17% plan to do so within the next 12 months.

More than **70%** of global data and analytics decision-makers are expanding their ability to use external data

IDO Playbook 2022 68

Secure collaboration

Shared data leads to greater value and therefore higher business performance

The rapid growth in data sharing can be attributed to the simple fact that **data gains value when it is shared**.
In fact, Gartner™ predicts that by 2023, organisations that promote data-sharing will outperform their peers in most business metrics

DATA-SHARING EXAMPLES

1. Using aggregated data to securely achieve common goals

Organisations can work with "frenemies" within a market sector to achieve common goals such as developing deeper customer insights or detecting fraud patterns across an entire sector.

2. Increasing efficiency and lowering costs

Across enterprises, data vendors no longer have to provision hardware, maintain databases, and build application programming interfaces (APIs). Customers can push a button to access anonymised, curated data feeds. Within the enterprise, encrypted data makes artificial intelligence (AI) and machine learning (ML) exercises safer, and compliance audits easier.

3. Broadening your research collaboration

Sharing basic foundational or early-stage findings can accelerate critical research initiatives without compromising a hard-won competitive advantage.

4. Securing intellectual property

Super-sensitive data such as AI training data that may be stored in public clouds can be better protected.

5. Encrypting data in motion

In the arenas of high-frequency trading, robotic surgery, and smart factory manufacturing, confidential data flows rapidly across multiple entities. Homomorphic encryption allows users to access critical data quickly without encryption keys.

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Secure collaboration

Emerging technologies that help preserve privacy while sharing data

In order to truly capture value from data sharing, institutions need to be able to use the data available to them, both within their institutions and outside of them. Below are five key techniques for preserving data privacy that make it possible for organisations to reap the benefits of data sharing without sacrificing privacy.

Federated Analysis
Where parties share the insights from the analysis of their data without sharing the data itself

Zero-knowledge Proofs
Where users can prove their knowledge of a value without revealing the value itself

Differential Privacy
Where noise is added to a dataset so that it is impossible to reverse-engineer the individual inputs

Homomorphic Encryption
Where data is encrypted before sharing, such that it can be analysed but not decoded into the original information

Secure Multiparty Computation
Where data analysis is spread across multiple parties such that no individual party can see the complete set of inputs

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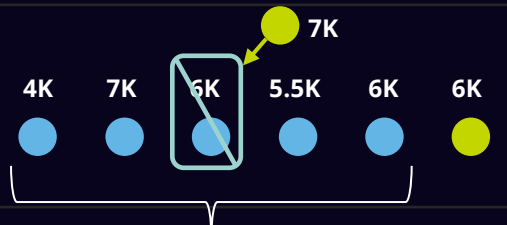
Secure collaboration

Emerging technologies that enhance privacy and confidentiality

Technique	Definition	When it's Useful	Example
Differential Privacy	Where noise is added to a dataset so that it is impossible to reverse engineer the individual inputs.	Differential privacy allows aggregate information on a dataset to be publicly shared whilst also protecting individual information within the dataset	**Without differential privacy:** A third party knows the spend of several others and the group average.  The third party can find out John's spend. **With differential privacy:** One of the inputs is removed and replaced with a random figure.  The shared "group average' is noisy, making it impossible to reverse-engineer John's spend.
Federated Analysis	Where parties share the insights from the analysis of their data without sharing the data itself.	Sometimes data needed is scattered across multiple sources and combining sources may not be possible due to different jurisdictions or privacy restrictions.	**With federated analysis:** **Insurer A** The person named "John McScammer" has committed fraud in the past **Insurer B** Owners of green cars are more likely to commit registration fraud **Insurer C** Drivers living in the 12345 postal code are more likely to commit claims fraud **Shared fraud detection engine:** • The person named "John McScammer" has committed fraud in the past • Owners of green cars are more likely to commit registration fraud • Drivers living in the 12345 postal code are more likely to commit claims fraud

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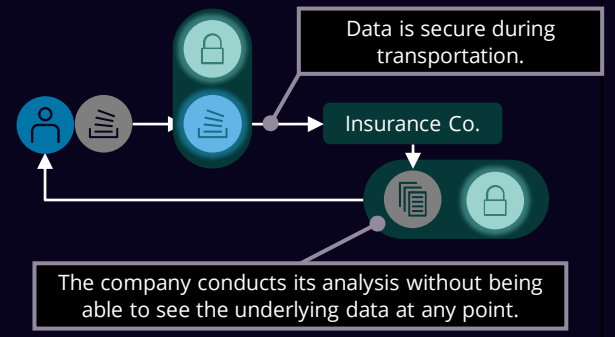
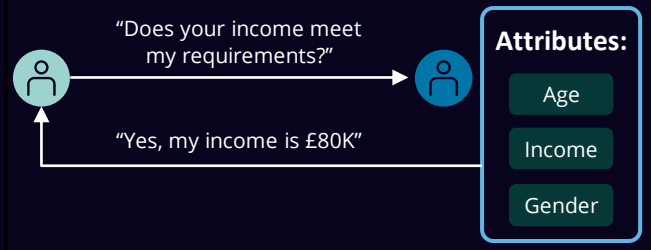
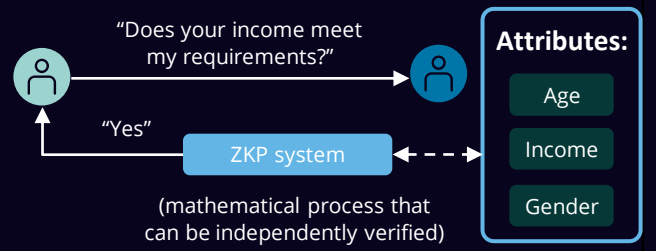
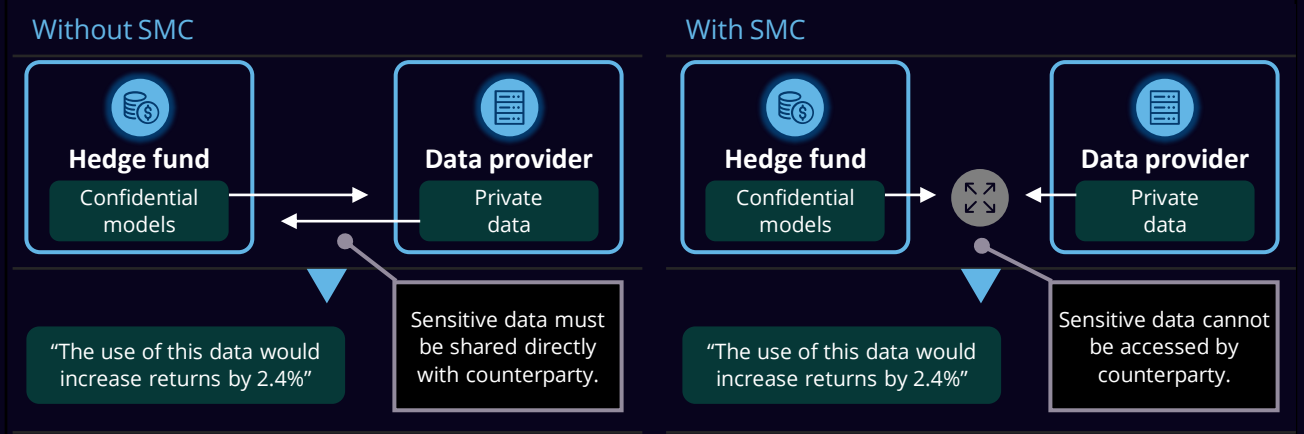
Secure collaboration

Emerging technologies that enhance privacy and confidentiality

Technique	Definition	When it's Useful	Example
Homomorphic Encryption	Where data is encrypted before sharing, such that it can be analysed but not decoded into the original information.	Sometimes a company would like to engage a third party for data analysis using complementary data or proprietary analytics the company doesn't have. However, the data steward or owner may lack permission to transfer the data or have privacy concerns.	**Without homomorphic encryption:** John places his health records in a box, ships them to the company, which analyses them to produce a report and ships it back to John.  **With homomorphic encryption:** John's health records are homomorphically encrypted prior to sharing, making it difficult for anyone but him to see the data or the result of any subsequent analysis. 
Zero Knowledge Proofs	Where users can prove their knowledge of a value without revealing the value itself.	When customers would rather not reveal more than is absolutely necessary to complete a transaction with the worry that the information will be used against them.	**Without zero-knowledge proofs:**  **With zero-knowledge proofs:** 

Secure collaboration

Emerging technologies that enhance privacy and confidentiality

Technique	Definition	When it's Useful	Example
Secure Multiparty Computation	Where data analysis is spread across multiple parties such that no individual party can see the complete set of inputs.	Secure multiparty computation allows institutions to jointly analyse data without one institution being able to access the complete dataset. This allows multiple institutions with sensitive information to work together to create value without risking confidential information.	

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Making the Right Impact

War for talent

Creating an ecosystem of talent which will facilitate distributed enterprise

DIGITAL READINESS

Organisations need to adapt to a rapidly changing era of continued digitisation and enterprise distribution. Transition to a digital centric operational model requires a certain set of skills to implement the processes.

Organisations need to rethink skill management strategy at times of tech innovation and how to address perishable skills (with a short life span). Focus on developing proactive training plans, instead of reactive chaotic activities plugging gaps.

Industries are encouraged to collaborate with educational organisations to develop programs for upskilling existing employees. This will allow internal career growth and contribute to talent expansion and retention within an organisation.

ENGAGEMENT AND RETENTION

Developing and growing talent is important to increasing the breadth and depth of AI capabilities. Defining specialist learning and developing pathways for your talent, in addition to initiatives for knowledge sharing, both within your capabilities, as well as looking at opportunities externally to knowledge share keeps skills and ideas fresh and relevant.

'Data literacy' is also important for business users, training pathways can open up opportunities for both technical and business teams to develop skills progressively and continuously.

THE BATTLE FOR DATA SCIENTISTS

The battle tho secure and retain data science talent in real; there's simply not enough data literate and digital savvy talent to fill the jobs. Knowing what motivates data scientists to change jobs and promoting the correct growth culture can provide valuable insight on how to nurture this talent in your team.

Building insight driven teams who work closely together and are encouraged to pick up skills from other members facilitates flexibility; when one member is unavailable, others can step in. This helps create a team that is more likely to remain with the organisation – when everyone is learning new skills from their team and advancing their careers, team members have more reasons to stick around.

DEVELOPING A PIPELINE FOR ANALYTICS TALENT

To attract and retain the best talent and continue to keep their skills leading edge, organisations need to invest in building capabilities long before employment. Organisations are teaming with leading universities and professional associations within their ecosystems to build the next set of AI talent:

- Designing curriculums and teaching courses
- Hosting conferences and working on joint training
- Recruiting into our practices and referring to clients
- Investing in start-up side businesses to encourage employee innovation

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War for talent

Recruiting the right talent to drive innovation

WHO ARE WE FIGHTING FOR?

In the era of the distributed enterprise* the demand for data scientists, data architects and data engineers soars, while supply of complex digital skillsets remain short. Specialised roles which cannot be built internally are difficult to acquire and require new approaches in talent sourcing. Based on the outcomes of global IDO survey** 55% of respondents expressed the need for AI skills that they cannot source – over 10% increase on last year. This was also reflected for data science skills, as 60% respondents do not use AI in any of their business functions predominantly due to a lack of priority and skillsets.

While there is a demand for more niche AI focused roles such as ML engineers, ultimately data scientists remain in high demand due to the diversity of their expertise. The data scientist definition speaks to a rare blend of statistical sophistication, data management skills and business acumen. One of their core skills is the ability to extract meaning from raw data and use that knowledge to drive business transformation with insight-led decisions, innovation and operational efficiency. Today, both the private and public sectors need a new breed of data scientists who can handle sophisticated data analysis and navigate big data freely, but who also have fluent communication skills, business acumen and political nous. Organisations often limit themselves by trying to standardise data scientist job descriptions, despite the fact that the role covers a diverse set of skills and candidates can originate from all walks of life. Data scientists can take on multiple AI related roles within an organisation, unlike ML engineers who primarily focus on data modelling.

*See topic “Distributed Enterprise” **Global IDO Survey 263 total respondents across 17 countries

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War for talent

Focusing on the right balance of business and technical skills

CORE CAPABILITIES

Being able to blend business and technical skills is critical for the success of an AI capability. Very rarely, a blend of skills may be present in a very highly skilled individual; however, it is this blend of blue (business) and red (technical) skills within a capability which drives purple talent. Consider creating an Insight Driven Team for every AI project you embark on.

BUSINESS AND COMMUNICATION

- Agile, Hybrid, Project Management
- Budgeting and Funding
- Business Analysis
- Business Change
- Business Metric Definition
- Capacity Management and Scheduling
- Community Management
- Demand Prioritisation
- Functional Testing and UAT
- Incident Management
- Innovation Management
- Knowledge Management
- Market Analysis
- New Service Design
- Partnerships and SLA Management
- Process Design
- Stakeholder Management
- Storytelling
- Training
- User Experience Design
- Vendor Assessment

TECHNICAL AND ANALYTICAL SKILLS

- Advanced Visualisation
- Machine Learning Engineering
- Configuration and Release Management
- Customer Segmentation
- Data Mining
- Data Protection and Anonymization
- Data Quality Enhancement
- Enterprise Architecture
- ETL Development
- Cyber Security
- Data Architecture
- External Data Provisioning
- Infrastructure Management
- Load Testing
- Natural Language Processing
- Neural Networks
- Regression Modelling
- Security Advisory
- Server Administration
- Solution Architecture
- Unstructured Data Processing
- Web Analytics
- AI Deployment

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War for talent

Adopting a human-centric hybrid model to attract and retain talent

ATTRACT, RETAIN AND UPSKILL

Unearthing existing talent within an organisation can be a benefit for all involved; achieve individual career ambitions within AI, reduce the organisational resource management costs of recruiting highly skilled talent, and retain an employee who pursues AI ambitions.

Getting the right motivational factors in play is fundamental to successful long-term retention; high degrees of autonomy, opportunities to develop as subject matter experts, and above all a clear purpose to the work at hand.

TALENT SOURCING

Organisations should recognise that success depends on more than technology talent. For example, data scientists often struggle when they aren't clear on the business problem they're supposed to solve. The result can be AI projects that goes nowhere, and disillusioned data scientists who deflect to competitors. Subject matter experts who can 'speak data' to data scientists while 'speaking business' to executives are invaluable.

SKILL CRUNCH & CROSS-SKILL

Facilitate acquisition of new skills and competencies which can be implemented in multiple job functions and will allow team flexibility. This will increase overall productivity and talent utilisation.

HUMAN-CENTRIC HYBRID MODEL

Physical working spaces such as a cockpit of screens or Bring Your Own Device are ranked highly by Next Generation talent. Agile is becoming a norm post-pandemic break out. Employees in data and IT space are seeking better life-work balance, making a hybrid working culture one of the key drivers for talent acquisition and retention. Similarly, organisational culture and innovation, such as Google's famous encouragement of continuous innovation through empowering employees to improve processes they don't like, attract talent who enjoy thinking outside of the box.

UPSKILL

Elevate your employees' skills beyond adequate for the role which will allow wider utilisation of talent within the organisation. This can be done through interactive training material, professional and industry related certification, coaching, webinars and workshops and digital tool/platform learning.

Upskill management to address employee wellbeing demand and reduce talent attrition.

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War for talent

How to maintain and manage your talent pipeline

KNOWLEDGE MANAGEMENT

Managing a knowledge base is very important as AI teams grow and work with an increasing breadth of data and deployed analytical models.

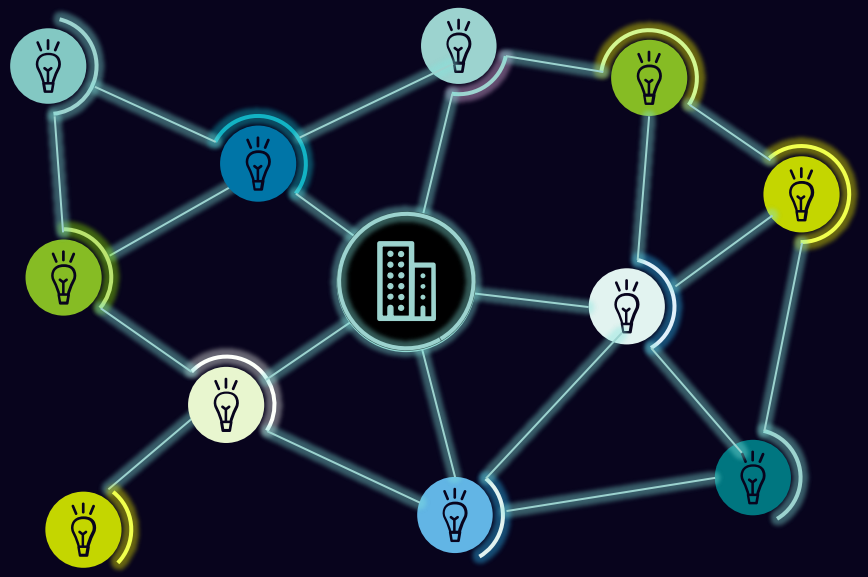
Using centralised tools to manage knowledge helps retain and share knowledge amongst your analytics team(s) and more broadly across the organisation. It is vital that organisations can distribute and scale these tools enterprise wide.

Enabling employees, stakeholders and ecosystem partners to collaborate better and work more efficiently through powerful, user-driven enterprise tools is a core component in building insight capabilities. This often involves re-imagining enterprise user interfaces and engagement models to drive adoption, productivity, and stakeholder sentiment.

Some quick-win examples include:

- Enterprise social networking platforms
- Cloud-based collaboration platform
- Algorithm repositories
- Visualisation hubs
- Crowdsourcing communities

The ongoing management of the repository should also be considered to ensure relevant and up-to-date material which engages the audience.



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Adopting IDO Culture

Evolving the data culture of your organisation fuses automated, analytics driven insights with human intelligence for an exponential impact

"Adopting insight driven culture across an organisation requires your business vision and data strategy to be built in parallel as one cohesive whole, continuously shifting the paradigm as new data and technology trends emerge. This includes changing beliefs, values and behaviours – the 3 roots of culture" ***Deloitte Italy – IDO Lead***

LET'S CHANGE OUR MINDSET

The importance of an insight driven culture is a key piece of the puzzle to success that is often forgotten about.

Successful implementation impacts our behaviours, beliefs and values where every person is willing to make decisions, change processes and adapt behaviours based on insights rather than intuition or tradition.

Some of the blockers that can prevent organisations from adopting IDO Culture and must be addressed include:

- Legacy technology including a lack of data governance
- Fear or lack of change
- Lack of trust or access to data
- Generational ways of working based on experience alone

Adopting a data centric culture can be done through good communication of benefits and a compelling picture of the future, advocates who can powerfully articulate the need for change, active engagement of key figures to create a 'pull' from leadership to enable the change and mobilising the right team and skills to design and support any solution with excellence.

"Strategy incompatible with an organisation's culture will fail"

Strategy outlines the work needed

Culture is how that work gets done

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Adopting IDO Culture

Winning organisations configure an insight driven culture by strategically tailoring a well-defined cultural maturity state that is deployed into action through small, measurable changes

1 ALIGN TO STRATEGY

1. Conduct leader interviews: understand mission, vision, value, strategy alignment and gather input for future state culture vision
2. Culture lab: define a compelling cultural aspiration aligned to the organisation's mission, vision, values, and strategy

2 GATHER INSIGHT

3. Assess current state of culture and data literacy
4. Enrich findings with focus groups, interviews and crowd-sourcing
5. Conduct gap analysis between current culture state and desired future state
6. Identify organisational levers to push/pull in order to enhance or minimise cultural attributes using a culture maturity model

3 ACTION CHANGE

7. Target priority areas of your organisation to activate change; perform organisational analysis to identify influencers who can drive viral change
8. Define and prioritise critical cultural behaviours
9. Use design thinking to tell the culture story at the local level
10. Conduct a hackathon to brainstorm interventions to activate your desired results
11. Establish minimum viable changes and build action plans
12. Execute short-term culture 'sprints', linking targeted behavioural interventions to value events
13. Deploy culture enablement coaches to work directly with team
14. Measure progress, iterate to arrive at the right approach
15. Establish accountability, governance and PMO processes

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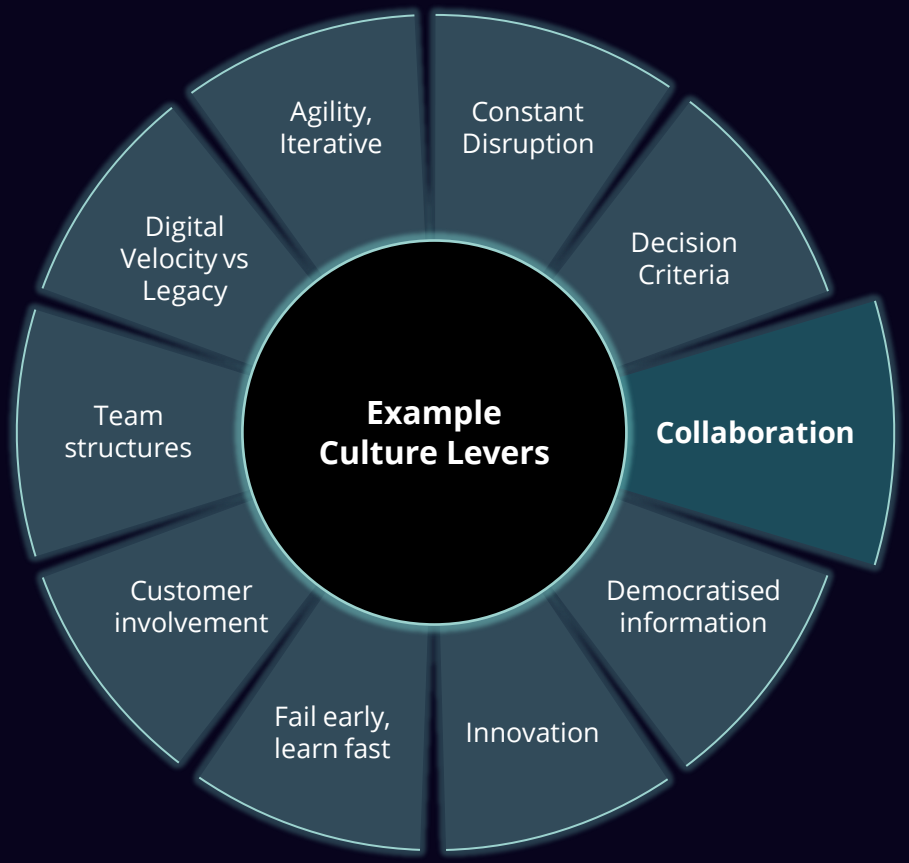
Adopting IDO Culture

The most important part of a successful IDO cultural configuration is to uncover your organisation's culture levers and tailor Minimum Viable Changes (MVCs) to shift the dial

Identify 'as-is' performance across an organisation's cultural lever and prioritise according to strategy…



Example cultural levers

…Leverage enablers and blockers to define quality Minimum Viable Changes for each lever

1. Assess and select a commercial collaboration tool
2. Define collaboration tool metrics (e.g., monthly, weekly, daily active users) and establish tracking mechanism. Begin tracking progress
3. Inventory decision rights of managers to determine rights that must stay with managers and those that can be shared with staff. Make decisions on what roles can have which rights.
4. Revise selected decision rights for X group or X level
5. Create collaboration zones in current office space
6. With selected customer-facing team, change from customer 'show and tell' to client-company co-development process. Design new co-development process. Pilot new process
7. Eliminate outdated goal(s) from selected sales team members performance management and create new goal(s) more aligned with desired behaviours

Example MVCs for 'collaboration' element of culture

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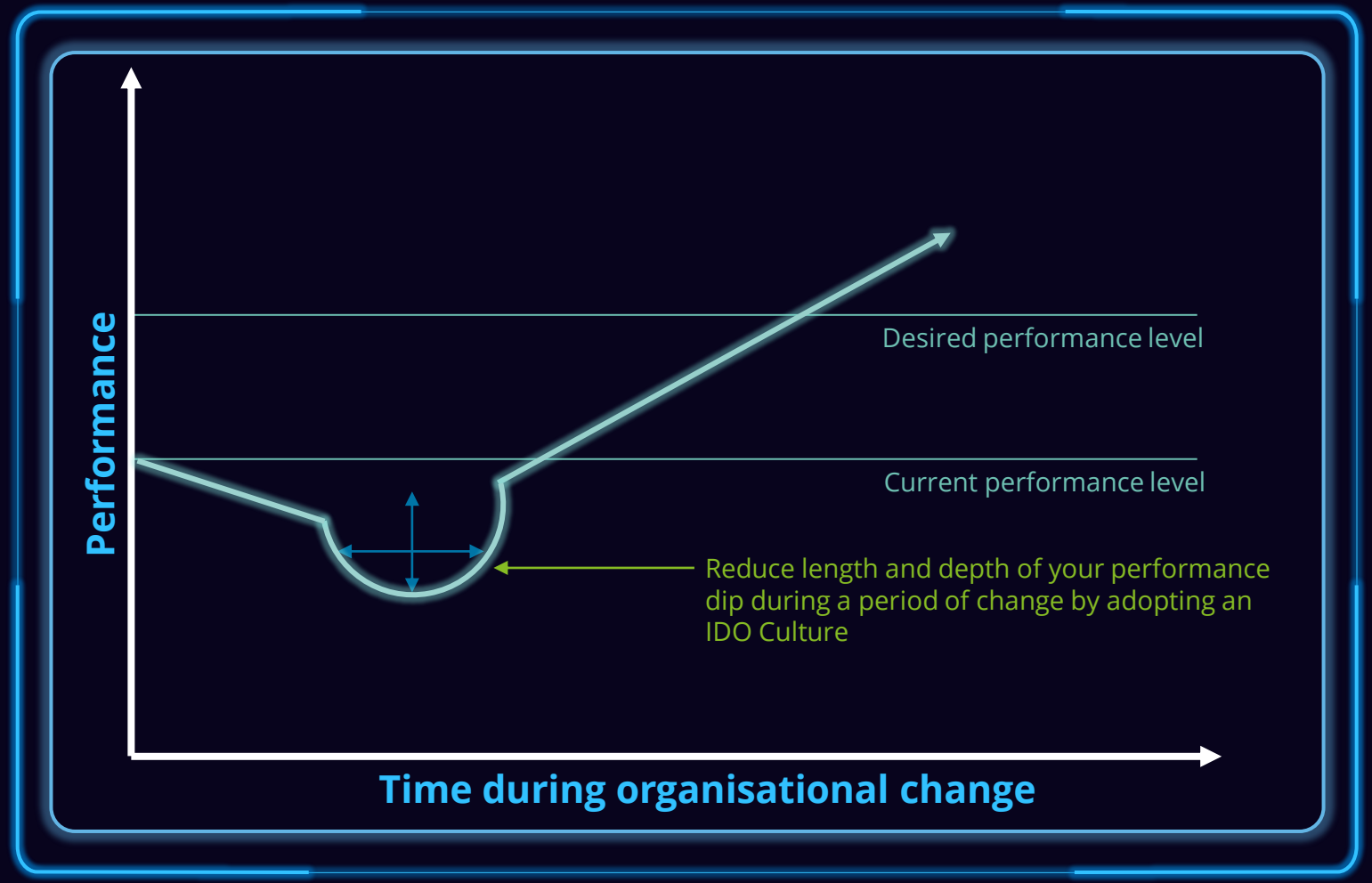
Adopting IDO Culture

Adopting an IDO Culture drives data literacy across an organisation – the ultimate goal is then to reduce an organisation's change journey



- Organisations will naturally undergo a performance dip as they undergo transformation in the analytical space due to new required learning and resources, resistance to change and other common blockers that arise
- An IDO Culture aims to reduce this dip. It aims to enhance the organisation's level of data literacy in such a way that:
  - Users have gained knowledge of emerging data technologies and understand their purpose to value better
  - Users embrace analytical change and drive it forwards rather than resist
  - D&A projects adopt continuous improvement in governance, processes and people
  - Users understand and are excited to work towards the same goal
  - Leaders embrace change across their organisation's data and analytical capabilities. They enable the organisation to drive this change forward

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Adopting IDO Culture

A pioneering data, AI and analytics culture will manifest itself and its benefits across the 7 key levers

LEADERSHIP
How leaders think, how this shapes our strategic priorities and impacts all levels

***Example behaviour**: Leaders develop team members risk management toolkits to work comfortably with uncertainty and manage ambiguous situations, then delegate decision-making processes on them*

SYMBOLS
Visual and physical representations of the organisation through its workplace, including branding, work environment, office layout, meeting spaces, and dress codes

STRUCTURES + INFORMAL NETWORKS
The formal and informal relationships for how work is managed and gets done. Defined by both the organisational chart and influence or relationship networks

***Example behaviour**: People use practices and business routines to communicate effectively with a diverse talent pool; integrating business and industry know-how, with analytics and AI*

RITUALS + ROUTINES
Daily rituals and routines of people that signify acceptable behaviour. Sets norms for given situations, defines what's valued by management

STORIES
What we talk about inside and outside the organisation. Our vision, strategy, stories, customer insights: our history. Who and what we choose to immortalise says a lot about what we value

INFLUENCE & DECISION-MAKING
The way key relationships are developed and how people win support for decision making processes without using position

***Example behaviour**: People work together seamlessly with colleagues from all different areas of the organisation*

PROCESSES & SYSTEMS
The way we run the business. These include financial systems, technology systems, quality systems and rewards (including the way they are measured and distributed) within the organisation

***Example behaviour**: People leverage technologies and challenge current practices to stays ahead of the competition. Each person understands the value of sharing knowledge - successes and failures*

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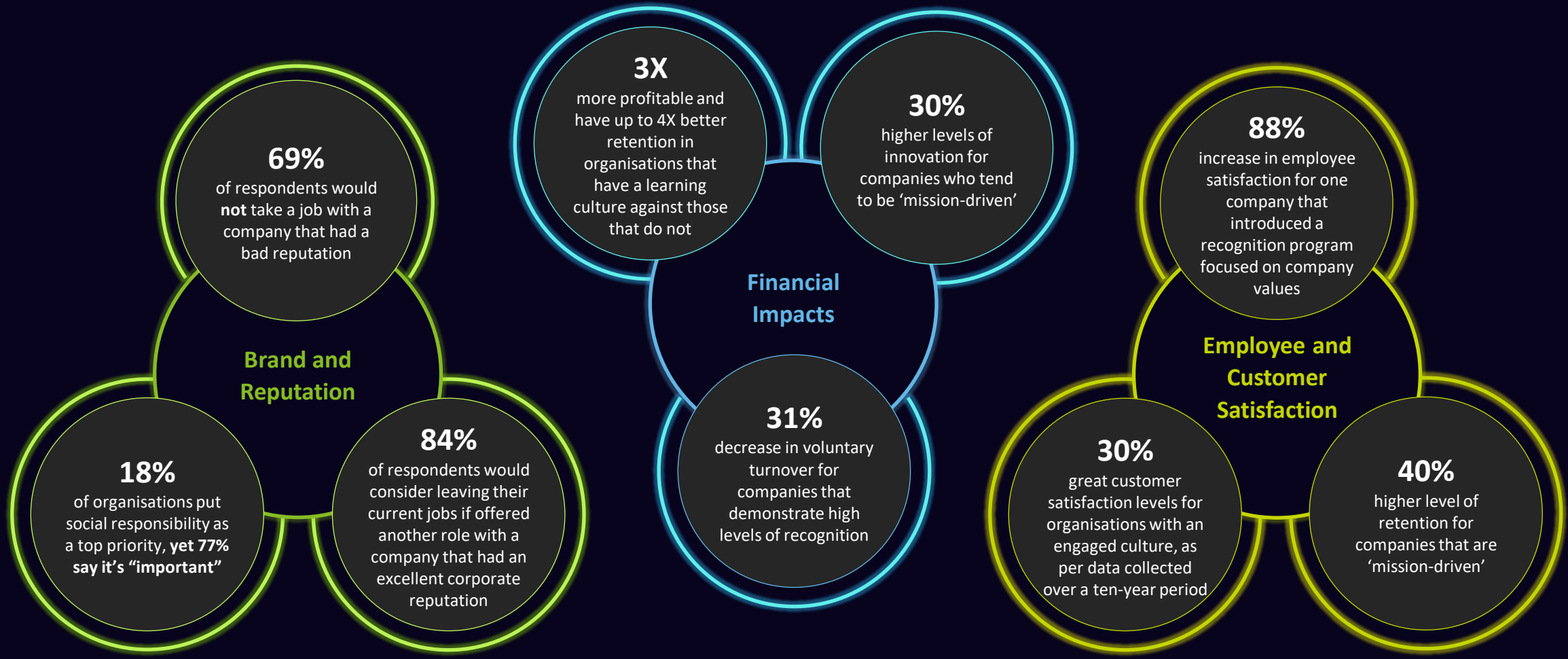
Adopting IDO Culture

Organisations should start to see desired benefits across three key areas – Brand and Reputation, Financial Impacts, Employee and Customer Satisfaction



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Adopting IDO Culture

Top tips for organisations looking to accelerate their IDO Culture

Develop broad data skills - Scale beyond an analytics team. Demonstrate broad data skills, ask the right questions, identify the root cause issues indicated by data, think holistically about which data might be useful for solving problems, and readily translate and share insights across the organisation.

Decide with balance - Articulate humans and machine. Couple data with experience or intuition to create impactful decisions that use both the strength of the data and human context, ultimately generating the best outcome for the organisation.

Demonstrate value - Leverage leaders as role models. Build awareness and socialise the value that data brings to the organisation. Leaders in high performing organisations frequently communicate the importance of data and treat data as a core asset for competitive advantage.

Determine what works - Design for best fit, not for best practice. High performing organisations test and experiment to determine what works for them. Leverage a flexible way of working in order to define a customised approach that reflects the organisation's needs.

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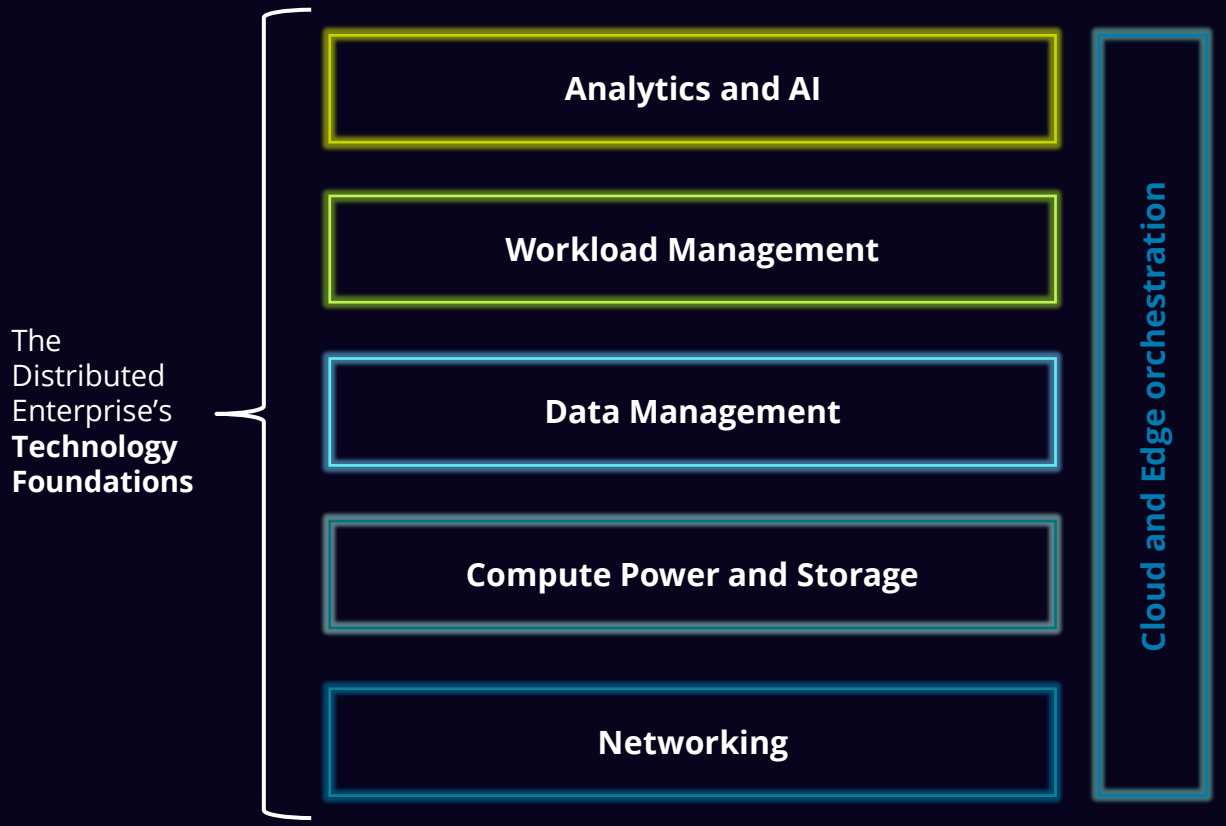
Distributed Enterprise

Businesses are shifting towards remote operating models, driven by the rise of home working and remote consumers

A DISTRIBUTED ENTERPRISE REQUIRES BUSINESS MODELS TO CHANGE

- Due to the rise of remote and hybrid working patterns, traditional organisations are evolving into 'distributed enterprises' with staff, technology, assets and consumers spread widely across the globe
- Organisations must plan for the obvious impact of supporting a disparate workforce and the less obvious change of adapting business models to new customer demands caused by a distributed enterprise
- Improved workload management, data management, networking capabilities, computing power, data storage, machine learning and automation are key to businesses aspiring to become increasingly distributed
- A leading distributed enterprise is formed on cloud technology, connected to the edge, driven by digital first principles and supported by employees who are data literate and technology enabled

A DISTRIBUTED ENTERPRISE IS ENABLED THROUGH THE CLOUD AND BENEFITS ARE ENHANCED BY EMBRACING DATA AT THE EDGE*

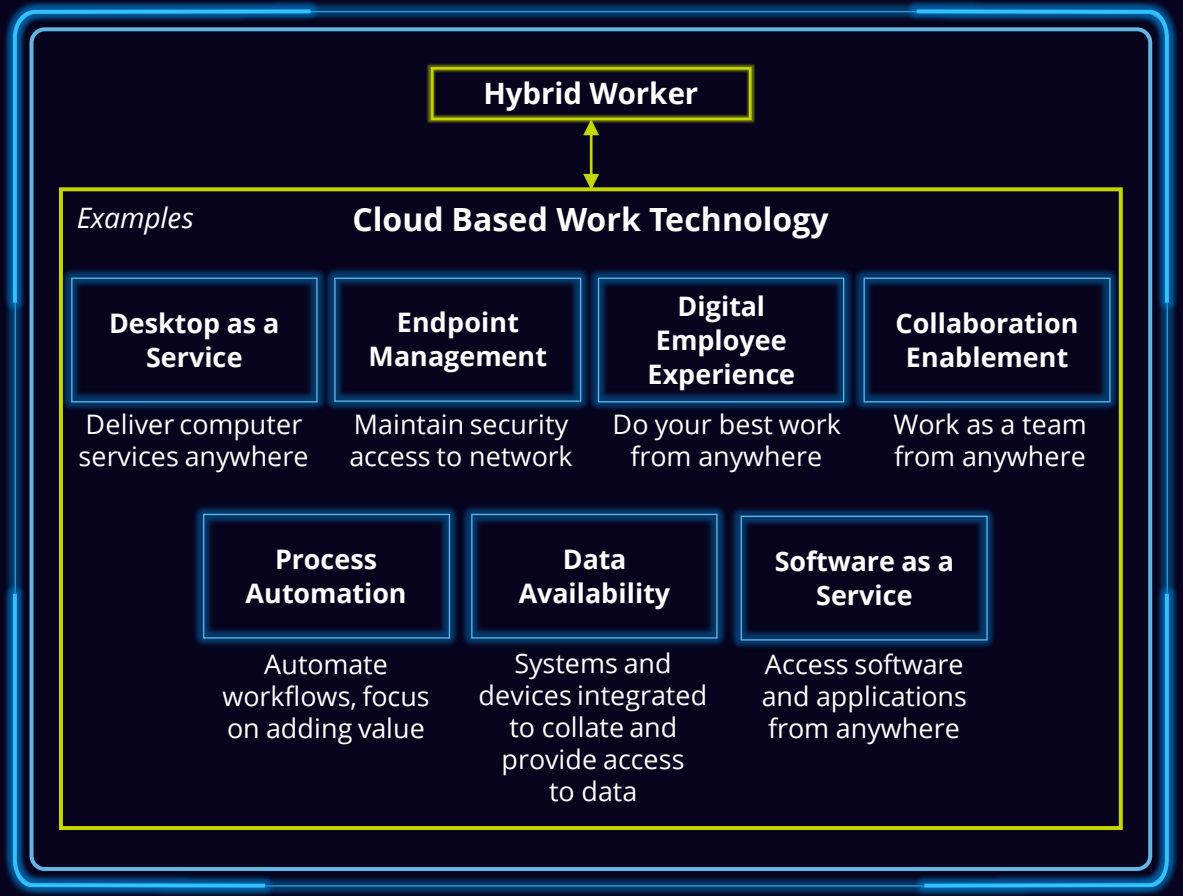


* see "Analytics on the edge"

Distributed Enterprise

Edge and cloud based solutions are a nascent trend that will continue to drive digital transformation across every industry

CLOUD TECHNOLOGY UNDERPINS THE DISTRIBUTED ENTERPRISE…



…WHICH DRIVES THE NEED FOR COMPUTING CLOSE TO THE EDGE*

- As more devices become interconnected through IoT and enterprises become more remotely distributed, large amounts of **data is produced at the edge** – or in simpler terms, closer to the data source
- Businesses can benefit from real time low latency analytics by **shifting the computing closer to the edge** of the network, outside of the cloud
- The number of **IoT devices are forecast to triple** from 2020 to 2030 growing at a compound annual growth rate of 11%
- Manufacturing, Natural Resources, Healthcare Providers and Smart Buildings are set to be **fastest growing segments** in IoT
- By 2025, more than 50% of enterprise managed data will be **created and processed outside of the cloud**

* see “Analytics on the edge” (slides 67-70)

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Distributed Enterprise

A distrusted enterprise generates cross-organisational benefits

Revenue
- Interact with new customers and markets
- Revenue growth from digital innovation
- Data monetisation

Employee
- Increase productivity through automation
- Access a larger, more diversified talent pool
- Improved retention rates
- Decentralised organisation
- Reduce fatigue and burnout

Cost
- Reduced physical infrastructure costs
- Manage and monitor operational costs more seamlessly
- Reduced networking costs

Scalability
- Cloud technology and collaboration platforms enable you to scale workforce with ease
- Share and obtain data from the center to the edge of your organisation
- Drive change and deployment at a faster pace than competition

Consumer Experience
- Cater for the digital consumer
- Wider business reach by opening more C2B/B2C channels
- Reduce friction between consumer and employee

Analytical Capability
- Collect and analyse more data faster with increased efficiency
- Connect assets to networks, scale predictive analytics and AI
- Become more responsive to change through data – drive innovation
- Transfer useful data to customers more seamlessly
- Deploy advanced, democratised analytical applications

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Distributed Enterprise

The inevitable shift towards distributed workforce, customers, services and assets means organisations must be ready to adapt their analytics operating models at pace

SHIFTING TO THE RIGHT ANALYTICS FUNCTION

There are various operating models an organisation can adopt - a '***one size fits all***' approach does not apply.

The scope and capabilities of the function need to be determined, based on both the organisation's current and potential future needs. The size, scale and level of influence of the function will evolve over time as the business view of AI and thirst for insight matures. Some organisations may transform from one type of operating model to another as their organisation matures and becomes increasingly distributed.

Benefits of the right AI function include:

- Making better decisions, by joining the dots across business siloes
- Driving innovation in products, services and internal operations
- Improving the speed and reliability and reduce the cost of decision making
- Enriching the depth of analysis and insight by connecting external data sources
- Improving knowledge sharing, making learning and development easier, and democratising across platforms
- Govern the use of AI in a non-pervasive way

As the distributed enterprise shift continues, organisations need to understand the different operating model approaches for analytical functions and be ready to adapt as necessary.

OPERATING MODELS

Centralised

Decentralised

Centralised	Analysts reside in one central group where they serve a variety of functions and business units and work on diverse projects
Factory	A model which leverages offshore or outsourced capability to provide an engine room for analytics which is focused on industrialising solutions
Consulting	Analysts work together in a central group, but act as internal consultants and charge business units for their service
Centre of Excellence	A central entity coordinates the activities of analysts across units throughout the organisation and builds a community to share knowledge and best practices
Functional	Analysts are located in functions like marketing and supply chain, where the most analytical activity occur
Dispersed	Analysts are scattered across the organisation in different functions and business units with little coordination

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Distributed Enterprise

Organisations should continuously review the structure of their analytical services and the types of services offered – critical to maintaining a winning position through the distribution hype

ASK SOME CRUNCHY QUESTIONS!

- Which services do we need more investment in?
- Which services are we missing?
- Which services should we start providing?
- How are our analytical services interconnected in a distributed world?
- Do we need to change our governance structure?
- How can we make our data management more robust with the growing scale of data generated across a distributed enterprise?

EXAMPLE SERVICES

Insight Services

Insight Generation
- Analytics Application Design
- Visualisation
- Predictive Modelling
- Scenario Modelling
- Process Simulation
- Dashboarding
- Audience Assessment

Enabling Services

Training
- Analyst Training
- User Training

Governance
- Demand Management
- Data Privacy & Security

Ecosystem Management
- Report Library Maintenance
- Community of Practice
- Solution Estate Management
- Change Management
- BI Programme Management
- Portal Management

Communications
- Capability Communication
- Priority Communication
- Data Availability Communications
- Priority Communications
- Capability Communications

Service Management
- Problem Management
- Incident Management
- Service Desk
- Cont. Service Improvement
- Event Management

Data
- Master Data Management
- Data Extraction
- Data Cleansing
- Data Definition
- Data Profiling
- Information Model & Data Sources
- Data Governance

Management
- Portfolio Management
- Supplier Management
- Service Level Agreements
- Financial Management

Production Services

Reports/Dashboards
- Exception Reporting
- Mobile Reports
- Real Time Reporting
- Repeatable Reporting
- Dashboard/Report Development
- Dashboard/Report Configuration

Delivery
- Solution Change
- Real Time Location Services
- Application Management
- Release & Deployment Management
- Source System Integration Architecture
- Cloud Services
- Industrialisation
- Access Management

Advisory Services

Support
- Toolset Support
- Programme Advisory
- Delivery Support

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Distributed Enterprise

Top recommendations for leaders looking to unlock distribution across their organisation

CONSIDER COLLABORATION TOOLS, PIVOT BUSINESS MODELS AND FOCUS ON DIGITAL TRANSFORMATION

- Reduce employee fatigue by rearchitecting collaboration tools, workspaces and processes to match new hybrid work environment
- Increase visibility into employee sentiment and experience as employees adopt modern technology advancements
- Improve endpoint* performance and IT support
- Pivot business models to capture market share from customer behaviour changes due to remote working
- Adopt virtual first and remote first architectural principles
- Provide tools for teams to rapidly develop and improve customer facing technologies
- Enhance the experience – remove friction in digital interactions for both customers and employees
- Adapt multi-disciplinary operating models and upskill in data and digital capabilities. Prepare your ability to be able to pivot analytic operating models seamlessly through the inevitable shift towards distributed everything

INVEST IN THE RIGHT TECHNOLOGY TO ENABLE DATA CAPTURE, REMOTE COLLABORATION AND IMPROVE DATA ANALYTICS

- Invest in edge computing skills and teams across your data and analytics personnel
- Focus on data management, IoT and processing outside of the cloud and closer to the edge
- Embrace the Metaverse and Virtual Reality (VR)
- Investment plans should focus on cloud hosted workplace technologies leveraging platform, infrastructure and software as a service, unified endpoint* management, and desktop as a service (DaaS)
- 5G coverage and bandwidth across IoT enabled assets – improve network connectivity and latency whilst continuing investments in cybersecurity
- Focus on vendors and tech that can assist in managing on location edge computing, shifting AI closer to the edge
- Enable business innovation by reorientating IT teams to collaborate in the delivery of self-service platforms

* Manage employee devices & policies from cloud solution that enables self service

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Total Experience

A strategy that creates superior shared experiences by interlinking multi-experience (MX), customer experience (CX), employee experience (EX) and user experience (UX) disciplines

Many organisations are already working on making experiences better — from the customer, employee, user and multi-experience perspective. But these are traditionally siloed and business sponsors are all in different departments.

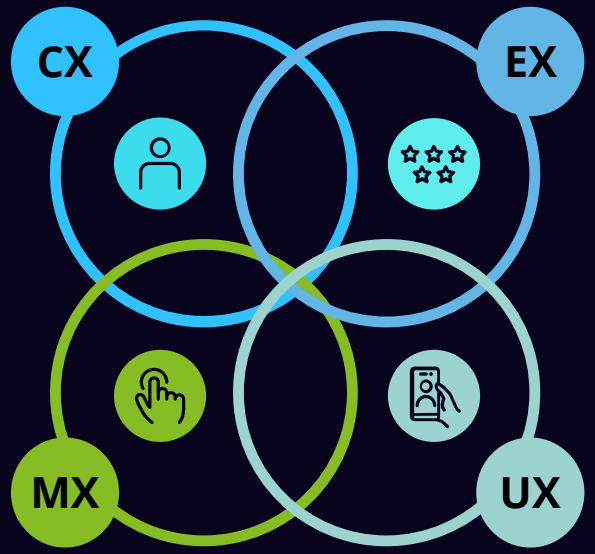
Creating better individual experiences is a great step, but the next step is to interlink and continually refine to create a holistic approach.

Customer Experience
How a customer interacts with and feels about a brand

- How do we **increase engagement**?
- How can we keep customers happy?
- What problem can we help them solve?

Multi-Experience
How an experience is enhanced and delivered simultaneously across multiple devices, modalities, and touchpoints

- Do we have the right platforms?
- What provides the **right interaction** based on each persona?



Employee Experience
How an employee interacts with and feels about their company

- What is **most important?**
- How do we help them progress?
- What can we improve at minimal expense?

User Experience
How a user interacts with and feels about a product or experience, particularly within the digital realm

- What are the **friction points?**
- How much effort does it take to get what they need?
- Does our experience map to the user journey?

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Total Experience

While achieving excellence in each individual function is an accomplishment, substantial benefits can be recognised by organisations that are able to link their activities to one another

1. Breaking down silos & building cross-functional teams

Data owners in the organisation will almost certainly span across operations, marketing, finance, and technology functions. Adopting a total experience approach to data and analytics will not only interlink the different experiences but also encourage cross-functional collaboration, resulting in efficient data access and management.

2. Competitive and Comparative Advantage

By interlinking CX, MX, UX and EX activities together, organisations make it more difficult for competitors to imitate the experience they offer. This may provide a competitive advantage to the organisation depending on the type of activities and degree to which they are interlinked.

3. Efficient Operations

Having activities linked together instead of operating in silos can result in more efficient operations. For example, an effective information hierarchy used by one experience team may be reused and extended for use by another team, saving time and resources while ensuring consistency of the experience.

4. Continuous Reinforcement

Linked activities can continuously reinforce and improve each other. For example, an organisation that provides an excellent customer experience could apply its CX knowledge to EX by making the CRM tools that employees use easier to operate. Employees, in turn, become faster and better at serving customers, resulting in further improvements to CX. The organisation can then apply the new CX lessons to EX again, starting a new cycle.

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Total Experience

Focus from D&A leadership has been towards individual experiences – these only capture a portion of the optimal operating model

Traditional focus within building data and analytics capabilities has been aimed at producing outcomes from the perspective of a single type of experience.

By incorporating the Deloitte 9 step Target Operating Model Development Framework and adapting it for analytical capabilities, a TX strategy ensures the right leaders across CX, EX, UX and MX collaborate to identify and remove impediments, uncover new opportunities in their disciplines, and work toward an integrated solution.

Customer and Channels	"Understanding the customers of analytics and how they interact"	MX
Services	"Articulating the services customers need"	CX
Capabilities	"Defining the capabilities required to deliver"	
Organisation	"Building the organisation for analytics delivery"	
Talent	"Growing the people for analytics delivery"	EX
Location	"Positioning the people for optimum delivery"	
Processes	"Governing the delivery"	
Data	"Sourcing the data to manage the capability"	UX
Technology	"Providing the people with the right technology"	

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Total Experience

Armed with an understanding of what each of these functions are and how to interlink activities among them, start enabling the functions to reinforce one another

	Link to CX	Link to MX	Link to UX	Link to EX
Customer Experience		Use customer journey maps to determine which steps among your key customer journeys can benefit from MX.	Review the current maturity of customer experience and determine how UX can start — or broaden — its role in each dimension.	Determine where unnecessary employee effort is preventing employees from providing a better experience and generating solutions.
Multi Experience	Conduct regular consistency checks among the various modalities your organisation offers to customers to ensure information is consistent.		Build a design system and adopt DesignOps practices and tools.	Deliver frictionless employee experiences through effortless customer experiences by shifting from an inside-out to an outside-in MX perspective.
User Experience	Create a partnership between UX, CX and marketing to model the customer acquisition funnel, and identify dependencies and opportunities within the product to promote adoption and long-term retention.	Collaborate with marketing/branding to educate the UX team on the brand strategy and identity; ensure UX teams accurately apply visual, behavioural and written guidelines across all relevant MX touchpoints and modalities.		Create an internal UX 'academy' in which product, CX and marketing employees learn foundational UX principles, processes and best practices.
Employee Experience	Improve EX by applying the fundamental principles and proven methods of CX such as employee journey maps, personas and Voice of Employee.	Establish a multidisciplinary core team including, but not limited to, IT, business leadership, HR, facilities management, UX, experience design and product development to leverage MX approaches to deliver a frictionless work environment.	Deploy UX teams to improve EX through the 'new work nucleus', better employee tools for collaboration, and smart physical workspaces, but also through hackathons; bring design thinking to EX.	

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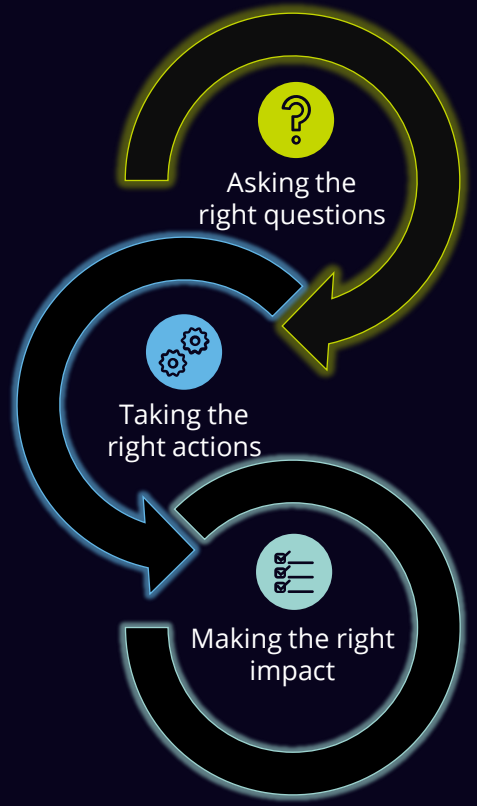
What’s next?

What's next?

The IDO Scaling Lab

IDO scaling labs bring the IDO Methodology to life and accelerates your analytical ambitions. Designed to be fun and interactive, the Labs cultivate collaboration and unity towards a shared common goal. Utilising a tailored modular approach, the Labs are applicable for organisations from all industries, at any maturity, to expedite and help you break through barriers to achieve analytics at scale.



AVAILABLE MODULES

- **Explore IDO**
- **Shared Vision & Ambitions**
- **Value Capture**
- **Deep Dive Opportunities**
- **Target Operating Model**
- **Foster Analytical Culture**
- **Apply Digital Ethics**
- **Ignite Next Steps**

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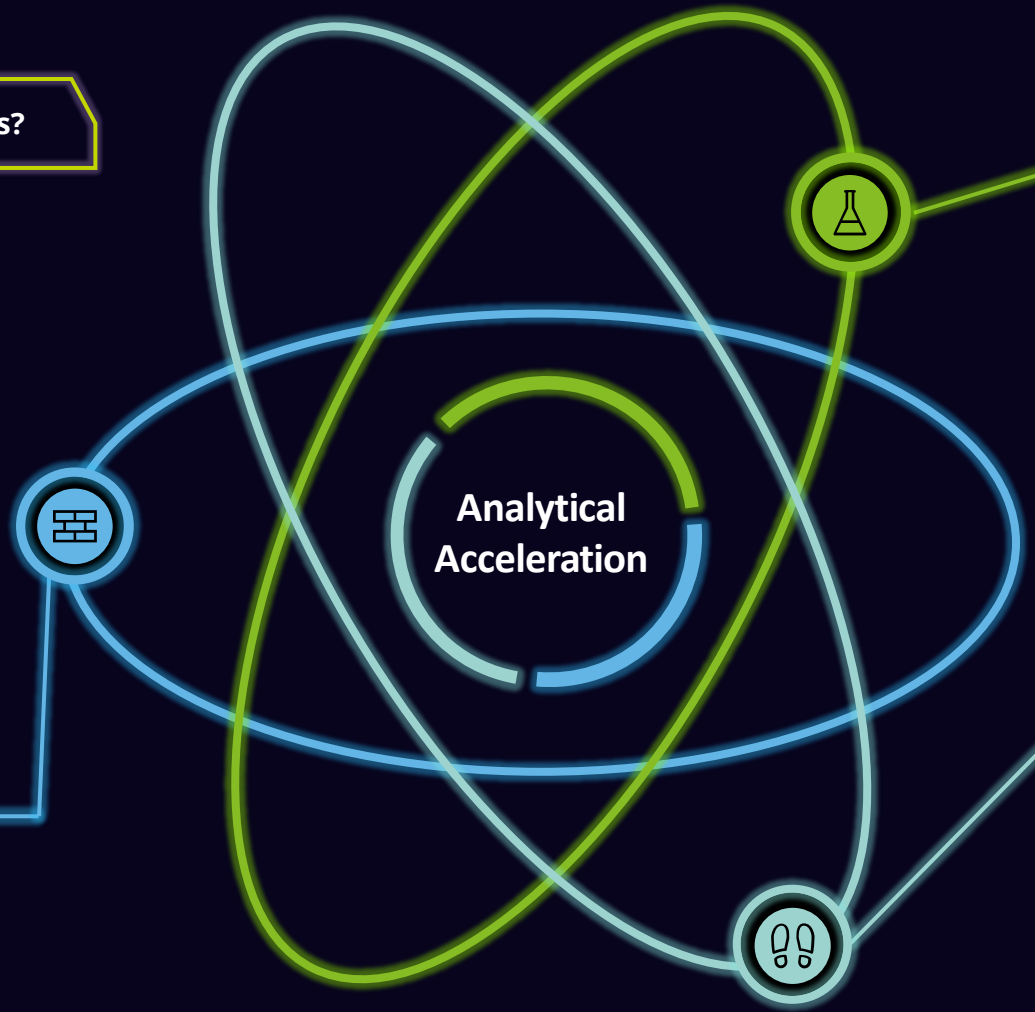
What's next?

The IDO Scaling Lab

What to expect from a lab with us?

IDO Labs allow you to apply a jump start to any analytical incentive. It provides a safe space to be creative and address organisational barriers to change as well as aspirations of where you would like to be.

To ensure your organisation obtains the maximum value from having key decision makers in one space, we support you across the entire lifecycle i.e., identifying the appropriate attendees, through to actionable next steps.



Pre-Lab

Before the Lab, we work closely with you to understand your AI and Analytics journey to date, your key drivers, and the challenges that are currently holding you back, to tailor for maximum value.

Lab

Industry insight, thought leadership and engaging interactive exercises are designed to help you understand the key barriers to scaling; the specific foundational capabilities required to scale; where you can add value; and define actions for IDO scaling.

Post Lab

Comprehensive output deck that includes an executive summary, your defined next steps in relation to each module, a write-up of exercise outcomes and your scaling roadmap for building momentum.

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What's next?

Experience Analytics

Experience Analytics is Deloitte's flagship technology event and our largest client analytics event in Europe.

Each year, we bring together C-suite, senior executives and leaders in data, analytics and AI to explore not only key issues and challenges, but strategies for solving them.

Our agenda covers key themes that will help us better understand the impact that Data, AI and Analytics are having on businesses, society, and individuals. Through Ted-X style talks, live demonstrations and interactive lab sessions, this all-day event will allow you to engage with thought leaders, learn from your industry peers and explore the latest insights and trends in data and AI.

Join us at our next Experience Analytics event to discover what the power of analytics & AI can do for your organisation.

https://www.deloitte.co.uk/experience-analytics/

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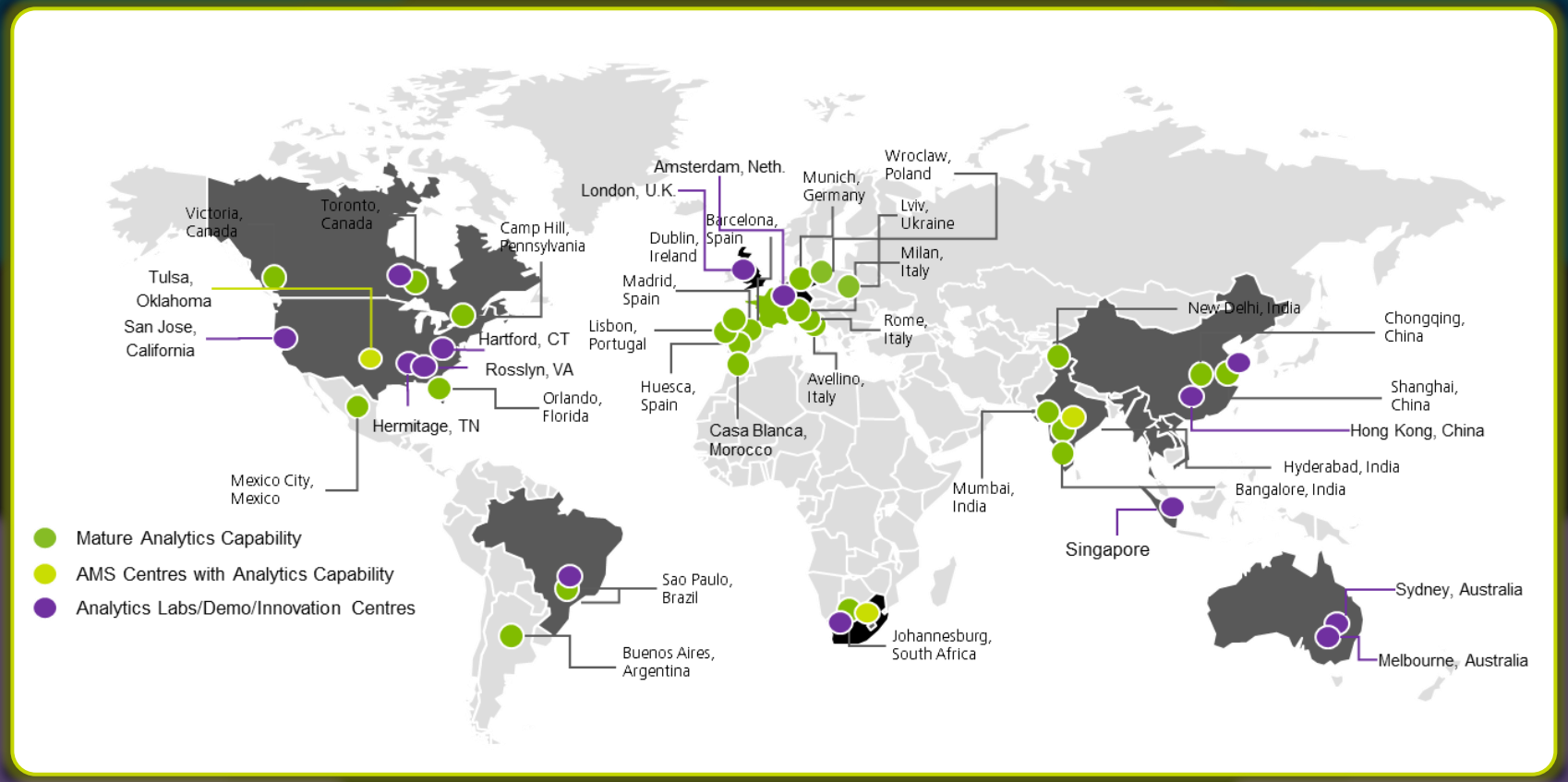
A global presence

We have high quality technical teams across the globe with the capabilities to help deliver digital transformation to the highest standard and at scale

START A CONVERSATION



21 Global Delivery Locations

47 Analytics Labs and Digital Studios Globally

Over 54,000 delivery professionals across the globe

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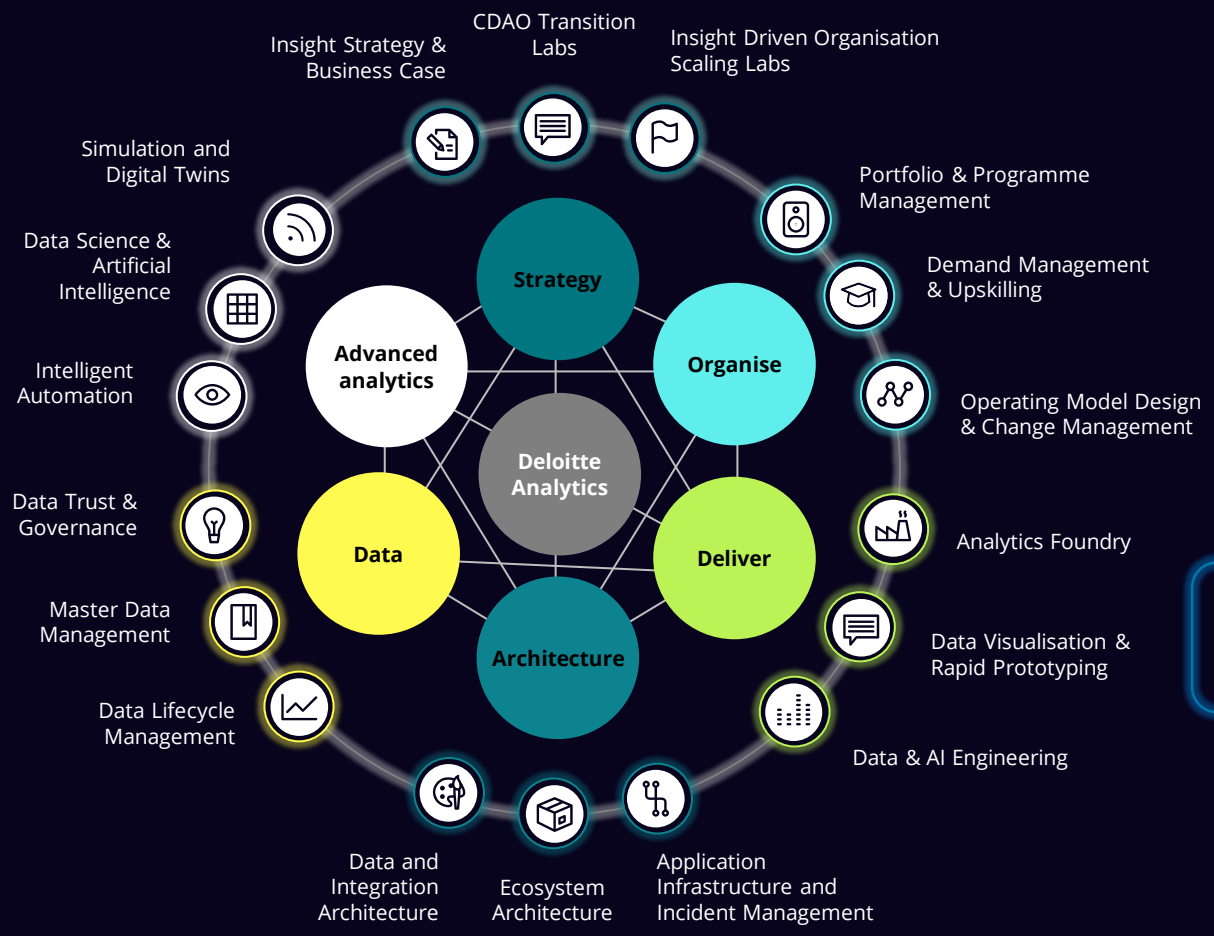
We deliver the highest quality on a global scale

Our world class global delivery network offers highly experienced and technical support to execute large complex projects for our clients. Our transformations are executed at scale with quality

Expertise in all aspects of a Digital transformation



An Established Analytics Leader

IDC MarketScape: Worldwide Artificial Intelligence Business Services 2021

Gartner 2022 Magic Quadrant for Data and Analytics Service Providers

API Engineering

2021 MuleSoft Global Partner of the Year

Salesforce

Salesforce Partner Innovation Award & Gartner Top Award for CRM

Cloud Engineering

Named by IDC as Worldwide Leader in Industry Cloud Professional Services

Full Stack Engineering

2021 Leader in Gartner MQ for CRM & Customer Experience Implementation Services (14th time)

Data & Analytics

2022 Leader in Gartner MQ for Data and Analytics Service Providers worldwide (6th time)

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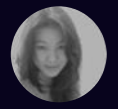

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Appendix

IDO Playbook 2022 – Sources used

Playbook Area	Sources
An Insight Driven Organisation	Scary Smart: The Future of Artificial Intelligence and How You Can Save Our World (Mo Gawdat, 2021), Competing on Analytics: The New Science of Winning (Thomas H. Davenport & Jeanne G. Harris, 2017), Deloitte
Vision	Deloitte
Value generation	Deloitte
Insight driven performance	Deloitte
DIY Analytics	Gartner, Dataiku, Deloitte
Digital ethics and AI	Deloitte (Netherlands) , Deloitte Trustworthy AI, grandviewresearch.com
Start small, scale fast	https://signum.ai/blog/small-and-wide-data-is-important-and-relevant-is-the-era-of-big-data-coming-to-an-end/, Gartner, https://knowledge.wharton.upenn.edu/article/small-data-new-big-data/, Deloitte
Analytics on the edge	Gartner, Deloitte: Our edge computing opportunity SGO Intelligence & Analysis brief, "Sensors and Machine Learning: Glucose Monitoring with An AI Edge," AI Trends, October 31, 2019. Microsoft Azure, "Cree uses Azure Data Box Edge to innovate and grow." Gina Narcisi, "AT&T, Dell Team Up To Tackle Open-Source Edge Computing, 5G," CRN, August 15, 2019, Business Wire, "AWS Announces First AWS Local Zone in Los Angeles," press release, December 3, 2019, Deloitte
Secure collaboration	https://www.forrester.com/report/chief-data-officers-invest-in-your-data-sharing-programs-now/RES164496, https://www2.deloitte.com/us/en/insights/focus/tech-trends/2022/data-sharing-technologies.html, Deloitte
War for talent	https://www.forbes.com/sites/forbeshumanresourcescouncil/2021/06/16/talent-wars-the-post-pandemic-hiring-race-for-a-competitive-advantage/?sh=592f44895ca4, https://www.hpe.com/us/en/insights/articles/closing-the-data-science-talent-gap-2203.html, Gartner, Deloitte
Adopting IDO culture	Deloitte
Distributed enterprise	Gartner, HPE Technology, Deloitte
Total experience	Gartner, Deloitte

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Deloitte.