

Econsultancy



REPORT

Best Practice Guide

# Digital Transformation and The Role of Data

This report will help marketers understand data within the wider scope of digital transformation and explore how data underpins modern businesses.

# Digital Transformation and The Role of Data

## Best Practice Guide



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# 1. Introduction

## The modern marketer's dilemma

“After several years of long Christmas lists to Santa, this year my girls could not think of anything they wanted. It dawned on me; my kids are not seeing marketing encouraging them to want things. My job and the jobs of future global marketers are getting more challenging. We need to adapt.”

— John Thekanady, Independent Consultant and former Global Media Buyer, McDonald's and Emirates Airlines

## Data is the life blood of digital transformation

Data increasingly continues to determine who sees what, where, how and how often in marketing and for products and services. Data also underpins the design of better experiences and more personalised communication. Businesses use data to make something greater, more efficient, easier and at best, positively transformational. The digital and physical worlds are coming closer together as technology increasingly mimics human-like intelligence and capability.

Today, the volume of monitoring, tracking and decisions that need to be made in business processes both inside and outside the company, as well as across companies, is far greater than the capacity of the human mind and human capital. Capturing data and processing it for business use is the underpinning to this capability and transformation. Knowing which data to collect and how it should be structured has caused challenges for many companies. This guide aims to outline what the journey entails, and how to face those challenges.

A brand's ability to operate 24 hours a day and seven days a week is often an outcome of digital transformation. Through the process of digital transformation, data is democratised so that vast amounts of value can be extracted from data points. This allows teams to future proof businesses, enables an 'always on' capability and creates enhanced human experiences with brands, products and services.

Digital transformation is a business-wide undertaking that both involves people making change and people who are affected by it.

Data is turned into knowledge when it is paired with context. The context can be collected at the point of data capture, or it can be overlaid on top of the data points from other data sources and linked together. The speed of making these data connections and democratising data access for multiple uses simultaneously is a core tenet of digital transformation to enhance business capability. The aim is to create meaning beyond the original data to discover capabilities and opportunities previously not recognised from the human mind and to do this at scale. This is digital transformation.

Collecting consumer or customer data is likely to be a key data source. However, consumers are likely to only want to share data once. Without a data strategy, data collection is resource intensive, costly and can inhibit value producing outcomes. Businesses need to prioritise investing enough time in reflecting on data usefulness, quality, guardianship and future value producing application.

## The Fourth Industrial Revolution

The World Economic Forum refers to the Fourth Industrial Revolution as: “*The blurring of lines between physical, digital and biological spheres.*”<sup>1</sup> A point of singularity will come where people cannot tell the difference between human and machine.

<sup>1</sup> <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>



Technological advancement, human ingenuity and **data**, lots of it, underpins digital transformation. People working with machines and applying meaning to data is what creates the knowledge that digitally transforms businesses and outcomes that impact people, communities and societies at large. Accepting that machines will do the work that previously was done by humans is part of the digital transformation journey. Technology is meant to serve humans and humanity, starting with the employees making it happen. The act of not accepting this change within businesses is part of what can stall transformation or cause it to fail.

### **Data creation and discovery phase**

Sabrina Menasria, Head of Data at Chanel, states that many companies are still in data discovery mode and have not reached data maturity. Many marketers are upskilling to handle working better with data. Working with data is a continuous cycle of discovery, bumps and blocks. However, if the data collected is unstructured, such as social conversational data, it can be a deluge of incompatible nonsense.

There is uncertainty and fear for some and a spirit of adventure for others. Both feelings are valid.

## **Integrating data into daily lives**

“The world is in the early days of using data to understand audiences. It feels like the early days of the X-ray, which let doctors look inside and understand the body for the first time. It took 100 years for X-rays to be integrated into doctors’ ways of working. It may seem like the data revolution is upon us, but like the early days of the X-ray, it’s still not at all clear to most organisations how data should be integrated into their daily life.”

— David Boyle, Director, Audience Strategies

### **Leadership**

Marketers need strong sponsors and business champions to deliver transformation projects that are underpinned with solid data. However, many CMOs are moving out of their roles before major long-term transformation projects are complete. CMO churn rates are the highest among C-suite staff. According to consultancy Spencer Stuart, the median tenure for CMOs is now just 27.5 months.<sup>2</sup> This has implications on the speed, focus and stability of transformation projects.

### **Mandatory data governance**

There is a proliferation of global and local governmental policies and new laws setting expectations about the use of data including the EU General Data Protection Regulation (GDPR), which came into effect in 2018.

All companies handling data, particularly personally identifiable data, must ensure they are compliant with such regulations, having data governance and management in place. This includes managing who collects and controls data, who has access to data, understanding the purpose of collecting data and its use case and understanding the rights of consumers to be forgotten, so that they may be deleted from datasets. An understanding of the laws around data is now necessary and unavoidable.

Google turned 21 years old in September 2019, the age of adulthood in the US and a key marker for responsible decision making. It seems timely for Google to reach the age of adulthood as data privacy policies tighten. Ethical data management comes with great responsibility and there are hefty fines for non-compliance or breach of the law. Data privacy policies will continue to evolve, and data practitioners need to form deeper internal partnerships with IT, legal, privacy and data governance teams to continue to work effectively with data and within the law.

<sup>2</sup> <https://www.spencerstuart.com/research-and-insight/cmo-transitions-the-shuffle-continues>



## Translating business need

This report has been written to help marketers better understand data within the wider scope of digital transformation and how data underpins businesses. As Mary Meeker outlines in her 2019 Internet Trends report: *“The rapid rise of gathered/analysed digital data is often core to the holistic success of the fastest growing and most successful companies of our time around the world.”*<sup>3</sup>

Many marketers have full grips on working with data sources that are often not owned by their company and used to fuel the advertising ecosystem. Rules are changing fast on what can and cannot be done with data. This includes data from Facebook, Google, advertising networks, publishers and additional data sources bought to better understand consumers and how to reach them.

This guide focuses on the role of data in digital transformation within the company and is written from the client-side point of view. Achieving business growth means many marketing, sales, IT and ecommerce teams are having to work closer together to keep up with the many ways that consumers make decisions and buy goods and services, as well as what can and cannot be done with data in order to reach those consumers.

This guide will also help marketers understand:

- Digital transformation and why it is needed
- Data terminology relevant to digital marketing
- The role of data, including how it is made and used
- The role of people in digital transformation
- The data-as-a-service (DaaS) transformation model, and the process of transformation
- How to support data with internal business culture
- Data strategy frameworks and time saving tips
- Why some transformations fail
- Where things are going with data for marketers.

It also features example cases of businesses in transformation and the impact of change.

While this report is aimed to be a best practice guide, the context in which digital transformation happens is evolving rapidly. Use this report's findings as a baseline and continue to supplement with contemporary changes in laws, practices, methods and emerging policies and processes. It will be important to have a mindset that welcomes being nimble, collaborative, open and flexible.

## 1.1 Executive summary

Digital transformation is a journey for businesses, people, societies and cultures. Some digital transformation journeys happen in a matter of a few years, while others may take more than 10 years.

**Ensuring data is used appropriately in the process of digital transformation is a continual work in progress**, and there is much to be done to improve rigour around data.

Data literacy is also a work in progress. Companies need to audit literacy along with data. People and data go hand in hand.

No practitioners interviewed for this report could materialise models, charts, frameworks or industry standard definitions they refer to or are working with in their daily practice. Many are very deep into operational work. From a marketing viewpoint, there is no one-size-fits-all solution to data and digital transformation.

<sup>3</sup> <https://www.bondcap.com/report/itr19/#view/4>

Unlike other lines of business, marketing data leans towards social and human sciences. It is about creating meaningful constructs and structure around human feelings and motives. However, intent is not the expertise of the CIO or CTO. Many C-suite leaders need to come together to build data transformation for human-based data.

This report aims to help give structure to what is happening with data in digital transformation inside businesses. Models, definitions and time savers are given by the author with anecdotes from interviews to help bring structured thinking towards internal data for marketers and their peers. The main focus is on consumer data and digital marketing and advertising.

This body of knowledge will continue to evolve as more maturity evolves among data practitioners.

## **Data and its role in digital transformation**

Data can be classified by its source, structure and key business purpose.

Data for digital transformation often undergoes two transformations. Many organisations undertaking this journey are unaware of these two stages, which are:

- 1. Digitising data and turning it into an electronic form with metadata**
- 2. Digitalising data for accessibility and exponential uses with exponential metadata**

The aim is to make data interoperable for use across and within different lines of business.

Transforming data for exponential use, that is, transforming data so that it can be used by many teams, systems and processes all at once simultaneously for a multitude of business uses and outcomes, involves a democratisation of data access. There are stages data must go through before it can be used in this way.

Digital transformation makes it possible to make exponential decisions with data. Exponential decision making describes the process of computer programming and algorithms to make hundreds, if not thousands, of decisions against data points simultaneously. At the same time, it enables systems to learn, refine the decisions being made in real time and improve them. This capability is known as machine learning.

This report outlines a model – the Data-as-a-Service (DaaS) Transformation Model – which explains the journey to democratising data for multipurpose use. A step-by-step outline will explain how data is enabled as a service and what it is like to experience the process as a business stakeholder. It is aimed to be complementary to the evolving processes and infrastructure being built by IT, Digital and Technology teams.

The 'DaaS Transformation Model' is a view from above on what data transformation in digital transformation looks like over the course of years or decades. If a marketer has never experienced this process end to end before, or is deeply into the transformation process, this model can act as a guide.

There are many reasons why digital transformation does not work out. A combination of business-, human- and data-related reasons are outlined.

A strong business culture underpinned by clear goals and discipline is required to transform at speed and for high productivity. Other strong foundations are needed including leadership, collaboration and networks, both internal and external. A strong data foundation is one built on clear business use cases, ownership and governance.

Guidance on how to assess data quality is given in the 10 Vs framework and checklist.

Six pillars outline a quick strategy framework including purpose, planning, process, people, partners and pillars of data.

GDPR and legal changes on the horizon were noted by this report's interviewees as important and needed, however worrying in practice. Most practitioners preferred to defer GDPR questions back to legal teams. This is a work in progress with more legal pressure on the horizons.

More complex data is being captured and for first mover brands which can extract value from human physical, biological and digital data, there is much to achieve.

The Fourth Industrial Revolution is advancing, as organisations start to work with artificial intelligence, and also moving towards emotional intelligence with the collection of biometric data. Detecting mood, tone, feelings and more subjective data points will be the next evolution and revolution.

Consumers are the biggest winners as products and services become faster, cheaper, more personalised, convenient and experiential.

Society as a whole is more widely impacted as machines replace human capital, carrying out more mundane jobs more efficiently. Leading CEOs, NGOs and government organisations all over the world are re-evaluating the future world of work.<sup>4</sup> In any discussion about digital transformation, it is important to understand its wider societal and environmental impact as well as how it can aid sustainability and allow humans to thrive.

## 1.2 Methodology

This report is based on the findings from transformation journeys taken by people and companies from across the globe. Executive data practitioners and stakeholders were consulted for a broad understanding of data from different vantage points in the value chain.

Research for the report took place in three phases:

*Phase 1:* Desk research reviewing academic, professional and existing literature, case studies, whitepapers and conferences on the topic of data within digital transformation.

*Phase 2:* Executive interviews with a range of data users and practitioners across the marketing ecosystem, from marketing leaders through to tech and data vendors who help businesses through transformation processes.

*Phase 3:* A consolidation of the above phases overlaid with the author's 20-year industry expertise working with data and experiencing digital transformation across multiple companies, industries and territories globally.

Econsultancy would like to thank the following individuals, some on and off the record, for their views and contributions to this report:

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- **Shailin Dhar**, Data Fraud Expert, CEO and Co-Founder, Method Media Intelligence
- **Cadi Jones**, Commercial Director EMEA, Beeswax
- **Oliver Kanders**, Chief Client Officer, Zeotap
- **Simon Kempner**, Tech Lead EMEA, Beeswax
- **Kelly Kokonas**, EVP Global Data Strategy, Tech and Analytics, Starcom Worldwide
- **Cassie Kozyrkov**, Chief Decision Scientist, Google

<sup>4</sup> <https://www.pwc.com/qx/en/services/people-organisation/workforce-of-the-future/workforce-of-the-future-the-competing-forces-shaping-2030-pwc.pdf>

- **Gerhard Louw**, Head of International Media Management, Deutsche Telekom
- **Sabrina Menasria**, Head of Data, BI & Master Data Governance, Chanel Fragrance & Beauty
- **Richard Robinson**, CCO, DPL
- **Richard Robinson**, Managing Director, Econsultancy
- **James Sandoval**, Co-Founder, MeasureMatch
- **Daniel Solomons**, Digital Transformation Specialist, Byte Behaviour (Google Academy Leader)
- **Allison Stern**, Co-Founder, Tubular Labs
- **John Thekanady**, Independent Consultant, (formerly McDonald's and Emirates Airlines)
- **Matt Turck**, Partner, FirstMark Capital
- **Bill Winkler**, Principal Researcher, US Census Bureau
- **Transformation Specialist**, FMCG and pharmaceuticals

## 1.3 About Econsultancy

Econsultancy's mission is to help its customers achieve excellence in digital business, marketing and ecommerce through research, training and events.

Founded in 1999, Econsultancy has offices in London, New York and Singapore.

Econsultancy is used by over 600,000 professionals every month. Subscribers get access to research, market data, best practice guides, case studies and elearning – all focused on helping individuals and enterprises get better at digital.

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## 1.4 About the author



Laura Chaibi has more than 20 years' experience working with data, having worked client-side for world class premium digital publishers, tech and telco companies including Yahoo, BBC, Orange, AOL and more recently, MBC (the Middle East Broadcasting Center), which is headquartered in Dubai, UAE. For her last three employers, she built centralised digital data, analytics and research departments from scratch.

She has been outrunning automation ever since experiencing being made redundant by digital transformation in the late 1990s when interactive voice recognition services (IVR) took her job.

With domain knowledge of more than 80 data and measurement systems worldwide, she has worked towards better data quality and measurement with some of the largest data providers in the world. She works as a translator and a bridge between business, technical and data science teams, and has experienced digital transformation at six companies.

While in the UK, she worked with teams around the world, focusing on technical measurement committees for internet measurement standards across Europe, Canada, MEA, LATAM and APAC markets. She remains an active innovator and technical advisor to many measurement companies, analyst communities and regulatory bodies.

Laura is a member of The Marketing Society, The Market Research Society and IAB GCC. She is also a CIM-qualified chartered marketer, a qualification obtained from the London Metropolitan University. Her first patent submission, [Digital Memories for Advertising](#), focuses on user-centred design and data management for commercial aims underpinned by a single sign-on framework.

She is also on the advisory board of WIRe (Women in Research) and has been an active I-COM member since it began in 2005. More than \$200m of insights procurement has been managed under her watchful eye.

Laura is originally from Vancouver, Canada but has lived and worked across four continents, she's a keen traveller and culture observer.

She is currently consulting and helping businesses across the globe with digital, data, insights enablement and strategy.

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## 2. Why Businesses Need Digital Transformation

### 2.1 What is digital transformation?

As outlined in the introduction, the world will continue to digitalise and more devices will be enabled to collect data that can be mined for better products, services and communications. This section further explains what digital transformation is, why it is important the role data plays in the process. Not all things that are digital are transformational, however most transformational changes are digital and require data that is in digital electronic form.

Many businesses starting up today can enter into markets with minimised set up costs and infrastructure. If they are businesses that are mainly digital, there are low cost digital solutions they can rent or subscribe to in order to be digitally efficient from the beginning. These solutions include ecommerce platforms such as Shopify, as well as banking and expenses management tools. Furthermore, these digital brands can do their marketing 'for free' on social platforms.

For such businesses, there is no need to 'transform', because they are already digital and focusing on intently on future performance.

#### Digital first companies challenge digital transformation companies

"Across every sector, there appears to be a kind of subcategory of digital upstarts. They don't have the same problems as traditional companies. If you've been operating a paper-based business for the last hundred years, when you decide to invest in data, there's a huge amount of upfront capital expenditure required to get your house in order. Digital-first brands have the advantage of being small, there's not a lot of infrastructure required, and data is typically digital first."

— Cadi Jones, Commercial Director EMEA, Beeswax

#### A winding journey with blind curves

Digital transformation is a journey undertaken to future proof businesses. Its success is underpinned by people, technology, processes and data and often involves re-engineering business processes and culture. Digital transformation leads to automation of many tasks and decisions and the outcome is often greater business transparency and the potential for productivity to exponentially grow. In the past, productivity and outputs were often invested in through incremental gains. Smaller micro investments led to a direct impact on productivity; for example, a new piece of equipment or additional staff would increase capacity.

Digital transformation is not an incremental business change, it is an exponential business change. This means a greater level of investment needs to be made up front before potential gains can materialise. The upfront investment involves how a business handles data to underpin its business processes and productivity. An example of this can be seen in *Figure 1*.

While the business is building out its capabilities, business impact in the way of productivity can initially diminish or become outwardly invisible. The best analogy is similar to building a skyscraper, where the foundation must be laid underground first before the building can be constructed on top.

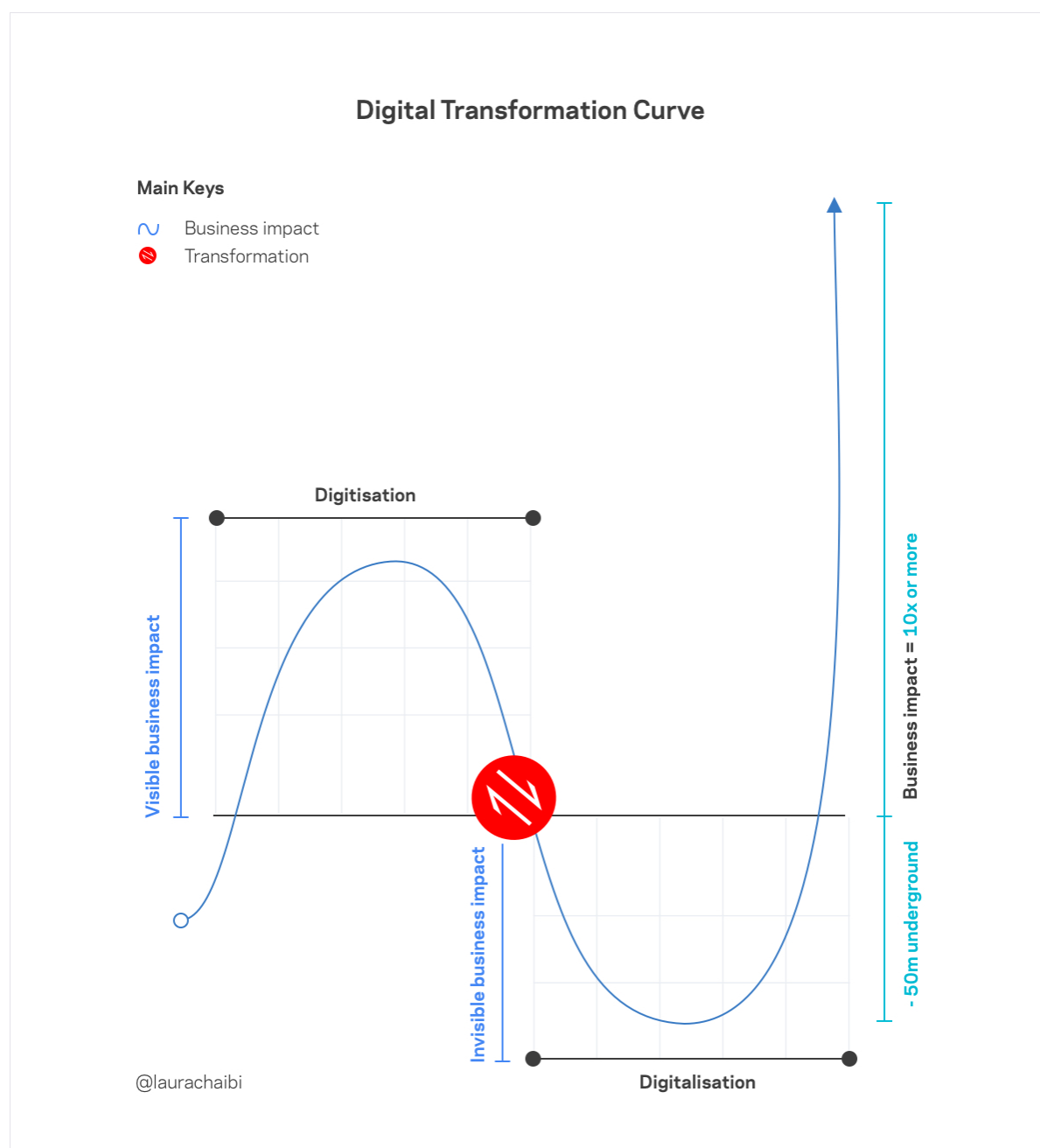
The digital transformation journey leads to a high level of transparency, accountability and the benefits or consequences. Not all employees favour this as it can lead to a much greater productivity output by machines (not to mention reducing human error), translating to a reduction in certain kinds of jobs as

machines begin to fulfil the capability. Some employees may resist transformation if it has a direct impact on their ways of working, the workforce requirements and putting their own roles at risk of redundancy.

Businesses need to think and move in non-traditional ways, which may include redefining business purpose and changing the very DNA of a company. Although this will be a complex undertaking, the reward is the potential for greater business impact, innovation, growth and sustainability. Staff must be on board and support the change, so involve them in the transformation, encourage them along the journey, and find ways to upskill and train them for jobs and business models of the future.

Section 5 outlines further details to explain *Figure 1* and the transformation curve.

**Figure 1: The Digital Transformation Curve**



Source: DaaS Transformation Model, Laura Chaibi



## Change or be changed

The aim is to change at such a timing and speed that allows the business to disrupt the market before it is disrupted by others. CEOs are familiar with incremental growth. The Fourth Industrial Revolution offers exponential growth with investments in digital transformation.

The digital transformation graph of business impact is non-linear. Although digital transformation can offer exponential growth, for parts of the journey, business impact will be non-visible, and there will be low productivity output for a long period of time. If not briefed on what to expect, staff will become frustrated and leave. Knowing what this journey looks like in advance will make it much more manageable.

While managing data, having a strategy and knowing the laws are important, managing people is even more so.

## 2.2 The role of data in digital transformation

Data is one of the main ingredients to digital transformation. Digitised data points need to be housed in such a way that many business units may access and use the data at the same time. It is the accessibility, 'query-ability' and usability of data by many lines of businesses simultaneously that underpins transformational business changes.

### 2.2.1 Building multi-storey buildings with solid foundations rather than clouds

Marketers and many other departments across the globe are migrating much of their business data into 'the cloud' at breakneck speeds. Computing cloud solutions enable businesses to store data for lower cost than onsite storage and aid in speed of access and processing of data. As an analogy though, clouds are ephemeral and relatively shapeless, it can be hard sometimes to imagine what to make with data in 'cloud solutions' such as Amazon Web Services (AWS), Google Cloud Platform or Microsoft Azure.

Rather than think about data in the cloud, reimagine data as the very foundation of a multi-storey building that allows it to confidently be built. Foundations determine how high and solid the building will be and its ability to weather earthquakes and storms. Processed, cleaned and catalogued data becomes the very foundation to build things on. This is the role of data in digital transformation.

The deeper the foundations are, the higher the building may be. The building needs to be built with rigour, planning, coordination, expertise, audited and inspected for 99.99% structural safety. The building materials, like data, need to be assessed and certified for use. The excavation phase and below ground foundations are the most important part of the build. Solid infrastructure underground must be in place before the building is built.

Few would question how important foundations are for a building. The tallest building in the world, the Burj Khalifa in the UAE, which rises to more than 800 metres, is supported by 50 metres of foundation.

#### Data and metadata are building foundations

Get the data right and unimaginable business heights can be built. However, data is evolving and not yet mature enough for companies to build upon. Data development is in the discovery phase. Emerging volumes of data lack the rigour to build upon. Marketers must construct the conceptual build and then source appropriate materials.

IDC estimates that by 2025, 80% of data will be unstructured.<sup>5</sup> This means that there will be a lot of data with little to no metadata or business context to make business decisions from. Organisations need strategies on what exactly they want to build from data. Once this is defined, the associated metadata can be designed and implemented.

<sup>5</sup> <https://solutionsreview.com/data-management/80-percent-of-your-data-will-be-unstructured-in-five-years/>

## Decisions with data are still under construction

“Something very complex has to be made simpler. Right now, even people leading data companies sometimes struggle with complexity. People actually driving this data movement have to make sure that they can break data down in a manner so simple, that even a creative can use data easily for increased efficiency, or to make decisions.”

— Oliver Kanders, Chief Client Officer, Zeotap

### 2.2.2 Getting raw data materials

There is no clear indication on how deep data foundations need to be to enable soaring building heights. The raw materials are a combination of internal and external data sources of varying levels of quality, quantity and structure. Data used to fuel digital transformation needs to be easy to access and be housed in a such a way that it can be used for many different purposes.

Over the last 100 years, internal data structures have grown to be like fully grown trees with deep roots and structures. The strongest are hard wood in tightly bound operational systems and hardware. Marketing and other teams are asking for the trees to be chopped up, mulched into tiny sawdust particles (the smaller the better) and extensively labelled. Each sawdust particle can then be cleaned and mined for:

- Reassembly
- Reuse
- Repurposing
- Use in completely new ways

The original tree will not be put back together the way it was. Staff need convincing the new way is better and getting to the raw materials can seem an intimidating process. The benefit of it is often unclear for some, very clear for others and quite nerve racking for those foreseeing computers taking their jobs. Resistance is understandable.

### 2.2.3 Data from one to many uses

Business data needs to transform in order to enable an array of uses for the same data point. A single piece of data needs to become transversal, or, in other words, it must be usable across multiple teams, including marketing in a multitude of ways.

Metadata gives further details about a data point that can help the data be classified in a meaningful way and accessed and analysed quickly for many uses. In digital measurement, some systems such as Google Analytics or Adobe can support 20 to 200 metadata points called ‘dimensions<sup>6</sup>’ or ‘eVars<sup>7</sup>’ per data point collected. Metadata acts as context to explain the meaning that can be associated with the data point.

For example, a single piece of financial transaction data needs to link to a customer, products purchased, method of purchase, delivery, the device used to make the purchase, time, date, place and much more. For businesses, these data points serve different teams, allowing them to:

- Monitor customer spend data across all distribution channels
- Track orders and sales, deliveries and returns
- Carry out yield management

<sup>6</sup> <https://developers.google.com/analytics/devguides/collection/analyticsjs/custom-dims-mets>

<sup>7</sup> [https://docs.adobe.com/content/help/en/analytics/implementation/javascript-implementation/variables-analytics-reporting/evars-events.html#section\\_869EC3D8A5614036A9C586F2B74FA7DC](https://docs.adobe.com/content/help/en/analytics/implementation/javascript-implementation/variables-analytics-reporting/evars-events.html#section_869EC3D8A5614036A9C586F2B74FA7DC)

- Monitor customer churn and retention
- Measure customer lifetime value
- Measure return on investment on products and services
- Predict future purchases and customer spend
- Carry out price modelling and impact on supply and demand
- Determine marketing attribution and customer acquisition costs
- Carry out product innovation and iterations.

For decades, many of these operational tasks have been undertaken in silos. What has not been undertaken is enabling access to this data across most business units simultaneously. For example, sales, ecommerce and marketing should all be accessing the financial data and their contributions to understand what drives long-term higher productivity and business impact.

## Educate and equip teams

“If you are not educating the people who make decisions on spending hundreds of millions of dollars on how the web works, and how data is changing, you’re not going to have a good time when it comes to analysing the performance. Richard Branson said something to the effect of, ‘train people well enough so they can leave, treat them well enough so they don’t want to’.”

— Shailin Dhar, Data Fraud Expert, CEO and Co-Founder, Method Media Intelligence

Internal business data produces regular reporting that is often backwards glancing, looking at things that have already happened. Digital transformation is about enabling data use for forward-facing projections and predicting the likelihood of something happening or influencing making something happen. Bringing datasets together can create unexpected things not previously considered as opportunities or options.

### 2.2.4 Discovering relationships in data

Unimagined business scenarios can be discovered when data, people, processes and computing power come together. It takes internal education and coordination to get to this level of thinking and enablement.

For example, one FMCG brand discovered razor sales increased in households with new babies.

Through the data it started to collect from mums-to-be and by analysing household purchases during and after the baby is born, it was able to correlate births with new dads going clean shaven. With further research, it discovered that new dads were opting for clean-shaven faces to avoid scratching their babies with a prickly beard.

It is only by bringing together data from different sources across the business in this way that makes it possible for marketers to learn and plan trigger marketing moments to influence future purchases, or find other unexpected product correlations.

With data and technology, P&G created a haptic (touch) experience application to demonstrate what it feels like for a baby to be touched by a scratchy beard. The ‘Babyface’ campaign won several global advertising awards and P&G brand Gillette, although already holding 80% share of the market, saw sales uplift of +4%.<sup>8</sup>

<sup>8</sup> <https://www.mediacom.com/en/work/babyface>

## Business and societal impact

Research from IDC in November 2018 found that companies with the right data will see an additional \$430bn in productivity gains by 2020.<sup>9</sup>

Digital transformation will speed up collaboration and increase productivity while minimising waste and unnecessary administrative work that does not create value. This brings the promise of a better work-life balance, which will appeal to many. Most are hoping policies towards shorter work weeks are implemented as machines do the mundane heavy lifting.<sup>10</sup>

### Faster, cheaper, better experiences and convenience

Goods and service models relying on mass production and centralised distribution models face new entrants and new models of business. Data is a catalyst. Retail shops and industries that are physical stockists are affected by this data-led trend. If they are not the fastest, cheapest, most convenient or personalised, competitors will take their place.

In some cases, customers are disrupters. Consumers are going direct to brands (D2C) and handing over data for better experiences. They are cutting out intermediaries. Companies need to capture data about customers and logistics, as well as peripheral data that gives context about consumers. Companies that fail to do this are putting themselves at risk.

## 2.3 Business models emerging from digital transformation

There are two key types of business models that are powered by data: the automated model and the XXaaS model. Digital transformation often changes business industries creating two extremes, with a diminishing middle. The main difference between these models is that automated aims to drive down cost and improve on speed, while XXaaS aims to drive up value and therefore command a premium on services while also encouraging longer time spent with the brand.

Digital transformation often diminishes the middle of the range brands which are neither efficient nor personalised enough for consumers to keep buying them. The challenge is the companies that have been first to adopt automated solutions are grow exponentially into other sectors as their efficiencies have scale. This is digital transformation at unprecedented levels by categories that may have no incumbents with the digital infrastructures in place to compete.

Amazon is a key example, moving from ecommerce into a vast array of lines of business that its infrastructure can scale including media, health, education and many more surprising ventures.<sup>11</sup> This is also forcing digital transformation to happen faster than many industries are capable to support.

If an organisation is unclear on a digital and transformation strategy, picking one of these models is a great starting point.



Customers want things to be easier, cheaper and faster. Digitalisation delivers speed and efficiency, minimises human error and maximises choice combinations by automating capabilities as much as possible. Businesses embrace digitalisation with the aim of driving down marketing and operations costs and to increase productivity and sales at scale.

<sup>9</sup> <https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf>

<sup>10</sup> <https://www.vox.com/2019/9/13/20862246/future-of-work-4-day-workweek>

<sup>11</sup> <https://www.buzzfeednews.com/article/leticiamiranda/these-are-all-the-businesses-you-never-knew-were-owned-by>

Brands investing in direct-to-consumer (D2C) ecommerce solutions are working towards automating as many of their business processes as possible, including the bulk of marketing and customer communications. From chatbot-powered customer care solutions through to automated marketing messages with auto-generated image selections that are more likely to lead to a purchase, these automation tools allow businesses to scale, be permanently open for business and reach the right customers with the right messaging at the right time.

The automated model requires a huge volume of data to use for modelling out predicted successes.

Automation at scale for marketers can mean real-time automated optimisation of communications such as personalised email titles or landing pages for marketing campaigns. It can also mean auto-generation of audience segments built on criteria that may be nonintuitive to the marketer, such as where seemingly unrelated products are consistently being bought or used together.

However, enabling full automation can be risky. Marketers must incorporate clear, socially relevant boundaries to avoid divulging sensitive information, as did the US brand Target when it sent personalised marketing messages about baby products to the households of pregnant women, inadvertently revealing a teenager's unannounced pregnancy to her father.<sup>12</sup>

Consumers win with the automated model through independent self-service, 24 hours a day. The data being collected through this process is used to fuel personalised communications.

Marketers focus on automated communication touchpoints and use digitalisation to predict and action communications at the right time and place. Most enterprise businesses have a data automated marketing set up. Digitalisation aids businesses when the data ties all the outside communications back through to all lines of business and internal data, the other areas that marketing is not accountable for.

A key marketing example is dynamic ad insertions (DAI) used in advertising. In 2014, some brands were already working with automated creative and generating 125,000 ad variants to use in marketing on digital platforms. By 2016, SAS airlines had moved from 400 ad creatives to over 1.3 million automated variants to personalise flight destinations, offer types, image selection and price.<sup>13</sup> Continuing on their digitalisation of creatives, not only do they have exponential volumes of combination ads, they are now predicting marketing mix modelling and driving down costs (target of 20%) and seeing a +38% uplift in sales attributed to marketing. The airline noted, *"marketing technology promises a high degree of automation. In practice, the manual groundwork is everything."*<sup>14</sup>

### 2.3.2 XXaaS: Something as a service

The XXaaS digitalisation business model focuses on using data to create more value during a service experience. XX = Industry or offering and many major industries are moving towards service models including transport as a service, retail as a service, entertainment as a service, or even laundry as a service.

Example models often entail consumers having access to something 'as a service' or an enhanced 'serviced' experience rather than outright ownership or self-service. The ease of experience, relevancy and high touch nature of the service is appealing and may also remove perceived hassles.

With the service model, consumers may not need to make an upfront investment in an asset purchase (such as a fridge, car or washing machine) and all repairs and maintenance become part of the service cost which might be a monthly subscription model or a per usage fee. Either the product is internet enabled and data is being shared with the service provider, or there are moments that support data collection such as preferences.

<sup>12</sup> <https://www.forbes.com/sites/kashmirhill/2012/02/16/how-target-figured-out-a-teen-girl-was-pregnant-before-her-father-did/>

<sup>13</sup> <https://www.thinkwithgoogle.com/intl/en-154/insights-inspiration/case-studies/personalised-campaigns-help-sas-boost-online-revenues/>

<sup>14</sup> <https://adage.com/article/neustar/when-scandinavian-airlines-adopted-analytics-it-got-more-tools-and-technology/2187676>

In this model, data is used to create more value, examples include:

- Predicting customers likelihood to purchase premium services over premium products
- Mass customised products with a higher price point such as custom-made shoes and retail items
- Higher basket of goods per transaction through serviced face to face recommendations
- Longer customer tenure
- Higher customer lifetime value
- Loyalty
- Highly targeting cross-selling and up-selling at the point of sale
- Creating desire around trends to trigger demand
- Validate product authenticity as a service

The XXaaS model is the opposite of the automated model which enables independence. XXaaS data aims to empower staff and artificial intelligence systems to have knowledge and high involvement with customers.

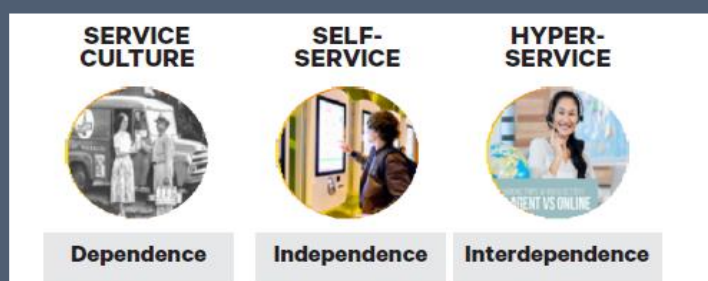
The aim is to establish deeper relationships because there is an extensive built up history of data relevant to the customer including their relationship with the business, their preferences and habits. This 'hyper-serviced' model involves being able to service the long tail of consumer preferences on a 1-to-1 level. Marketers can work with the wider business to ensure the benefits of service experiences are communicated and designed with human emotional needs, as well as rational needs.

## The Expectation Revolution

Kelly Kokonas, EVP of Global Data at Starcom, gives highlights from several recent studies on the future of connected living. In one of the studies from Starcom Australia, several families were transported into a smart connected 'home of the future' to understand how their behaviours changed through interacting with intelligent services in the home. Key conclusions from the study include:<sup>15</sup>

1. Participants interacted with their homes in new ways and felt differently and could think about what they want from future products, brands and services.
2. After six weeks living in a smart home, expectations accelerated with voice services taking care of menial decisions.
3. There is a willingness to share more data to get more value and benefits
4. Customer experience based on the transactional views of customers will broaden to encompass augmenting with data for better human experiences.

Figure 2: The evolution of service models



Source: Starcom Futures, The Future of Connected Living

<sup>15</sup> <https://www.starcomfutures.com.au/the-expectation-revolution/>



## The Expectation Revolution

“The internet brought independence and the next evolution is intelligent agents providing hyper-service through interdependence. This includes enhanced experiences of products and services powered by data: customer data, preferences, habits, tastes, likes and in what context.”

— Kelly Kokonas, EVP of Global Data, Starcom

Marketers can equally focus on finding new and innovative ways to encourage consumers to share their data. Being able to curate high touch service experiences with data as a value exchange will help brands build out their capabilities and better meet the growing expectations of consumers.

Marketing remains a key function as a conduit between customer and business. They are quite often tasked with business transformations and need the fuller picture of what this entails.

## 2.4 Future transformations and the Fourth Industrial Revolution

The Fourth Industrial Revolution is the point when people will not be able to tell the difference between human and machine interactions. IDC forecasts that by 2025, an average connected person across the world will interact with connected devices nearly 4,800 times per day, or once every 18 seconds.<sup>16</sup>

A phenomenal amount of data will be produced with varying levels of detail, privacy and governance requirements along with brand new ways of managing everyday life including the concept of work, health and well-being. Consumerism as we know it today will change. PWC states in its report on the future of work that the future of autonomous intelligence will be continuously adaptive intelligent systems that will take over decision-making. The future of humans at work is also questioned.<sup>17</sup>

### A call for leadership to steer change for good

“Shape a future that works for all by putting people first, empowering them and constantly reminding ourselves that all of these new technologies are first and foremost tools made by people for people.”

— Klaus Schwab, Executive Chairman, World Economic Forum<sup>18</sup>

While it is unclear on exactly how much the Fourth Industrial Revolution will be machine augmented or machine run, it will bring businesses and societies closer to solving human problems.

Data use cases of today focus on enhancing experiences, such as personalised products, services, communications and marketing. The future datasets will impact life critical situations and provide preventative health and well-being solutions to live longer and healthier lives. Examples include:

- Remote health monitoring and management with tracking biometric data
- Predicting and influencing consumer wellbeing through IOT devices and things
- Early detection of diseases before they manifest such as diabetes
- Monitoring wellbeing for the elderly through smart living tracking such as motion detection in rooms and detecting when anomalies happen in regular patterns, such as someone not getting out of bed or coming out of a bathroom.

<sup>16</sup> <https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf>

<sup>17</sup> <https://www.pwc.com/gx/en/services/people-organisation/workforce-of-the-future/workforce-of-the-future-the-competing-forces-shaping-2030-pwc.pdf>

<sup>18</sup> <https://www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab>



Millions of people will be living a better biological quality of life and with this data comes great responsibility to use the insights in positive and beneficial ways.

### Nurture marketing

The view of the World Economic Forum is that marketing as a function will change and, *“the only companies that will exist in 10 years’ time are those that create and nurture human experiences. This learning and growth will come from maximizing opportunities, including the reinvention of retail spaces, new models of engagement, and an understanding of experiences as perhaps the most important form of marketing”*.<sup>19</sup>

Data capturing of mood, tone, emotions, facial expressions and more is already happening. Marketing teams will evolve and can help bring forth a new strand of ‘nurture’ or ‘for good marketing’, focusing on highly personalised experiences and communications underpinned by artificial intelligence utilising more human data such as tone and mood to feel like a human experience. McDonald’s, for example, is testing such AI solutions outlined further in this report.

Marketers have always been at the intersection of people and communications. For now, humans still make decisions on what data should be captured and what it will be used for. In the near future, marketing may be more about creative methods of encouraging consumers sharing their data and communicating the benefits of sharing it. Creativity will remain an important discipline to deliver this as is the case with how Deutsche Telekom used creativity to aid dementia research.

### Sea Hero Quest: using marketing creativity to secure data for early Alzheimer’s detection

Medical researchers are always searching for ways to secure more data for studies. Alzheimer’s Research UK, Deutsche Telekom, University College London and the University of East Anglia joined forces to create a mobile VR game to collect data on Alzheimer’s.

The game was explicitly marketed as Dementia Research Through Gaming.

- More than 4 million people played
- Two minutes of game play would take more than five hours to create in medical labs
- 17,600 years’ worth of dementia research was created

Outcomes:

- People’s navigation skills change from age 19
- Nationality, age and gender showed different spatial abilities
- Making the game VR gave scientists 15x more precision in the data

The brand created the largest crowd sources spatial navigation dataset across over 190 countries as well as insights to help build better products and aiding the development of an early detection dementia diagnostic tool for dementia patients.

— Sea Hero Quest<sup>20</sup>

<sup>19</sup> <https://www.weforum.org/agenda/2019/01/the-experience-economy-is-booming-but-it-must-benefit-everyone/>

<sup>20</sup> <http://www.seaheroquest.com/site/en/what-is-dementia>

## 2.5 What is the role of marketers in digital transformation?

### The modern marketer

“The marketer is on the front lines... touching technology, touching data, responsible for the consumer and how they interact across the board. The modern marketer is a very interesting person and interesting executive who really has to be of two minds; one being creative, and one being data driven and analytical.”

— Allison Stern, Co-Founder, Tubular Labs

### Marketers as the great communicators can lead business through transformation

Marketers are some of the first movers in businesses to undertake transformation. Many built marketing technology stacks, using a lot of data they do not own. They have control over this domain strategically and operationally. However, with deeper privacy laws, and limitations being placed on third-party data and data cookies, marketers are having to rethink strategies and the data used to support them. Focusing on internal business transformation may be a new journey for some.

Consider treating the transformation journey like a marketing campaign. Marketers are in the business of launching campaigns, some of which are focused on product replacement. In these instances, the marketer needs to be very aware of the level of attachment the target audience has to the old product and the level of difficulty change will be. The aim will be to win over audiences by offering benefits. Marketing can lead on internal digital transformation by utilising all of its marketing and communications prowess including apply the marketing cycle, full strategy, planning and executing including:

- Champion the product and its benefits
- Use communications expertise
- Execute against clear transformation mandates with discipline
- Align with peers and adhere to an agreed decision-making framework
- Steer people through culture transformation
- Research (internal) awareness, interest, adoption, actions
- Respond transparently and address issues quickly.

Marketers must lead on data literacy, showing how data-backed evidence-based knowledge and insights deliver business results. A degree of emotional intelligence is also required to understand the impact transformation has on people. Marketers should familiarise themselves with the Kubler-Ross<sup>21</sup> change curve model which identifies and outlines the emotional stages of change. Actively managing staff through the curve can speed up transformation.

### A marketer's role to help changing mindsets and behaviour

“From my experience working in both traditional companies and digital-first companies, you cannot underestimate the pain of people and cultural transformation. It is consistently underestimated. Leaders invest in data, and it will be obvious if you are in a traditional company, the biggest pain points will be people.”

— Cadi Jones, Commercial Director EMEA, Beeswax

<sup>21</sup> <https://masteringbusinessanalysis.com/mba154-change-leadership/>

Cadi Jones, EMEA Commercial Director at advertising software company Beeswax, says that a lot of things need to be right to get things moving, including top-down leadership endorsement. Kicking off digital transformation requires the right mindset and attitudes amongst the people in an organisation, a conducive environment, agreed objectives and a shared understanding of why transformation is needed.

For businesses that are at the first steps of transformation and not in a state to be able to consider a business wider overhaul, David Boyle from Audience Strategies recommends, *“pick a small number of decision-making processes that you want data better integrated into or perhaps just one to start and get great at using data in this particular process. Only then move on to another.”*

Marketers can show the business that data is a benefit and with investment businesses can improve.

# 3. Data: The Key Ingredient for Transformation

This section considers the kinds of data typical in digital marketing and their relevance to digital transformation. As mentioned before, people make decisions with data, so the key ingredient in digital transformation is the emerging data science function and how marketers can take the lead with data.

Data is being created rapidly, though some data sources are disappearing altogether due to changing laws, business practices and technologies. The data science function and data strategies must evolve alongside these changing streams of data.

## 3.1 What is data?

The Oxford English Dictionary gives one definition of data as: *“Information that is stored by a computer.”*

Data does not need to be digital, but digital cannot function without data.



Digital data is the electronic capturing and labelling of stuff. This stuff needs large volumes of business-defined or business-designed labelling to be meaningful and must be stored in a way that allows that many people across the business to access it in an agile way.

Value is extracted from labelled and unlabelled data. Labelling helps translate data more easily into knowledge and information.

**Data value is a highly dependent variable**

Data is neutral. It takes no sides. People decide whether data is used for good or otherwise.

Many processes happen in between getting raw data and turning it into value. Processes are still a work in progress for many companies. Data does not create value on its own; humans create value.

It is important to create agile data, systems and processes. Most businesses have not created agile enough data. Transformation is needed here.

Without labelling and processing in an agile way, data has little value on its own and often loses its value immediately after it is created. Digital transformation enables valuable moments to be opportunistically seized.

## 3.2 What is metadata?

**Metadata is data about data**

Metadata is the labelling of information about data points collected. It brings context and meaning to data and structure to unstructured raw data.

For example, consider how eggs can be cooked: fried, scrambled, sunny side up, over easy, poached. If 'eggs' are the data point, the cooking preferences can be said to be the metadata.

In businesses deeply driven by data, more than 10,000 metadata labels may be being appended to a single data point. For services people log into, including social networks, the person becomes the central data point. Metadata is appended to the person data point, upon which business models are built.

Building a rigorous metadata taxonomy and ensuring that taxonomy is strictly adhered to is the difference between having bad, good, great and extraordinary data to extract value from.

As noted earlier, most digital analytics solutions allow between 20 and 200 metadata points to be collected per data point. For data that is not digital analytics and raw programming, in Amazon Web Services for example, only five metadata points are allowed to create personalisation and this has been noted as a limitation.<sup>22</sup>

Sophisticated data solutions are often built in-house and this is recommended when the business outgrows the limitations from off-the-shelf solutions such as Google, Amazon or Adobe. Prioritising metadata design, architecture, governance and auditing for compliance is part of data strategy. This is one of the places where great innovation can set one business apart from another. Metadata can lead to a point of differentiation, setting one business apart from another on how they apply the data to business capabilities.

## Getting metadata right

“Metadata is key to the structure of information. I think we are at a stage where everything can be done, including deriving emotion metadata with facial recognition. The future is about data feeding data automatically.”

— Sabrina Menasria, Head of Data, BI & Master Data Governance, Chanel Fragrance & Beauty

## 3.3 Data as an intangible business asset

Brand assets are part of the overall business value. Data will become a reportable part of businesses overall value as well. By 2022, Gartner predicts that 90% of companies will have information as a critical enterprise asset and analytics as an essential competency.<sup>23</sup>

Data can pay dividends when used in innovative ways. As more companies move towards having first-party data, datasets and their value as a business asset will become reportable.

## Data recorded on the P&L

“Data will be a quantifiable asset on corporate balance sheets moving forward. As today, if your brand has a value, your property has a value, your data will have a value. I genuinely believe it will happen. It is measurable, increasingly meaningful and may replace goodwill as a valuation metric.”

— Richard Robinson, CCO, DPL

## 3.4 Data terminology

In the digital marketing community, words used to discuss internal data differ from those used to describe data in other sectors, such as finance, sales and operations.

Data often is related to understanding people, social constructs and communications, which makes sense, as these are key marketing domains. Data is where businesses can differentiate, build infrastructure and transform their organisation.

<sup>22</sup> <https://forums.aws.amazon.com/thread.jspa?messageID=902714&#902714>

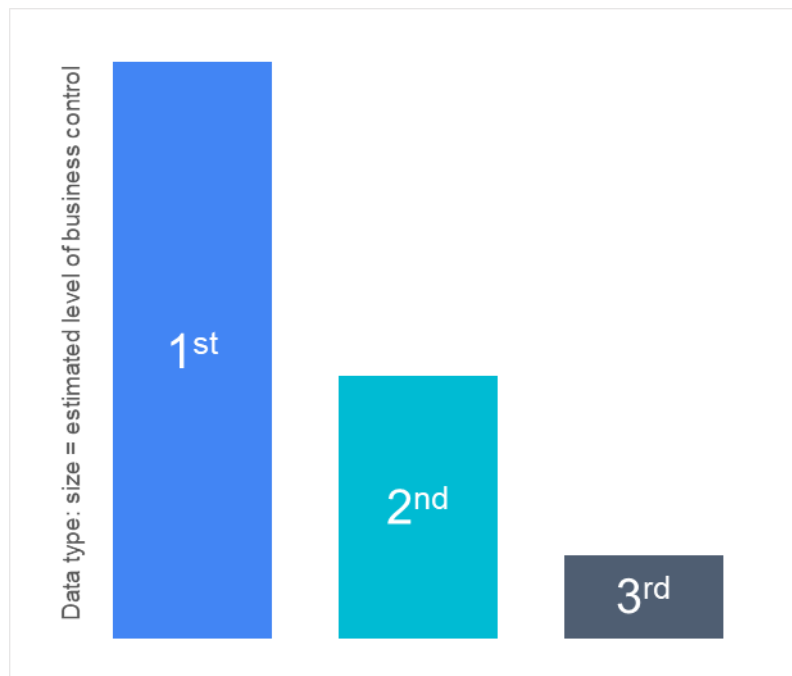
<sup>23</sup> <https://www.gartner.com/smarterwithgartner/why-data-and-analytics-are-key-to-digital-transformation/>

In this section of the report, simple common data terms used in marketing are outlined. This list is by no means exhaustive; it focuses on data to which brands have internal access and that need to be electronically captured.

### 3.4.1 Data types: first-, second- and third-party

This covers where data comes from, who owns and controls it and what can be done with it.

**Figure 3: Data types and estimated level of business control of data**



#### First-party data

First-party data is data that businesses exclusively collect and own. Businesses have the most control over first-party data and its use. This data is often confidential and commercially sensitive. It needs legal compliance support.

#### Second-party data

Second-party data describes other companies' first-party data, which businesses can get access to. It usually comes with a partnering arrangement for data access and parameters of usage.

This data is very important for businesses moving into co-operative agreements or building federated datasets. Normally the companies in the agreement do not compete and have mutual benefit in partnering, e.g. car dealerships and insurance companies.

#### Third-party data

Third-party data is data that organisation does not own. It is created by other companies and might be mass produced for mass use. Third-party data can range from private to anonymous data and can be widely available for many companies to buy.

If there is personally identifiable information (known as PII data), then permissions and strict governance on use will be required to ensure there is consent for use from the individuals within the dataset.

Third-party data and its use are coming under strict privacy governance with laws such as the General Data Protection Regulation (GDPR) in the EU and the California Consumer Privacy Act (CCPA), which is due to come into effect in January 2020.

## GDPR is helping to mature the use of data

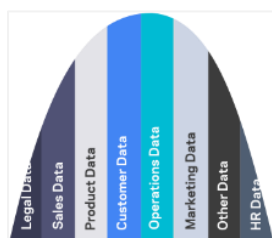
“I love GDPR. It forces precisely the right considerations when using data: do I have permission? Would the person understand and approve of this use if I told them about it? Would I be proud to tell them I’m using their data in this way or would I be scared they’ll find out?”

— David Boyle, Director Audience Strategies

### 3.4.2 Data states: structured, unstructured and semi-structured

Data comes in various states depending on its origin and original purpose. Some data is pre-set to be generated in very strict forms, while other data is completely free form.

#### Structured data



Structured data is in a fixed, predefined format. Both the field of data is clearly defined as well as the detail of what is captured. Data is formatted, standardised and collected with rigour and depending on the industry, may also be highly regulated.

Often the data is structured for a very specific use case, usually defined by a single department with a narrow business requirement or remit. There are usually predefined fields of data collected with predetermined possibilities of what the data collection field contains. Some examples include transaction data, date ranges, time, place, product name, price, internal product reference codes, currency, numeric data and metrics that can be added up.

Purchase transactions generate their own structured data, including information from the customer’s receipt.

#### Semi-structured data



Semi-structured data is partially structured data. Typically, the classification of the type of data captured is labelled and structured, while the data itself that is collected within the field is unstructured.

Semi-structured data is often found in situations where consumers are giving data and businesses are collecting it. Open boxes where consumers can write anything often produce semi-structured data, including basic fields like name, addresses and email.

Customer written feedback in a feedback box is semi-structured data; the label of feedback is structured, while the data inside is raw or unstructured. Meaning can be extracted from this raw data because it is associated with the labelled field. This extraction process makes it possible to note if the data is positive, negative or neutral feedback or if there are other insights to be had from product questions, issues or suggestions, for example.

#### Unstructured data



Unstructured data is in a raw format, with no business meaning or metadata applied to it to turn it into information. With advancements in data science, it will be possible to find many exciting insights within unstructured data.

The process of extracting value from unstructured data can be likened to when large dust sifting machines took over gold mining, allowing the gold rush to advance. The industry moved from manually searching for gold by hand, to sifting sand with machines to collect tiny gold dust particles, which could be amalgamated into large gold nuggets.



Unstructured data needs to be sifted, refined, sorted and insights constructed. Unstructured data and data science together are similar to the industrialised gold rush, though much more lucrative than manually digging for data gold nuggets.

Most marketers work across a range of data structures. Anyone working with social media data, influencers, or user-generated content is working with receiving unstructured and often semi-structured data on the publishing side.

Before industrially sifting for gold, a human still needs to decide on the best place to construct how to mine the data.

A great example of the successful use of semi-structured data in digital transformation is turning to social data to discover emerging trends and predicting which trends will remain in favour, while others fade away. PepsiCo worked with Black Swan Data to mine over 14,000 micro food trends from social data before picking one new flavour each for its beverage range Bubly and for its line of savoury snacks Off the Eaten Path.<sup>24</sup>

### 3.4.3 Data focal points: consumer-, asset- or network-centric data



As businesses have a focal point, so too does data. This focus defines much of what value can be extracted. In marketing, on the brand business side, there are three key focal points: consumer- or customer-centric data, asset-centric data and network-centric or federated data.

#### Consumer- or customer-centric data

*Who is being measured?*

Consumer-centric data puts the consumer at the centre of all data collection. Data must tie back to a person within the company dataset. This is particularly important when a company has multiple products and services and needs a holistic view of all the touchpoints a consumer has with the business.

Ideally, consumer data would describe customers on an individual level. However, the reality is that consumers are at different stages of the purchase cycle and may not have shared any personally identifiable data. As a result, stitching all the data together to form a single customer view can prove challenging. Equally, the data source may be aggregated, containing a mix of known and unknown customer data.

Some example terminologies of digital customer data identifiers with varying levels of detail are as follows:

- Customers
- Consumers
- Households
- Device IDs
- Cookies

<sup>24</sup> <https://www.blackswan.com/case-studies/pepsico-360-trends-next-generation-insights-from-trendscope/>

- Subscribers
- Prospect
- Lapsed customer
- Anonymous

Consumer-centric data offers a glimpse into the consumers' point of view. It is important to capture consumers' intent behaviours via their actions. This means focusing only on human-initiated actions, which is where the value of this data lies.

Customer-centric data often becomes tainted with 'noise' as it blends with data produced by the product being used to capture it, or through technologies that track and catalogue digital environments, such as search engines. There are also growing issues with outright fraud systems of fraud producing data with the aim to mimic real consumers. The aim is to focus on consumer initiated only data in this dataset. Other signal data can get mixed with consumer data. The types of noise to look out for in consumer-centric data are outlined in *Table 1*.

**Table 1: Noise in consumer-centric digital data**

Noise type	Example of noise in data	Rule triggering the action that creates data noise	Data noise impact
Auto initiated data	Autoplay videos	Product rule triggers actions	Inflates data. Difficult to identify genuine consumer actions and consumer intent
System initiated data	Monthly automated subscription renewal	Time rule triggers action	Needs correlating with active consumer usage to produce meaningful data
Administrative initiated data	Manual administrative purging of customers from a database, or any manual action that affects data. Reporting might show the administrative action as 'cancellations'	Internal staff trigger actions	Causes anomalies in data. Often not communicated, triggers unnecessary business investigations and alarm bells
Non-human initiated data	Bot and traffic simulators (non-human / IVT: invalid traffic)	Computer simulators trigger action	Needs ethical hackers or sophisticated engineering to detect and remove large data noise

*Source: Laura Chaibi*

Minimising this interference in consumer-centric data is paramount for ensuring data is clean. Marketers and data science teams need to know the data they look at is genuinely human initiated with intention, otherwise entirely wrong assumptions and models will be built upon it.

### Asset-centric data

*What product or service is being measured?*

Asset-centric data places products or services and how they are used as the focal point that all other data revolves around. This data helps with operational management and optimisation of assets. Websites, apps, or any digitally enabled things with data tracking are asset-centric data, the asset being the product or service that is measured.

Usually, this data is in back office systems such as operational monitoring, quality of service, data bases with connected application programming interfaces (APIs) sending data back and forth (if the assets are internet enabled). For physical assets, there might be logistics and storage data.

While this data does include some consumer data, in this case the consumer is not the priority; management of the asset is.

In digital transformation, increasing the volume of metadata that can be appended to assets can exponentially increase the potential for products and services to be discovered, personalised and used. In ecommerce, AI is helping autogenerate metadata for products, making them easier for consumers to discover.

Machine learning presents the ability to train systems to learn from existing datasets and improve the quality of automated metadata. For example, the keywords consumers use to search for a particular product could be automatically converted into metadata that is then appended to the product, making it more discoverable.

From the apps being used, ecommerce platforms selling, and the video content consumed through to all internet connected things in the future, asset-centric data and better metadata can revolutionise digital assets, how products are discovered or found, the experiences consumer have and subsequent sales.

**Figure 4: Internet enabled devices are asset-centric data sources**



Source: Pixabay<sup>25</sup>

### Network-centric or federated data

*In what context are products and services measured?*

Network-centric or federated data is data brought internally from outside, which gives the business an idea of its performance relative to *known* competitors. This data can be structured or unstructured.

This is market-level data covering a broad spectrum of data points to give perspective. Facebook, Google, YouTube and Twitter shared data are examples of network data. Companies collecting large datasets from geolocation, topic related data, app store data and devices are handling network data.

Federated data is data that companies have brought together for mutual benefit. Some loyalty programmes generate federated data, giving brands greater context about their customers.

In the future, as more of our world digitalises, a wealth of IoT data and other data may centralise and become federated. Ecommerce brands may come together to pool ecommerce data to compete against Amazon, for example. This will help brands gain visibility into data about themselves and others to remain competitive. In the EU, customer login alliances and unions are forming to build out a federated single login for publishers to work with together and compete with Google and Facebook.<sup>26</sup>

<sup>25</sup> <https://pixabay.com/illustrations/device-smart-iphone-cellular-4084549/>

<sup>26</sup> <https://digiday.com/media/fight-google-facebook-european-publishers-try-login-alliances/>

For businesses undergoing digital transformation, external datasets from the open market can signal if changes internally are starting to be reflected externally, such as improvements in market share, reach and rank amongst competitive sets. This can be a great motivation for staying on track.

### 3.4.4 Lines of business data

*How is a business structured?*

#### Data needs to cut across the business

“You need to have a stake [in data collection and use], a business goal in gathering data across the business and make it transversal. Find scale across the business and keep it simple. Data of the future will become holistic and used in prescriptive ways.”

— Sabrina Menasria, Head of Data, BI & Master Data Governance, Chanel Fragrance & Beauty

Lines of business data is the metadata created around internal business units and department structures, such as cost centres. This data helps businesses carve up data by reporting lines to show how business units are performing.

In marketing, for example, every campaign launched, its purpose, timing, marketing goal and all related data are appended to the campaign. At the same time, data inside the business will be attributed to marketing performance, brand, programmatic, lead generation, SEO, content, affiliates, acquisition, retention, customer care, loyalty, etc.

Lines of business data is very important as it helps a business understand its inner working and where to make internal changes. When metadata is being applied to data points, it should be as all-encompassing as possible and agile enough to be reclassified easily.

It is common for lines of business data to be the input that determines how data is designed. An example might be products being grouped together under the metadata label of ‘personal care’ today because the team looking after this part of the business is called the ‘personal care’ department. In future, the product might be moved to be managed by the ‘beauty’ department. As an example, with teeth whitening toothpaste brands, some companies are repositioning products from personal care to beauty sections to elevate the brands to a premium beauty product and thus charge more.

The capability of understanding business lines should be an *outcome* of the data analysis rather than a fixed design of the data. This means the flexibility to move data between ‘personal care’ and ‘beauty’ is a capability of the data from the beginning. Centralising business metadata frameworks is designed to support these frequent changes in business without completely disrupting business reporting continuity. Data needs to be fluid enough to serve the whole business and responsive enough to adapt to the continually changing business structures and reporting requirements.

Another common example of lines of business data is data classified by teams based on offers to consumers. Some businesses might set up the data framework by names of teams: marketing, SMB (small- to medium-sized business), call centre, field sales teams or by geography or region. The data should be set up to meet the need for business groupings while being flexible enough to adapt to internal structural changes.

The creation of datasets by lines of business should be an outcome of the data capability, not a primary input into the structural design. Once the data becomes rigid, it is a costly exercise to continually break and reset it, so avoid coupling metadata groups together from the beginning. For example, West Coast America is an aggregation of many states to create a grouping. Collect the details for each state separately and then group them as reportable outcomes. This gives the flexibility to continually regroup data in different ways.

*How is a business localised in different languages and in local market context?*

While business English might be the language of internal metadata used for products and services, brands need localised metadata in local languages, and ideally local dialects, to reach global audiences.

This is where the volume of data will multiply exponentially. Data science and automation allow businesses the potential to scale to sky-scraping heights and impact. There are three key sets of localised data: back of house data, front of house data and front of house metadata.



#### **Back of house data: business-facing data**

Some of the organisation's internal data – back of house data – is used for understanding lines of business, and so needs to be kept internal. Examples of back of house data include local pricing plans, local payment types, customer offers, customer types and subscription plans. This data is typically designed around a common business language and needs to be flexibly built to support changes in business alignments and reporting lines. If the business structure changes, this data needs to be very agile.

#### **Front of house data: consumer-facing data**

Front of house data is data seen externally, by consumers, in their local language. This data normally mirrors a direct translation of the internal data seen by customers, for example, product specifications. The number of localised languages served determines the amount of front of house data a business has.

#### **Front of house metadata: localised data about data**

Front of house metadata is data built into products and services that are not part of the lines of business, asset or customer data. This data aids *discoverability* and is possible with digitalisation.

The most straightforward example is metadata that is in a local language and serves as navigational signposts to help consumers find what they are looking for. For example, if the business is selling a particular product in different countries, and that product has different names in different countries, then appending those different names to the product in the form of front of house metadata will make it discoverable in those countries.

Other examples include when media or ecommerce product pages list ranges of keywords, descriptions, tags, hyperlinked words and other enhanced data to experiment and improve how consumers can become better equipped to find or discover new things. This might appear as easier navigation, recommendations, or personalisation. The product a customer is looking for may depend on mood, how they are feeling, the amount of time they have or other more subjective factors. For example, a person that has 19 minutes to watch a TV show before they go to work might want to search by the criteria 'shows under 20 minutes'.

The reason this data exists is because there is a difference between how consumers want to experience a product or search and find things compared to how those products or services may be described by the company in their specifications.

Breaking beyond lines of business metadata is where businesses can innovate. Working with rich consumer need state metadata with millions of situational data points that create patterns is part of digital transformation. To get data to this level of capability, marketers must understand digital transformation and what changes must be made to existing data, which are covered in the next chapters.

## 3.5 Recommendations for managing data terminology

Data terminology will continue to evolve as data evolves. It is important that internal business and collaboration partners are aligned on what certain words mean, to minimise confusion and misunderstandings. Aim to always start with the question '*do we mean the same thing?*'. Businesses should take the following steps:

1. Create an agreed list of centralised business terms and *definitions*.
2. Ensure peers have the same *meaning* for terms. (For example: 1x1 pixel, JavaScript tracking code, retargeting pixel and tag may all mean the same thing or different things. A common language solves many data problems and misunderstandings.)
3. Assign responsibility for the governance of these terms to one team. Ideally, legal would also be in alignment.
4. Start with these definitions when drawing up data contracts with external vendors. Align on terminologies before progressing further.

The following section focuses on the growing field of data science and its role in digital transformation.

# 4. Data Science and the People Needed for Data in Digital Transformation

## 4.1 Data science is a field of study

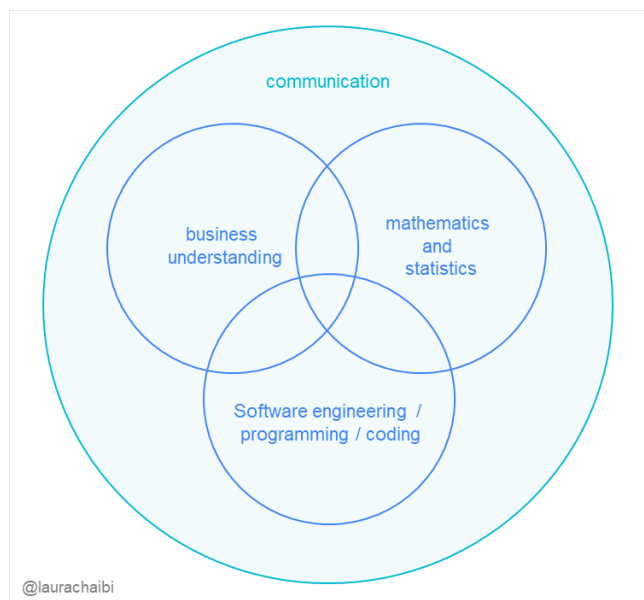
The University of California, Berkeley, describes data science as the act of capturing, maintaining, processing, analysing and communicating insights from large volumes of data.<sup>27</sup> There is an array of skill sets and personality types working in the field of data science. Like data itself, the discipline of data science is also a work in progress.

Some confusion remains as to what the growing discipline of data science covers, including where researcher and analyst roles end and data science begins.

## 4.2 Three knowledge sets form data science

The data science function can be fulfilled by one person or several depending on competencies, experience and interpersonal skills. *Figure 5* below outlines the three main knowledge sets that are required for well-rounded data scientists, as well as the expectations that they can communicate with business stakeholders and decision makers on what contributions are being made to the business and how it will help the business grow or become more efficient.

**Figure 5: Core knowledge sets for a data scientist along with the ability to communicate**



### Business understanding

Data scientists translate and enable data to be turned into business meaning. In order to do this, they need an understanding of how the data fits within a wider system of business context. By having business context, a data scientist can analyse data and turn it into information, and work on extracting as much value from data as possible. By understanding the wider business ecosystem, a data scientist

<sup>27</sup> <https://datascience.berkeley.edu/about/what-is-data-science/>



can form better hypothesis to test and make better decisions about data. Knowing data limitation due to business limitations can help a data scientist better articulate what more they need from the business to have better data to make solutions from.

### **Mathematics and statistics**

Data scientists apply statistical rigour, validate data and hypotheses and minimise uncertainty. They are tasked with ascertaining accuracy and validity, which can be a lengthy process. This is the skill set that helps remove uncertainties from data before it is mined for full value extraction. If data is corrupt, out of data, has too much noise, incomplete or too limiting, this skill set will be used to determine this.

### **Software programming**

Data scientists maximise value extraction and creation from data, creating models and algorithms for accelerated and automated decision making and programming. It is common to spend months creating single solutions including machine learning capabilities where the computer programming includes the capability to learn and refine outputs based on the real time data coming in.

## **4.3 Data science roles**

Cassie Kozyrkov, Chief Decision Scientist at Google, is an advocate for data science. She notes that although finding inspiration in data is cheap to do, finding rigour is very expensive.

In *Table 2* she breaks down what roles are needed to have a fully operational decision-making data science function. The table also serves as a summary of some of the key roles needed in order to convert raw data into business decision-making outcomes.

There are teams beyond data science that work on data, including product teams, programmers, engineering and IT, as well as the growing functions for data compliance to meet legal requirements. They are all partners to the data science function if they are not in the same teams.

Note that before any data science work can be undertaken, there must be data to work with and tools to access it (ranked -1 and 0 in the table).

**Table 2: Functions that drive a data science infrastructure**

	Function	Description
-1	Raw materials supplier	Often engineers or data engineers who are responsible for the creation of the raw data materials. The role is to <u>create and enable the access of raw data which is the foundation of data science</u> . A strong foundation leads to a strong building.
0	Tool maker	Works on ease of data access <u>architecting systems and tools</u> to analyse data. They focus on ease of data access and not on the outcomes from the data itself. This is the second requirement in infrastructure that should be in place to aid a data scientist.
1	Decision maker	Business stakeholder. Prioritises based on <u>business acumen</u> and understanding.
2	Search engine	Analyst. <u>Finds things out fast</u> . Looks things up. Supports daily decisions.
3	Prospector	Experienced analyst. Gold digger. Searches for <u>inspiration in data</u> . Finds things worth pursuing that are possible. Near top of data science idea funnel. High risk and high reward.
4	Decision supporter	Statistics. <u>Checks rigour and validity of hypothesis</u> from inspirational data. Helps prospector data science lead and decision maker. Does not make decisions, aids them.
5	Automator	<u>Machine learning technology builder</u> . Engineer building for repeated decisions and automation. Builds once decision maker signs off.
6	Information artist	<u>Data visualiser</u> . Find ways to translate and communicate data in a way the human mind understands. Marketers know these people to be buried often in Tableau, Qlik, Looker or other visualisation software.
7	Analytics / Data science lead	<u>Translator</u> between data science and decision maker. Keeps teams focused on business-worthy priorities.
8	Social scientist / Qual expert	Specialists in <u>understanding human intuition</u> and helping provide context to decision making. Assists with answering the 'why?' for tough decision making.
9	All-in-one data scientist	<u>A unicorn</u> . Very rare. Very expensive.
10	Idea generator	Anyone can create ideas inside and outside of businesses.

Source: Cassie WiDS AUB 2019 Keynote: Cassie Kozyrkov, Making Data Science Useful<sup>28,29</sup>

<sup>28</sup> <https://www.aub.edu.lb/osb/wids19/Pages/Videos.aspx>

<sup>29</sup> <https://hackernoon.com/top-10-roles-for-your-data-science-team-e7f05d90d961>

# 5. Data-as-a-Service (DaaS)

## Transforming Data: Models and Strategies

As mentioned earlier, many industries are moving into service models. Data can also become a service underpinning business, built on the premise that data serves multiple clients and stakeholders with varying needs to be met at the same time.

Data-as-a-Service (DaaS) is a data framework that essentially splits data access and usage from where the data is stored, freeing the data for multiple uses with speed and ease of access and the ability to scale usage. DaaS data agility is a substructure of digital transformation acting as a reinforcement to solutions enabled through digital transformation. DaaS data can permeate all corners of businesses and how they run with the aim to amplify capabilities and sustainably scale.

### Why build out DaaS?

The main aim of DaaS is to speed up teams' abilities to innovate simultaneously with the same data points or quickly build innovation on top of innovation, as the data and models are openly shared and accessible for cross-business use. DaaS supports mass iteration capabilities in real time at a scale that can support global business needs.

With API (application programming interface) solutions that allow data to move quickly from one place to another, DaaS data is freed from its infrastructure dependency and can be used on demand. On-demand usage also lower data usage costs as only the data needed is accessed, as opposed to a whole database, for example. Equally, data integrity remains intact as on-demand data usage minimises datasets being copied multiple times across the company, creating unnecessary data duplication storage costs. Centralising data can bring the benefit of better data quality as the data is federated for whole business use; it is agnostic to lines of business.

The great benefit of DaaS is that data democratisation empowers digital transformation to even greater heights. Innovation with data as the bedrock can aid building out end-to-end solutions that may have not been previously possible before digital transformation, including online and offline tracking. This is a beneficial outcome both inside the business and for solutions that become customer facing.

In marketing, DaaS enables:

- A centralised holistic view of consumers and customers and their relationship to the business, products and services and across an industry.
- Tracking the touchpoints consumers and customers have across lines of business.
- Building out metadata for wider context about the touchpoints tracked, to create new solutions, products and services.
- Understanding customer history and building out a profile of customer preferences.
- Understanding and prioritising valuable customer segments and where to focus strategies around audience segments and types.
- Working towards predicting customer behaviour and actions and eventually aiming to influence the favourable behaviour or actions from the consumer through prescribed marketing, product and service prompts.
- Fostering loyalty and minimising customer churn.

DaaS is as much a business culture as it is a business solution. It requires that humans want to enable, support and use the capability as much as they are needed to build it. A business vision that believes data should be accessible and at the heart of business DNA is often a prerequisite to DaaS underpinning digital transformation capabilities.

Outcomes from DaaS data include extreme personalisation and recommendation solutions tailored to every customer. Allison Stern, Co-Founder of Tubular Labs, recognises that DaaS creates the ability for businesses to modify content for consumption in real time including images, text, audio, video, speech, and curated experiences with a prescriptive design to entice consumers.

### 'Genetically modified content'

"I call some of the content that gets created today 'genetically modified content'. Netflix has genetically modified content. They know what people want to click. They've done a lot of work on their [data] taxonomy and the way to categorise content, in-house data and external data. They use personalisation.

"It used to be websites and how good your website was, the UI, the UX, that drove usage. And now, I think it really is dependent on this personalisation aspect. When I go on Instagram, the ads are perfectly attuned to me, right? Whether it's an ad or whether it's content, it's being genetically modified in real time to suit me personally."

— Allison Stern, Co-Founder, Tubular Labs

## 5.1 The DaaS Transformation Model

In this section, a model explaining the journey to data-as-a-service, the DaaS Transformation Model, is introduced and explored along with the kind of decisions businesses make through the process to guide marketers through the journey, critical thinking and strategy. A step-by-step outline will explain how data is enabled as a service and what it is like to experience the process.

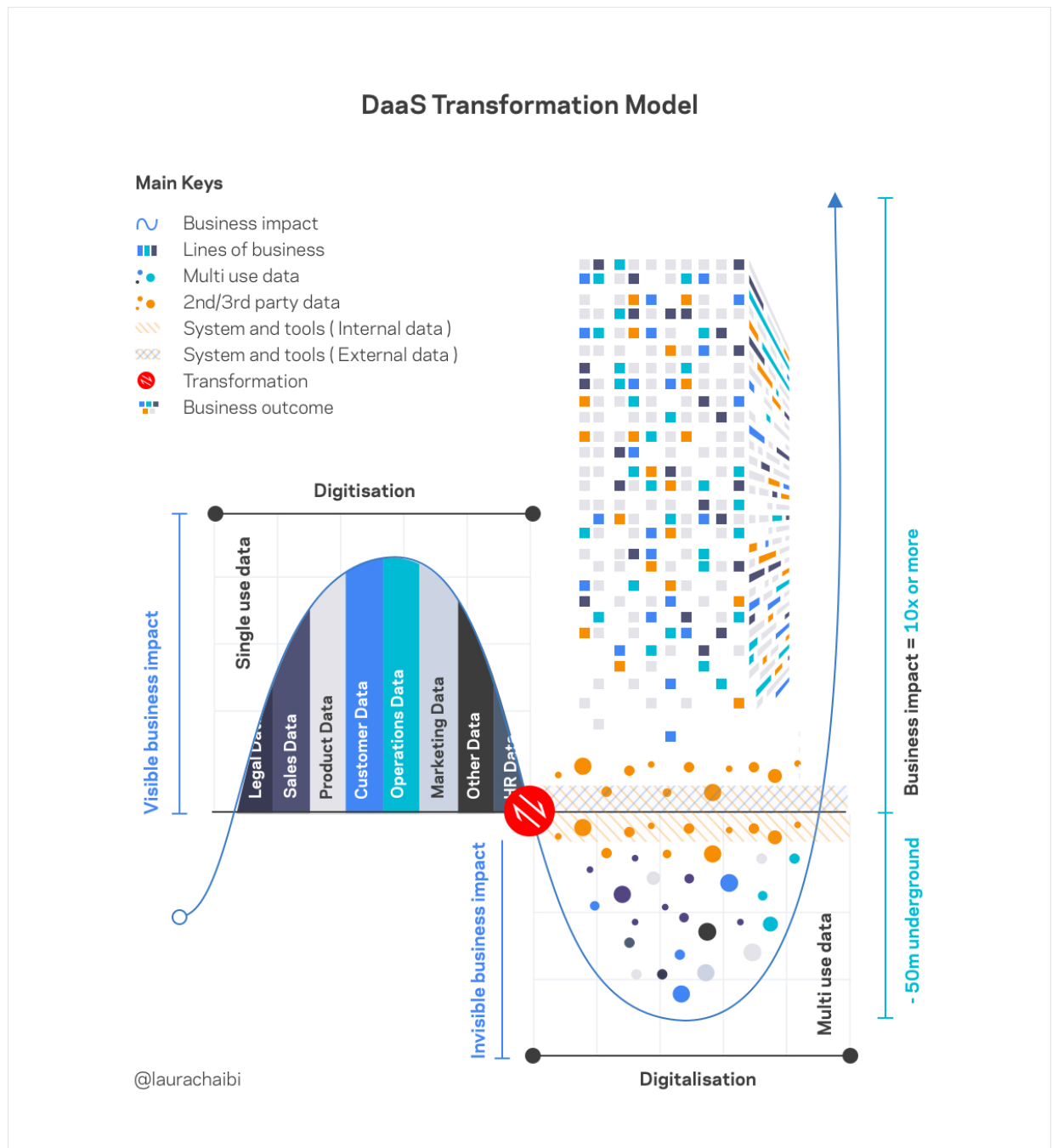
This model is a view from above on what data transformation in digital transformation looks like over the course of years or decades. If a marketer has never experienced this process end to end before or is deeply into the transformation process, this model can act as a guide.

The model illustrated in *Figure 13* is the DaaS Transformation Model, which summarises what the whole experience looks like in an ideal situation. Many of the parts of the model have been introduced up to this point and this chapter aims to bring all the parts together as a guide.

The building blocks include:

- Data sitting in business silos (lines of business data).
- Breaking down the data (data transformation).
- Making the data accessible, regardless of where it is stored so it can be blended with other data including second- and third-party data (DaaS).
- Systems and tools that are used for internal as well as external data.
- The strategic outcomes from the process leading to business solutions being built like a skyscraper (digital transformation).

**Figure 6: DaaS Transformation Model**



Source: DaaS Transformation Model, Laura Chaibi

The purpose of this model is to guide marketers' thinking and understanding through the process of transformation needed inside the business.

Many marketers have experienced digital transformation with the data and systems they used externally for advertising. They also experienced the challenges of reconciling their marketing KPIs with business KPIs as the systems and tools used metrics that poorly translated into internal business understanding and business outcomes. For example, early social metrics such as views, likes, comments and shares did not directly translate into sales.

Without connecting back into the internal data about customers, assets and revenue, the impact of marketing outcomes measurement is limited. Coming back to the building analogy used earlier in this report, many marketing systems have been built from ground zero or with a very limited internal data foundation.

The DaaS Transformation Model attempts to explain to marketers what is needed to build deeper foundations tied to the internal workings of a business to deliver marketing KPIs, as well as business KPIs. Marketers are moving to work more closely with ecommerce, sales, IT, legal and products/technology departments to enable and deliver business objectives. DaaS is meant to ensure marketing gets data access parity with other business units to accelerate marketing goals and deliverables.

## 5.2 Breaking data down

Transforming data in businesses has two key phases: digitisation and digitalisation. The main differences between these two stages are given in *Table 3*.

### 5.2.1 'Digitisation' of business data

#### 1 Valuable internal business data

Digitisation converts business data into an electronic itemised form with business-appropriate metadata.

Metadata is often specific to the department doing the data collection. Little thought is given to the metadata's wider use and business-wide governance.

This data needs to be unlocked and transformed to help the business transform.

### 5.2.2 'Digitalisation' of business data

#### 2 Breaking digitised data from its lines of business

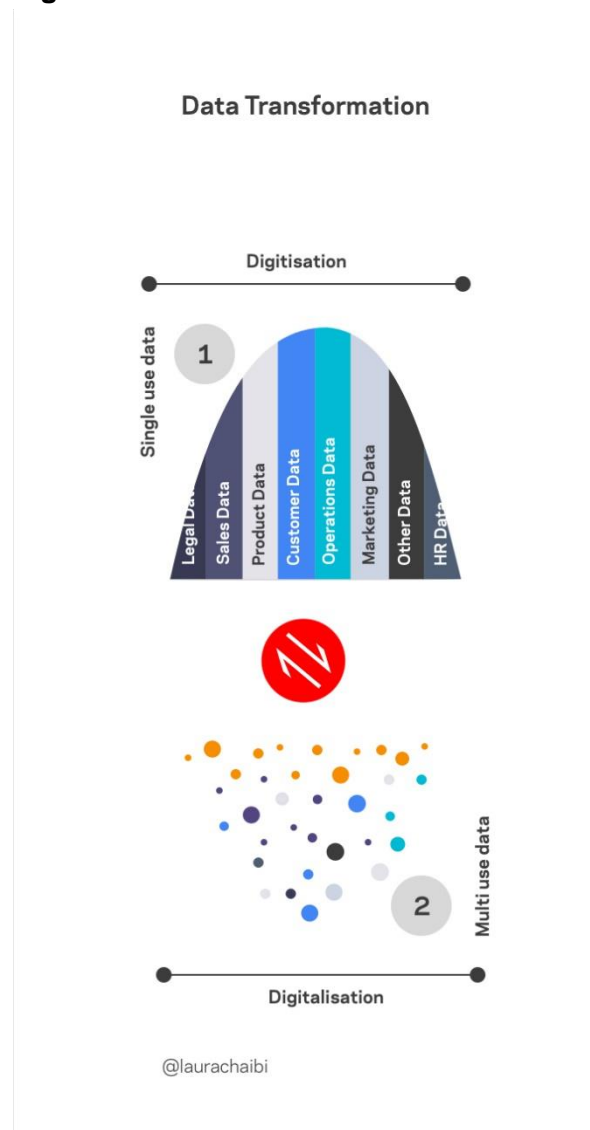
Digitalisation is the process of breaking down data into its smallest measurement unit, and labelling it with automated metadata, so that it may be interoperable and accessible across multiple lines of business simultaneously.

An example of digitalisation of business data is automated metadata. Automated metadata is the creation of information about a data point without human intervention. It also describes the labelling of things on the internet. It is allowing the rapid classification of things in media such as audio, text and video files frame by frame *at scale*. Global digital companies are already automating the creation of metadata, even if the use cases are not yet fully apparent.

The main objective of transforming data from tight structures is making it accessible and 'queryable' from any part of a business and in a synchronous way, meaning that multiple business units can access and read the same data at the same time without compromising operations.

The degree of difficulty in breaking data from its initial core function influences how hard transformation will be. Some industries are hamstrung by regulations that prevent access to decentralised data, while other industries require capital expenditure that might outweigh immediate foreseeable benefits such as turning archives into digitised form to underpin digitalisation.

Figure 7: Data Transformation



Source: DaaS Transformation Model, Laura Chaibi

**Table 3: Characteristics of digitisation and digitalisation**

Data digitisation	Data digitalisation
<b>Description</b>	
<ul style="list-style-type: none"> <li>• Electronic data collection and storage</li> <li>• Metadata single unit based</li> <li>• Structured data</li> <li>• Stored on premises for data security</li> </ul>	<ul style="list-style-type: none"> <li>• Data transformed for decisioning and actions</li> <li>• Automated metadata for multiple lines of business</li> <li>• Structured, semi-structured and unstructured data</li> <li>• Cloud-based storage for access and interoperability</li> </ul>
<b>Capabilities</b>	
<ul style="list-style-type: none"> <li>• Single or limited data use</li> <li>• Automated data rules (If / Then)</li> <li>• Business process enhancement</li> <li>• Decisions from data</li> <li>• Business monitoring</li> <li>• Backwards glancing reporting</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-use data and simultaneous multi access</li> <li>• Data value extraction beyond what is known (predictive)</li> <li>• Automated machine-based reasoning, decisioning and predictions beyond data to influence (prescriptive)</li> <li>• Exponential micro-decisioning in real time</li> <li>• Future-facing triggers to influencing</li> </ul>
<b>Benefits</b>	
<ul style="list-style-type: none"> <li>• Conclusions from data</li> <li>• Business efficiencies and savings</li> <li>• Incremental business gains</li> <li>• Visible optimised business productivity</li> </ul>	<ul style="list-style-type: none"> <li>• Conclusions beyond data</li> <li>• Unexpected ways to do business discovered</li> <li>• Exponential decisioning refinement with real time data</li> <li>• Exponential business productivity</li> <li>• Innovation</li> </ul>
<b>Business impact (after implementation)</b>	
<ul style="list-style-type: none"> <li>• High productivity</li> <li>• Inefficient processes, systems and (unfortunately) people removed</li> <li>• Profits often rise and hit growth ceilings</li> </ul>	<ul style="list-style-type: none"> <li>• New ways of doing business</li> <li>• Greater speed to market</li> <li>• Measurable impact: time, money, resources, customer engagement, sales, productivity</li> </ul>

Source: Econsultancy, Laura Chaibi

## 5.3 Data transformation steps

The stages of data transformation are outlined below. Data science teams and stakeholders are very active in the 'low visibility' business impact stage of transformation. There is often great expectation, and anticipation on the part of senior management for this stage to deliver value back to the business as soon as possible. This is an example model of what the process entails; other businesses might have other models.



### 1. Digitised data moves into transformation

Working with data engineering, the data science teams begin to get access to data. Working behind the scenes, they check the flow of materials they must work with, the ease of access and condition of data.

### 2. Pulling data into the underground

There can often be a back and forth between step one and two, which entails checking data and becoming familiar with its characteristics and limitations. Stage two can be the longest phase depending on the condition of data and the relationship between data science and data engineering teams.

Data quality comes under scrutiny here and who will be responsible for cleaning data is negotiated. It will be either the original data source owner or the receiving team. From experience, cleaning at the source is ideal, however in practice this is often not undertaken.

### 3. Turning data inspiration into data rigour

Multiple people can build proof of concept models and test data capabilities. The best models to go live with are chosen after statistics are used to test the validity of the data in the model for live use. The business needs to be confident there is rigour before use in machine learning and automation capabilities.

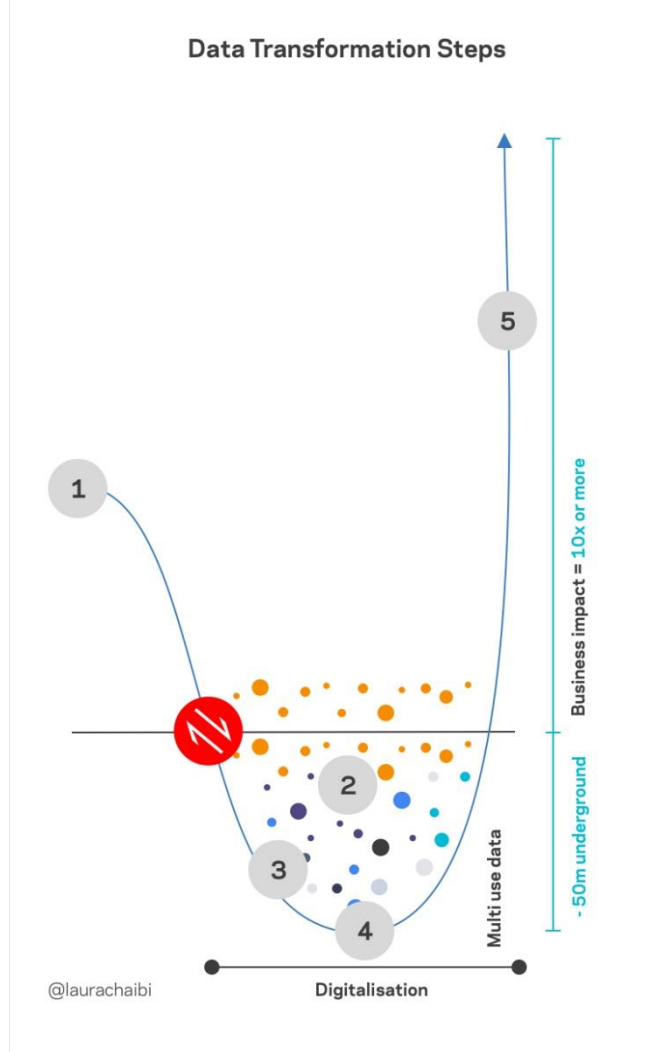
This is the phase of moving inspirational ideas into a rigorous model. Statistical expertise is critical at this stage and productivity will slow down as models are tested for validation. The rest of the business will see that few to no decisions are being made quickly, and may need to be educated on why the process appears to be 'slowing down' to manage expectations. At this stage, it is decided if the data is good enough to build on. Bear in mind that making a wrong decision here will likely be more costly than taking the time to make the right one.

### 4. Training data/machine learning

Once the algorithms are designed (or borrowed from elsewhere), modelled, programmed and have been deemed rigorous enough, an ideal situation is to test machine learning with *training data*. There is a lot of refinement at this stage and little to no decisions or outputs going live. Most companies do not have enough data to train models with and often have to go straight into live beta testing.

This can be the darkest stage as it is the final point where abandonment of a new digital transformation solution can happen, or teams must go all the way back to stage one to discover data concerns. If this is the case, time moves on and productivity may not be at the speed the business is expecting.

Figure 8: Data Transformation Steps



Source: DaaS Transformation Model, Laura Chaibi

In practice, this might happen when teams are building out search, recommendation and personalisation solutions, and they do not have datasets that reflect all the numerous ways consumers might use products and services. If there is not enough data for a machine to learn from to represent the multitude of new ways to interact, then the team might need to go back to the drawing board.

This might also be the case if the search data produced by consumers has only been captured on one platform. It is difficult (and unwise) to build new solutions on top of data from old solutions or single platforms that represent old habits. The data being used to model behaviour will be incomplete and might hinder the new capabilities.

## 5. Releasing the data and its infrastructure (transformed)

Once stages one to four have been achieved and the solution has been signed off as a minimum viable product, launching is like a light switch moment; once it is turned on, it has an exponential impact by delivering a completely new experience, not an incremental one.

For example, teams may find greatly improved search functionality. Long-tail, niche products that were not being easily discovered may suddenly become key contributors to business success and aid in making microtrends in purchasing patterns more visible.

This is the end of the beginning and constant iteration will continue to maximise value extraction. There is no definitive end to this process. In the online gaming world, for example, one-third of resource can be spent on getting to launch and two-thirds of resources are dedicated to post-launch to make continuous improvements.

## 5.4 Systems and tools

This section is purposely put after the data transformation curve to focus on understanding the data transformation process. Systems and tools are a collaboration layer to aid faster value creation.

According to the Boston Consulting Group: “*Digital technologies enable collaboration platforms, and collaboration platforms enable ecosystems that bring together a group of organisations to build a new capability or product or service offering, or to help a new field of science or technology advance.*”<sup>30</sup>

### 5.4.1 Devil in the data detail

Knowing internal business data is key, as it is where value is created with systems and tools. If necessary, lean on vendor expertise in order to determine what value can be extracted from data. Most reputable vendors allow test drives, proof of concept tests and under non-disclosure agreements, a look at capabilities with live data.

How many vendors, tech platforms, or service and data providers are needed? The right cultural fit into a wider ecosystem needs to be explored in depth.

### 5.4.2 Data and metrics ownership influences systems and tools

Investments in digital transformation systems and tools should focus on whether the data inputs are first-, second- or third-party data sources. Building and procuring solutions with first-party data inputs grants the business better control over the course of its transformation and future costs of enhancements and iterations. For example, targeted marketing solutions that were built on the data of thousands of detailed Facebook audience segments had to be completely scrapped when Facebook retracted segments in the light of the Cambridge Analytica case.<sup>31</sup> Marketers have no recourse as they do not own the data.

<sup>30</sup> <https://www.bcg.com/publications/2019/most-innovative-companies-collaborative-platforms-ecosystems-changing-innovation.aspx>

<sup>31</sup> <https://techcrunch.com/2018/08/21/facebook-is-removing-over-5000-ad-targeting-options-to-prevent-discriminatory-ads/>

## 1. External data, systems and tools

Data practitioners who were interviewed say that the further away an organisation is from controlling data as the primary owner, the less time should be spent on customising solutions internally and building expensive infrastructure around the data. Minimise multiple dependencies on data that the business has limited control over as the knock-on effect to losing the data source can be substantial.

Tech debt is a major hindrance to businesses so it is important to make investments in systems and tools that can evolve and scale as the business scales its data and innovates. Focus on data with clear use cases and quantifiable business outcomes to justify investing in second- and third-party data sources while planning alternative sources of data if the future growth potential for the business warrants such investments.

If the data sources, systems and tools remain relatively independent to the critical business requirements and the risk of disruption to business continuity is minimal, then full experimentation is recommended. At the same time, assess where it makes sense to try and produce data needed for long-term future proofing in-house.

## 2. Internal data, systems and tools

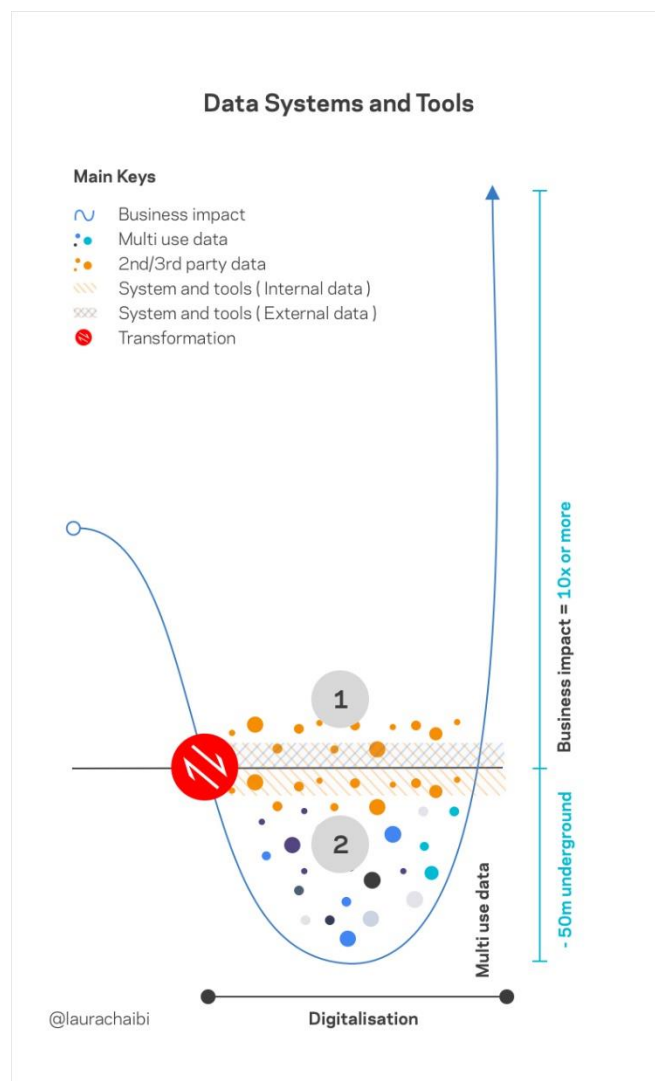
If software and tools are not part of core business competencies, then partnering, subscribing or renting is advised. When buying in solutions, ensure that they come with ongoing upgrade support. Understand the system partners' scope for product enhancements and customisation.

Equally, the system and tool providers need to fully audit the data and understand it to appropriately help with onboarding, scaling and cost control.

When bringing third-party data into the business ecosystem, upon which many teams will rely, it is important to stay flexible as the data source may change or disappear. This means continually assessing alternative data sources in and outside the business as backups if the preferred data source becomes redundant or no longer usable.

If a data source is business critical and there is only one source, a thorough business assessment should be conducted on the risks and dependencies before it is brought into internal processes. Data-as-a-Service is about enabling multiple uses of data across the business. The ripple effect of swapping out data can be detrimental.

Figure 9: DaaS Data Systems and Tools



Source: DaaS Transformation Model, Laura Chaibi

### 5.4.3 Deciding where to start

Start with data controlled by the business and work outwards. This is counterintuitive for many marketers who have careers working with business partners, media and buying agencies outside the business. Digital transformation is becoming more an inward journey with first-party data. Knowing this data is the starting point.

## Due diligence is recommended

“It is easy to be pushed along on the crest of a digital wave and feel very excited about it.

“Focus on proper due diligence:

- Obtain collective buy-in from multiple stakeholder groups.
- Avoid running digital transformation projects or workstream ‘in the shadows’.
- Ensure [there] is a clearly defined initiative aligned with team and company objectives.
- Ensure there is a plan tied to a wider workflow. Many teams are typically involved to execute.
- Interview enough vendor candidates and their customers.
- Tightly manage the tender process by being very explicit about the business use cases and data required prior to implementation.
- Once you have your preferred vendors, do a 360 in your organisation to assess if you have the people internally who can help integrate the data and technology and ensure resources are named and allocated to the project.
- Avoid rushing and take the appropriate amount of time.”

— John Thekanady, Independent Consultant and former Global Media Buyer, McDonald’s and Emirates Airlines

### Picking the appropriate pre-made data systems and tools

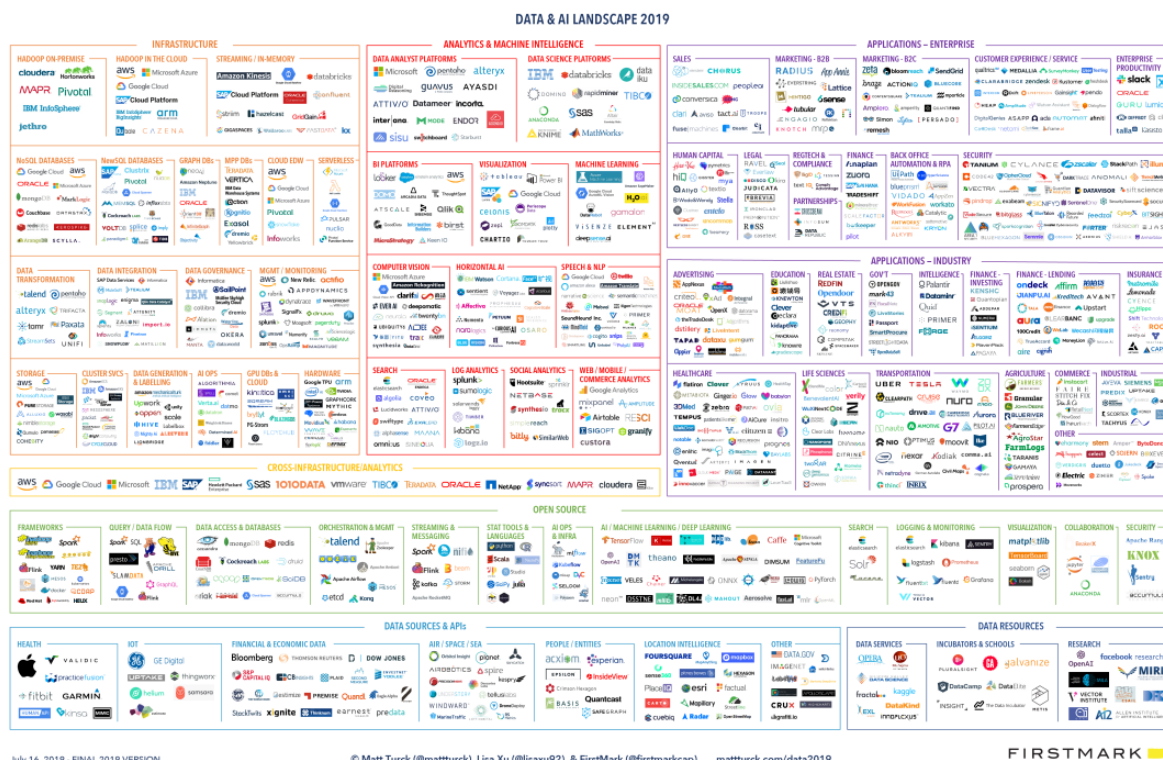
Businesses starting from scratch have a wealth of options for where to begin with pre-made data sources, systems and tools. Increasingly, these companies are aiming for interoperability from the outset and partner ‘plug and play’ ease of access and compatibilities across data ecosystems to ease integration.

Digital transformation often includes widening capabilities. A current map of the data and artificial intelligence (AI) landscape in *Figure 10* below is broken into key areas:

- Infrastructure: focusing on where and how to store data.
- Cross infrastructure: focusing on companies that aid in making data interoperable.
- Analytics and machine intelligence: focusing on systems and tools that help with data value extraction and visualisation.
- Software applications: focusing on intermediary solutions that provide supplemental data solutions for specific industry and niche data business requirements. Marketers are likely to be familiar with the advertising solutions such as Moat, Criteo and the TradeDesk.
- Available open sources: systems, tools and integration solutions that are open access.
- Data sources and resources: focusing on companies that provide second- and third-party data.

Several data practitioners interviewed said that marketers should start with knowing the use case for data, and working backwards from that use case. Having data sources with common data points that match with internal sources is a key advantage, allowing companies to assess what incremental value the new data sources, systems and tools will add to the business before onboarding them.

Figure 10: Data and AI Landscape 2019, as seen by FirstMark Capital



Source: FirstMark Capital, Matt Turck, Lisa Xu<sup>32</sup>

## 5.5 The end goal: data-as-a-service (DaaS)

Implementing the DaaS Transformation model allows marketers to envision a process of building tall, data-backed buildings and entire connected cities of all shapes and sizes on a foundation of solid data. In this scenario, data is servicing the entire ecosystem and becomes data-as-a-service (DaaS).

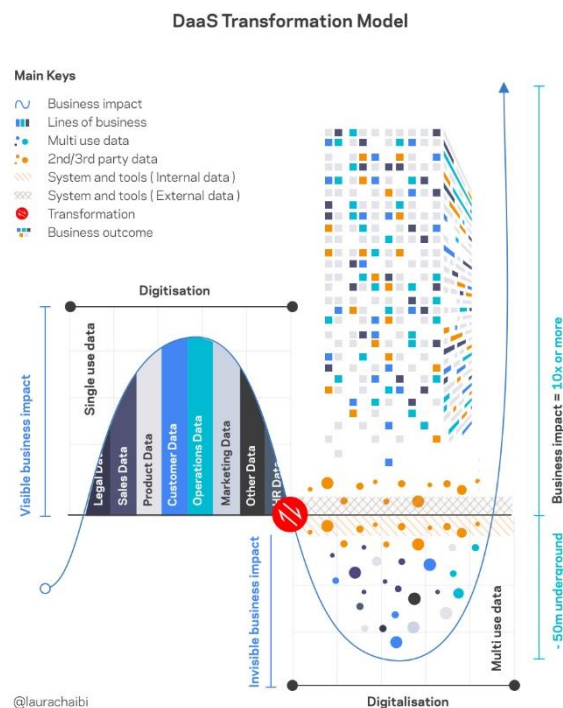
Architectures are still in early stage design for most businesses as they have not fully formed opinions on the scale, shape and size of what they want to, and can, achieve.

Data governance, taxonomies, auditing and compliance infrastructures are also evolving with growing legal and business requirements.

When data and the metadata transform, and the underground infrastructure is built on the concept of data-as-a-service:

- Digitalisation strengthens

Figure 11: DaaS Transformation Model



Source: DaaS Transformation Model, Laura Chaibi

<sup>32</sup> <http://dfkoz.com/ai-data-landscape/> and [http://mattturck.com/wp-content/uploads/2019/07/2019\\_Matt\\_Turck\\_Big\\_Data\\_Landscape\\_Final\\_Fullsize.png](http://mattturck.com/wp-content/uploads/2019/07/2019_Matt_Turck_Big_Data_Landscape_Final_Fullsize.png)



- Businesses transform and pivot more quickly, and with enough data, the multitude of combinations of business possibilities grow exponentially
- Learning curve cycles improve across business units as they begin to collaborate more
- Growing staff confidence moves business faster and further

## 5.5.1 DaaS example one: Domino's Pizza

### Domino's Pizza: digital transformation from pizza to ecommerce

#### \$3 stock

In 2008, Domino's Pizza was under immense pressure, with its stock price hovering at \$3. It had made massive improvements in product quality; its real underlying issue was distribution.

In 2012, the board bought into digital transformation and strongly aligned culture from the top, which supported change. Evidence-based decision making with data was used every step of the way to understand business results across lines of business to drive efficiencies.

These efficiencies became the underlying means to secure investment in further digital transformation investments.

#### Becoming an ecommerce company

In 2015, Domino's announced: *"Domino's is now 'an ecommerce company that sells pizza'."* Over four months, it hired a raft of new staff to transform the business.

One-third of staff in the headquarters, more than 200 people, began work on their new technological purpose and business transformation: making it possible for its product to be bought from anywhere, anytime.

#### Data transformation enabling business transformation

Part of the Domino's strategy, to help it reimagine its ecommerce function, was to collect data about customer preferences. Progress in digital transformation became the marketing team's marketing and communications strategy. Marketing and IT teams had to be strategically aligned and work together from the very beginning.

The stock price steadily grew from \$3 in 2008 to over \$225 in 2019.

The Domino's Pizza transformation journey is 10 years in the making. The company has seen 75x growth since 2008, increasing at a faster rate than Amazon. The pressure of transforming continues as the volume of food delivery apps with aggressive discounting and offers compete to gain market share.

In Q2 2019 alone, Domino's opened more than 200 stores to speed up its 'store to door' strategy.

— Domino's,<sup>33</sup> Forbes,<sup>34</sup> Digiday,<sup>35</sup> CNBC<sup>36</sup>

<sup>33</sup> <https://investors.dominos.co.uk/investors/share-price>

<sup>34</sup> <https://www.forbes.com/sites/kylewong/2018/01/26/how-dominos-transformed-into-an-ecommerce-powerhouse-whose-product-is-pizza/>

<sup>35</sup> <https://digiday.com/marketing/dominos-now-e-commerce-company-sells-pizza/>

<sup>36</sup> <https://dominos.qcs-web.com/investor-overview>

### 5.5.2 DaaS example two: healthcare and pharmaceuticals

There is a great deal of data-backed innovation and transformation happening in the healthcare and pharmaceuticals industry, due to greater access to federated sets of patient records and health data.

Innovation in the pharmaceuticals industry requires new thinking, perhaps reframing the DNA of a business from drugs manufacturing to holistic wellbeing before, during and after the patient requires their medication.

Example transformational business models using data include:

- Sharing federated data to fight cancer<sup>37</sup>
- Using digital therapeutics assistants – software backed by large amounts of data – to help encourage healthy practices and reduce drugs dependence<sup>38</sup>
- Digitising patient records and real-time conversations to assess chronic health issues<sup>39</sup>
- Employing pre-assessment chatbots to engage in small talk with the patient, allowing doctors to focus on health<sup>40</sup>
- Building sensors into medications to audit medical drugs adherence.<sup>41</sup>

A few further examples of DaaS in action in the healthcare and pharmaceuticals industries are as follows.

#### **FHIR: Fast Healthcare Interoperability Resources**

A key industry example of DaaS is Fast Interoperable Healthcare Response (FHIR), the underlying data infrastructure allowing fast access to patient records, supporting fast transfer of medical data between systems.

The NHS in the UK and many US hospitals are working towards sharing healthcare records regardless of where end point health service happens.<sup>42</sup>

Health records are mobile and accessible. This solution has purposely been designed to be open. Innovation is a key aim, allowing solutions to rapidly be built on top of the data.

#### **Digital therapeutics**

Pharmaceutical brands are actively moving into new business models, such as digital therapeutics.

Digital therapeutics are software solutions often delivered as apps that can help with managing health, drugs prescription adherence and tracking treatment programmes for health issues. They face less regulatory scrutiny compared with drug manufacturers.

### 5.5.3 DaaS example three: building new lines of business

When data foundations are built as data-as-a-service, building multiple business models on top of the data can move more rapidly as teams simultaneously access and work with data. Businesses can also use this infrastructure to move into new lines of business that uses the same data underpinning.

<sup>37</sup> <https://flatiron.com/>

<sup>38</sup> <https://peartherapeutics.com>

<sup>39</sup> <http://investors.resmed.com/investor-relations/events-and-presentations/press-releases/press-release-details/2018/ResMed-to-Acquire-Propeller-Health-a-Leader-in-COPD-and-Asthma-Connected-Health-Solutions-for-225-Million/default.aspx>

<sup>40</sup> <https://healthcareweekly.com/3m-mmodal/>

<sup>41</sup> <https://www.proteus.com>

<sup>42</sup> <https://digital.nhs.uk/services/fhir-apis>



Examples include:

- Uber moving from ride hailing to food delivery and testing drone delivery.<sup>43</sup>
- Booking Holdings (Booking.com's parent company) acquiring restaurant customer data company Venga in order to enhance personalised restaurant experiences for the 50,000 restaurants on OpenTable. In this partnership, Booking Holdings has the infrastructure while Venga holds the rich data.<sup>44</sup>
- Direct-to-consumer digital retailer Farfetch is investing in bricks and mortar, creating retail of the future concept stores with augmented reality shopping experiences. The business aims to challenge the global platform of luxury one store at a time.<sup>45</sup>

Digitising the business was a focus for the toymaker Mattel for some time. Although it made the business more efficient, digitalisation was also making it possible to focus on future sustainability. The case study below explains how Barbie is leading Mattel's transformation.

<sup>43</sup> <https://gulfnews.com/technology/uber-targets-food-delivery-by-drone-1.1560377581493>

<sup>44</sup> <https://www.prnewswire.com/news-releases/booking-holdings-agrees-to-acquire-venga-300842570.html>

<sup>45</sup> <https://www.farfetchtechblog.com/en/blog/post/store-of-the-future-revolutionising-luxury-retail-one-store-at-a-time/>

## Mattel: reinventing with diversity, inclusion, gender neutral Barbie dolls and... data?

### Barbie at 50: irrelevant and insular

In 2009, as Barbie turned 50 years old, sales of the dolls were in double-digit decline. Mattel's COO Richard Dickson reflected that:

- Not enough time was spent on product innovation, marketing and understanding consumers and culture.
- The company had become focused on cost savings and operational efficiencies on packaged goods.
- Internal processes were slowing down innovation. The company had become insular.



Source: Pexels (Skitterphoto)

Consumer data found that Barbie was becoming irrelevant; she does not look like or reflect what girls see in the world.

### Back to brand origins

The original intent of Barbie was to *"inspire girls to limitless potential to be anything they want to be"*. After leaving Mattel, Dickson returned to focus on *"taking legacy brands and continuously reinvent them"*. This means reflecting Barbie in current culture.<sup>46</sup>

### Barbie at 60: inspiring and inclusive

In 2019, as she turns 60, Barbie is at the forefront of the conversation on diversity and inclusivity.

- Mattel is reinventing Barbie to solve 'the dream gap', helping girls believe they can achieve anything, for as early as age five, girls already begin to form self-limiting beliefs.<sup>47</sup>
- Mattel launched Barbie career dolls, a new business segment of 'Sheroes' worth over \$200m.<sup>48</sup>
- It also released 20 dolls modelled on real-life inspiring female role models, including Yara Shahidi, Naomi Osaka, Kelsea Ballerini and Adwoa Aboah.<sup>49</sup>
- By Q2 2019, Barbie worldwide sales were up 13% year-on-year.<sup>50</sup>
- Mattel's first gender-neutral doll was released in September 2019. According to an article in Time, the company is *"betting on where it thinks the country is going, even if it means alienating a substantial portion of the population"*.<sup>51</sup>



Source: Pexels (Pixabay)

<sup>46</sup> <https://www.youtube.com/watch?v=DFfevjSVKm8>

<sup>47</sup> <https://barbie.mattel.com/en-us/about/dream-gap.html>

<sup>48</sup> <https://www.thedrum.com/news/2019/07/10/barbie-and-european-space-agency-team-up-dream-gap-project>

<sup>49</sup> <https://www.prweek.com/article/1585622/case-study-behind-the-scenes-barbies-blowout-60th-birthday>

<sup>50</sup> <https://news.mattel.com/news/mattel-reports-second-quarter-2019-financial-results>

<sup>51</sup> <https://time.com/5684822/mattel-gender-neutral-doll/>

## Mattel: reinventing with diversity, inclusion, gender neutral Barbie dolls and... data?

### What about data?

- Half (50%) of Mattel's business is now via ecommerce.
- Mattel's Robotics Engineer Barbie launched in partnership with Tynker. This Barbie is paired with digital enablement solutions to teach kids to code along with Barbie.<sup>52</sup> The doll remains non-digital, due to backlash the company experienced after the 2015 Hello Barbie AI doll, which generated a cloud-based data collection of kids' conversations and associated data, was shown to be easily hacked.<sup>53</sup>

*"Any big brand with legacy is going to have challenge to change. Changing is scary," says Dickson.*

### Changing business DNA

Mattel is a toy company, though it is gearing towards becoming an IP-focused entertainment company; it owns key assets that can be used in both physical and digital media as ways to entertain children and adults. Investing in non-toy assets through franchises and partnerships such as gaming, media, entertainment and theatricals is the focus as content is part of brand stories.

The dynamics of the business as a toy company into an IP company will continue to be fuelled by energy and momentum.<sup>54</sup>

Innovation, creativity and marketing savvy will come back in a strong way with links to the entertainment category, says Dickson.

## 5.6 Data transformation strategy framework: the 6Ps

To begin the journey towards the DaaS model, or to continue on it successfully, most data practitioners stress the importance of critical thinking upfront in order to create well-formed plans to execute against.

The below frameworks outline key pillars to aid thinking, including purpose, planning, process, people, partners and pillars of data requirements. These should be considered when planning out transformation. This framework can be used alongside those of the IT and product teams, who will have detailed frameworks specific to data schema, taxonomies, infrastructure and operating models.

Each of the 6Ps of the data transformation strategy framework is considered below.

### 5.6.1 Purpose: understanding the business focal point today

Digital transformation journeys start with a baseline assessment and data is often an overlooked component. Data practitioners on the client side and vendor side strongly advise having an independent company help with assessing business maturity.

<sup>52</sup> <https://www.tynker.com/barbie/>

<sup>53</sup> <https://www.cnet.com/news/barbie-60-birthday-anniversary-tech-careers-robotics-engineer-coding/>

<sup>54</sup> <https://www.youtube.com/watch?v=DFfevjSVKm8>

They recommend assessing:

1. **Where the business is today**
2. **Where the business wants to be in the future**
3. **The level of business maturity**
4. **People, skills, competencies and capability**
5. **Technology, processes and resources**
6. **Data maturity**

At this stage of digital transformation, marketers should also map out key business questions, assign the business focal point and outline business culture and attitudes to change and risk.

Returning to the pharmaceuticals industry, moving purpose from drugs manufacturing to drugs avoidance is a fundamental shift in purpose. Businesses bringing data-as-a-service into their business DNA can encompass a wider business purpose and new lines of business.

### 5.6.2 Planning: mapping out strategies to make them tangible

Mapping out the what, why and how of digital transformation was unanimously advised by the practitioners interviewed for this report. Holding workshops, in which change related to a consumer truth or business strategy is physically mapped out, helps bring this change to life, as the reality of the scope and scale needed becomes evident.

**Figure 12: Mapping out customer journeys and where ‘opt in’ data is collected**



Source: Pexels<sup>55</sup>

<sup>55</sup><https://www.pexels.com/photo/six-woman-standing-and-sitting-inside-the-room-1181622/>

Data practitioners interviewed laboured on the following additional guidance points:

### 1. Note that data strategies may fall into part of a bigger transformation plan

Marketing needs might be a lower priority compared to more urgent changes tied to business risk. Many companies will prioritise avoiding risk over seizing opportunity. Consider positioning marketing requirements as an additional revenue solution to fund other prioritised risk avoidance that needs mitigating. Becoming part of the bigger solution can build internal trust if the aim is genuine collaboration and enablement.

### 2. Make data ownership a centralised track with clear stakeholders

Data will eventually have many users; assigning one data owner who is accountable to many stakeholders and their requirements is advised. Having an owner who is agnostic to the data use cases can help with prioritising the data framework and its inputs. Marketers as champions or stakeholders need to be actively involved decision makers with the responsibility of focusing on the business aim and how well it is translated into the strategy and design of the data collection. Focus on what needs to be done with the data rather than what the data should look like.

### 3. Executing against plans with strong clear KPIs

The more closely aligned the transformation is to demonstrating tangible value in the change, the more likely investments will be made towards transformation. KPIs should be set for the following key areas:

- Business goals
- Behaviour goals
- Communication goals
- Expectation goals

Having senior business sponsors for data initiatives that tie into bigger transformation plans, as well as clear KPIs around well-rounded goals, helps with business buy-in and can instil discipline needed to stay on track. Communicating the purpose, benefit and strategic outcomes will be important to bring the business on board to supporting success.

## 5.6.3 Process: building frameworks to execute decisions

Data is a team sport. It requires cross-departmental teams to continuously communicate and work together. These models help teams understand decision-making roles when there is uncertainty.

### Digital transformation should be locked in like vision and mission statements

“Whenever somebody new comes in, they want to implement what they want. Digital transformation should be like having your mission statement and your vision statement. It should be something that regardless of who the CEO is, or the CMO is, this is the direction in which we’re going to head with.”

— Hussein M Dajani, GM Digital and Customer Experience Transformation, Nissan Motor Corporation

Marketers need to know in advance the level of responsibility and associated decision making they want to own. Clear awareness on who owns the decision-making responsibility can greatly speed up productivity as peers fall in line with defined roles and aid decision making rather than lobbying for their own position to be agreed upon.

Not knowing who has authority to make decisions in a business can lead to no decision being made at all and momentum can quickly be lost without a decision-making framework in highly complex organisations. Although non decision makers may not agree on the final decision made, they must



agree to support its delivery. In other words: agree to disagree and commit. In interviews for this report, two decision making models surfaced as noteworthy, the **PACE model** and the **RAPID model**.

### **PACE model**

PACE is a decision-making model used by some brands that helps define roles and responsibilities:

- **Project owner:** the individual or team who has overall accountability for projects
- **Approvers:** the decision maker(s)
- **Contributors:** the individuals or teams that need to have input into the decision
- **Executors:** the individuals who will be accountable to deliver the decision once signed off.

Success around the model is making sure each role is owned by a different team member.

### **RAPID model**

This decision-making model by Bain and Company outlines team roles and responsibilities:<sup>56</sup>

- **Recommend:** what are the best choices for decision to be made
- **Agree:** who needs to agree to the decision and have accountability for delivery once it is made
- **Perform:** who will need to commit to delivering and executing the actions from the decision
- **Input:** what evidence, information and insights are required to make an informed recommendation
- **Decide:** who is the decision maker and what is the context for decision making

This model involves much more operational scoping of workloads. The input function is where much data, cost-benefit analysis, opportunity costs and resources allocations are outlined to aid the decider.

Decisions are scoped with evidence-based data. This model can take time to implement as teams need to agree to their roles in the process. A leadership mandate helps.

## **5.6.4 People: setting expectations**

Many people in businesses may not have previously needed to understand data or required to use data for everyday work assignments. To build a data-driven, evidence-based culture with DaaS to aid decision making, new expectations need to be set, and staff need to be made aware of the changing expectations to help the business transform.

Expectation setting needs to be matched by support from business leadership, who should commit to retraining its staff. This involves assessments, planning, training, upskilling and education. The strategy will be to acknowledge skills gaps and invest in closing the gap as well as managing mindsets. The willingness for staff to become aware of data that can help them, how to use it and what insights can be derived to aid better work outcomes, as well as learn the new skillset of using data, will take goal setting and time to implement.

### **Setting new expectations**

“Previously, if you were a video editor, you were only expected to edit. It wasn’t expected that you also be able to use data to think about how you edit. Times are changing and jobs are changing. There are updates to be made in workplace training, and expectation setting.”

— Allison Stern, Co-Founder, Tubular Labs

<sup>56</sup> <https://www.bain.com/insights/rapid-tool-to-clarify-decision-accountability/>

## Increasing data literacy levels

Being aware of the current data literacy among staff will help manage expectation from the start. Levels of data literacy might be lower than expected. The speed of change will greatly depend on data literacy from leadership downwards. Determining people's data literacy levels forms the basis of business data strategy.

The EU has a published data literacy assessment framework, which is available online.<sup>57</sup> The main summary is given below (Table 4).

**Table 4: Assessing data literacy levels in the EU**

Literacy level	Description
Non-data literate	Does not use data
Foundation I	Recognises data. References it. Needs guidance. Is unconfident.
Foundation II	Recognises data. References it. Can use unsupervised.
Intermediate I	Selects routine data. Illustrates it. Reports with it.
Intermediate II	Organises data. Uses / illustrates data to explain and discuss 'the why' behind data.
Advanced I	Manipulates data. Shares and guides others with data.
Advanced II	Evaluate data sources. Discerns sources. Educates others with and about data.
Specialised I	Creates data. Collaborates with multiple data sources. Solves with data.
Specialised II	Integrates multiple data sources. Transforms data. Proposes new data solutions and solutions beyond data.

*Source: EU Digital Competence Framework<sup>58</sup>*

Excessive over and under confidence in data literacy is common. Giving internal business examples related to each level of literacy helps with giving people context for their self-evaluation. A sample questionnaire is included in [Section 11.1: Data literacy questionnaire](#).

### 5.6.5 Partners: hiring vendors to work with

Relationships with partners need stronger foundations when the business is undergoing digital transformation. It is becoming more common for companies to hire multiple vendors that will be required to come together and work effectively to deliver outcomes.

Cadi Jones, Commercial Director at Beeswax, says brands are starting to run multi-partner business pitches where vendors outline how they will work together. Established vendors are being asked to sit in with businesses for new vendor pitches into the ecosystem.

Marketing leaders need to ensure continuity and define communication expectations between parties coming into the ecosystem. These parties are often not trained or incentivised to work together.

Consider:

- Expectation setting: roles, responsibilities and accountabilities
- Setting cross-partner service level agreements and collaboration frameworks
- Creating performance management scorecards with 360 feedback tied to remuneration
- Setting KPIs related to business, communication and collaboration goals
- Formalising collaboration processes

<sup>57</sup> <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>

<sup>58</sup> <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>



- Deciding on collaboration tools to facilitate.

Much of the framework above supported Deutsche Telekom with in-housing its media transformation.

Deutsche Telekom's Global Media Buyer, Gerhard Louw, says that overcommunicating, as well as clarifying language and whether partners mean the same thing by the same words, are important.

## Data fraud requires technology understanding and asking questions

*"Technology education is important. We know how our clients' faces get when JavaScript and image pixels are mentioned. Their eyes glaze like 'somebody hit me, so I can wake back up'."*

Shailin Dhar, CEO of Method Media Intelligence and a data fraud expert, suggests marketers start with asking the following questions to better probe and open up conversations about what is happening at the media buying transaction level and detect fraudulent activity, whether intentional or unintentional:

- Does my team have access to log files (receipts) of the media campaign?
- Can I see how much the demand side platform (DSP) invoice is vs. the agency invoice? Is there a discrepancy and if so, how come?
- Does my media measurement audit apply to 100% of transactions or only a sample, and does my billing reflect that?
- Will I be able to access the receipts of my media buying every month?
- If I find discrepancies in the billing, how can this be resolved?

*"Technology language is where the transactions happen," Dhar continues. "If you do not understand the pipes that your money is flowing in, anybody can trick you. Not even intentionally trick. If there's something going awry, you would not know the difference unless you start to probe and ask."*

— Shailin Dhar, Data Fraud Expert, CEO, Method Media Intelligence

### 5.6.6 Pillars of data: understanding data with the 10Vs

Some marketers will become specialised data literate practitioners. Those less interested in mastering data should focus on asking the right questions to understand more about what the issues are blocking the ability to make decisions from data.

Table 5 outlines the key characteristics – the 10Vs – of data. Probing with these questions can uncover data issues, making it possible to draw up solutions. The marketer's role may be to outline and escalate data issues rather than articulate the detail of the issue. The key is to keep decision making moving.

**Table 5: Data quality assessment and checklist**

	Characteristic	Description	Questions to ask
1	Volume	Estimating amount of data / storage / processing	How big is the dataset to store and analyse?
2	Velocity	Processing data speed, in batches or real time	How fast does data need processing and action?
3	Variety	How rich and (un)organised the raw data is.	Is the data structured, unstructured or semi-structured?
4	Veracity	How trustworthy / accurate the data is, and its origin	Where is the data from and what is the quality or completeness of the data?
5	Validity	Data rigour. Whether the data statistically checked for appropriateness of use in decision making	Does this data have a valid relationship to the decisions made from it?
6	Volatility	Window of validity for data use in decision making	What is the shelf life of the data for decisions and for how long should it be retained?
7	Viscosity	Level of difficulty vs. use derived from data	How complex is the data? Are there dependencies for using it?
8	Variability	Level of consistency and patterns in data and how that affects data formatting and use	How consistent is the data over a time period? Is there seasonality or known patterns to consider?
9	Viability	The minimum number of attributes and factors needed within data to model if data points have a relationship from which to make statistically significant business predictions	What is the minimum amount of data points and volume of data needed to test hypotheses, scale to a high level of predictability or launch solutions?
10	Value	Potential for delivering quantifiable business outcomes	What decisions / hypotheses will be made based on the data and what is their associated worth to the business?

Source: Khan, Nawsher & Alsaqer, Mohammed & Shah, Habib & Badsha, Gran & Ahmad Abbasi, Aftab & Salehian, Solmaz. (2018). *The 10 Vs, Issues and Challenges of Big Data*. 52-56. 10.1145/3206157.320616659

<sup>59</sup> [https://www.researchgate.net/publication/325480960\\_The\\_10\\_Vs\\_Issues\\_and\\_Challenges\\_of\\_Big\\_Data](https://www.researchgate.net/publication/325480960_The_10_Vs_Issues_and_Challenges_of_Big_Data)

# 6. 'How To' Business Focus Areas for Executing Digital Transformation

Data capabilities are changing so rapidly along with wider digital transformation within businesses and industries that it would be fair to say that many people feel overwhelmed by the frantic pace. They may be concerned about making the wrong decisions about where to build and invest in solutions that have a long shelf life.

This section focuses on the softer business and leadership skills that can help marketers navigate the process. The aim is to implement an infrastructure of tactics that inspire leaders to move with speed and confidence.

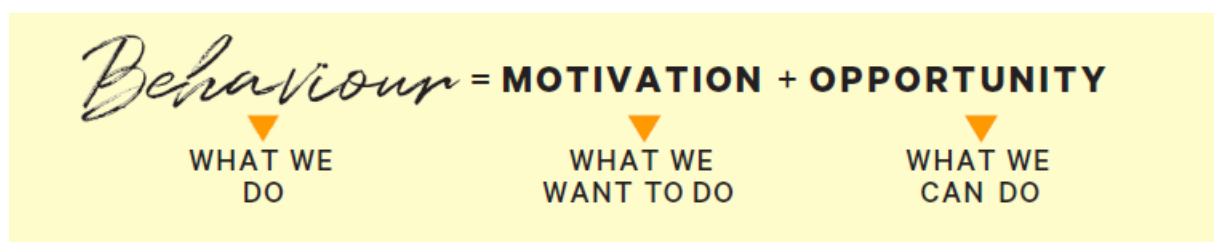
## 6.1 How to strengthen business culture

Daniel Solomons, Digital Transformation Specialist of Byte Behaviour and former Head of the Google Digital Academy, works with a range of organisations, focusing on business culture change with C-suite executives. He notes that in an ever-evolving digital age, leaders need to motivate and inspire their people through continual change. This change starts from the top, with leadership buy-in and with leaders driving business culture through demonstrating the necessary behaviours themselves.

This includes leaders putting themselves on the line with uncertainty and communicating to the business on both an emotional and a rational level. Transformation can be daunting, so a leader needs to break things down step-by-step and create a movement that inspires followership:

- This is our vision: aim for a North Star that inspires emotional connection to purpose
- It is big, it is scary, it is going to create change
- This is the change that we need to make (rational motivator)
- It means not doing what was done before
- It is going to take more risk
- It is going to take more work
- We will build this journey together, as a team
- Here is the path: we will take the first step with you and fully support you along the way
- This is what we expect: communicate and celebrate the small wins and those brave enough to fail.

**Figure 13: Understand motivations and how technology is used to predict behaviour**



Source: Starcom Futures, *The Future of Connected Living*<sup>60</sup>

<sup>60</sup> <https://www.starcomfutures.com.au/category/connected-living/>

Solomons recommends that businesses communicate and celebrate the right behaviours, rewarding bravery, collaboration, communication and learning.

## The long-term legacy

“As a leader, you need to think about the legacy you are leaving for the company. Then, you can start thinking about what steps you need to drive the transformation. Leaders have a job in creating a movement that inspires others to follow.”

— Daniel Solomons, Digital Transformation Specialist, Byte Behaviour (Google Academy Leader)

Focus on outcomes and short-term ROI as business as usual while also setting goals on long-term KPIs, such as customer satisfaction, customer lifetime value and staff satisfaction.

In order to transform, businesses need to see the value of data as a central tenet to business expertise and utilise the predictive capabilities digital transformation provides. This often means moving from a culture of outputs to a culture of outcomes.

Moving from a culture of outputs to a culture of outcomes means working with advertising agencies and internal business partners to focus on growth strategy goals, rather than having the goal of efficiently spending budgets and assessing the output from that spend.

In the past, a brand might allocate a budget of \$1m to advertising and closely monitor output from this spend for its business impact. When the decisions on investments focus on outcomes such as what will it take to reach and convert 1,000 new customers with a spend of \$100 each, data can be used to model all kinds of scenarios of what activations need to be undertaken to achieve the outcome.

Taking such an approach might show that the \$1m would be better spent on a combination of advertising, marketing, improved product experiences, removing friction from the ecommerce purchase and reinvesting savings in procuring better data to identify qualified leads more readily. This outcome requires marketing, sales, product, IT and data science teams to work more closely together.

## Long-term vision

“I like the idea of keeping it simple. Delivering and seeing the delivery of value. Netflix and Amazon, by way of common examples, are doing this especially well. They are constantly tweaking their algorithms and frequently trying to figure out how to achieve results that are accurate or better. More importantly, they still do not have it fully figured out. It is a 10-, 20-, 30- or 50-year journey and, of course, the reward opportunity is big. I believe in that kind of long-term vision.”

— James Sandoval, Co-Founder, MeasureMatch

## 6.2 How to strengthen marketing leadership

Many client-side marketers have relied on innovation with data, tech systems and operational creativity by partnering with external agencies. Business models are changing, as marketers consider ‘in-housing’ their media buying operations – completely or partially – to cope with the constant need to build out first-party data and improve outcomes for business.

### Evolving business models

Continued changes in consumer behaviours, media supplier fragmentation, increasing legal pressures with data privacy and a proliferation of data and tech vendors have made it necessary for many businesses to evolve their marketing functions.

Data continues to be a point of differentiation needed to fuel strategies and keep on top of the proliferation of touchpoints consumers have with brands. Marketers are an integral stakeholder to what data should be collected, why it should be collected and how it is used in business. They need to be at the beginning of the input of data requirements to explain use cases, and be the receiver of the outcomes from data solutions. They need to continually communicate what is working and what needs to be adapted or changed to solve business problems and create opportunities.

Data practitioners interviewed for this report unanimously agree that being able to speak the language of the boardroom and C-suite is paramount for securing sponsorship for digital transformation. Equally, as the great communicators, marketers can make the C-suite aware of the journey, manage expectations around outputs and outcomes and advise on how productivity will change during the process.

### Bringing others on the transformation journey and dealing with fear of job loss

“The hardest task for me as leader on customer inspiration is... convinc[ing] every single department I’m actually not coming to take their job. I am not coming to take their department or take their responsibility. I’m actually here to empower them.”

— Hussein Dajani, GM Digital and Customer Experience Transformation, Nissan Motor Corporation

## 6.3 How to build a strong business infrastructure

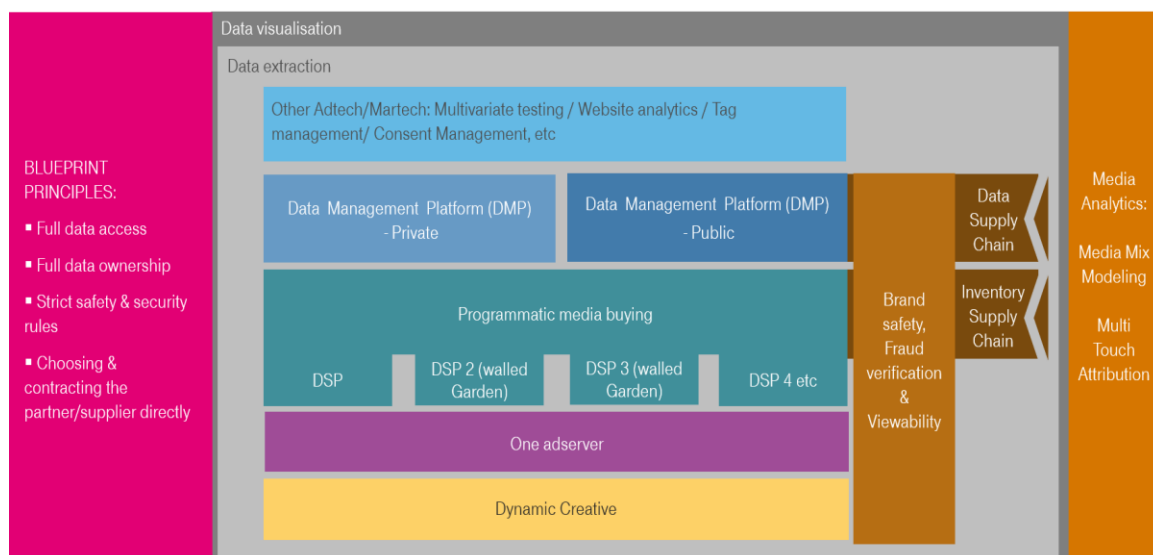
Change is only possible if everyone in the business is on board. For example, Deutsche Telekom succeeded in transforming its data infrastructure because the change had support organisation-wide. The change was supported by the following:

- The change team having control and guardianship on media spend, placements, data and outcomes
- Bringing the media operations ‘in-house’
- Disparate business functions – ecommerce and marketing – working closer together
- Optimising business against media outcomes.

Gerhard Louw, Global Media Buyer at Deutsche Telekom, says it takes several years to reach the operating model. Board members received progress updates every six months. Rather than using a consolidated operating model, Deutsche Telekom selected every vendor separately. The aim was to ensure ecosystem flexibility and to work with best-in-class vendors.

Figure 14 illustrates the Deutsche Telekom framework for transforming media buying from completely outsourced into a hybrid client-side media function.

**Figure 14: Deutsche Telekom's media transformation framework**



Source: WFA Media Transformation Case Study 1: Deutsche Telekom, 2019<sup>61</sup>

## 6.4 How to build strong collaboration frameworks

Data transformation cannot be managed alone by one team in one business unit. Data-as-a-service (DaaS) requires collaboration among multiple teams both in and outside the business. Coming back to the building analogy, the architect, the builder, construction workers, electricians, painters, site management and health and safety inspectors are typically all from different companies subcontracted to work together. This is the way DaaS is also being built out.

During the media transformation at his company, Gerhard Louw, Global Media Buyer at Deutsche Telekom, found that what became most apparent was the need to ensure vendors can work smoothly across the DaaS ecosystem being built. In this instance, the parties involved include the data architect translating the requirements, and the product teams and engineering building out the solutions using both their own equipment and those rented by expert suppliers.

There will be teams that procure the resources, systems and tools to build the solutions, and experts that need to ensure legal requirements are met with data privacy and compliance. Equally, the data science team can be thought of much like the electricians that are building out the currents that work across the whole building.

Just as constructing buildings takes an array of skills and resources, so too does building the foundation of DaaS. If a company has never undertaken this task, its people may not know who or what is needed to collaborate with to make the infrastructure.

### Collaboration will determine success

“The most important factor that eventually decides if a project is successful is collaboration. If you put three different companies together that each provide a product or service that works, [whether] they can actually make those three different components work together, in the interest of the client, will depend on how well they can collaborate.”

— Oliver Kanders, Chief Client Officer, Zeotap

<sup>61</sup> <https://www.wfanet.org/tools/global-knowledge-base/#!/item/660>

The need to be partner friendly and collaborative across multiple vendors is an emerging business requirement that was raised several times by the executives interviewed for this report. Businesses are partnering with many more vendors who all need to work together. As expressed previously, much like how a building is built, it takes many subcontractors to construct a building, and they must all work together to deliver the end solution.

Simon Kempner, Tech Lead at Beeswax, says that vendors have been able to carry out very complex operations multiple times, and that there is no need to replicate complication. The attitude behind partnering is to bring expertise together in order to create something greater.

## 6.5 How to strengthen industry collaboration

### When competitors become collaborators

Many businesses are frantically upgrading and transforming. Some industries are so heavily impacted by disruptive competition that they are banding together.

In the UK, for example, three broadcaster CEOs came together on stage at the Mediatel Future of TV Advertising conference to say they do not compete on tech, but compete on audiences, content and advertiser dollars. They are collaborating on advertising technology to compete against Google, Facebook, Amazon and other digital competitors.

Ofcom, the telecoms regulator in the UK, advocates for these allegiances to win back market strength against Netflix, Hulu and the soon to be released Disney+.<sup>62</sup>

Be open to a future where arch-rivals become biggest allies due to disruption from unexpected or unforeseen competitors. Improvements and strengthened industry ties can be around non-competitive business processes such as logistics, deliveries or technology sharing.

**Figure 15: ITV, Channel 4 and Sky's CEOs discuss collaboration**



Source: Future of TV Advertising, Mediatel December 2018  
Channel 4 CEO Alex Mahon, ITV CEO Dame Carolyn McCall, Sky CEO Stephen van Rooyen<sup>63</sup>

<sup>62</sup> <https://www.ibc.org/publish/ofcom-bbc-itv-and-c4-should-collaborate-to-compete-with-netflix/2962.article>

<sup>63</sup> <https://mediatel.co.uk/newsline/2018/12/06/ceos-of-itv-channel-4-and-sky-open-up-about-their-futures/>



## 6.6 How to forge a stronger relationship with legal

As the digital landscape evolves, new regulations, especially those related to privacy, will continue to roll out. Businesses need to be ready for these changes, as infringements can be incredibly costly. However, a big pain point raised by data vendors is how infrequently internal legal departments brought into conversations by marketers in good time. Marketers need to make legal top priority if they are working with incoming data.

### Data protection

The EU GDPR and the California Consumer Privacy Act, due to come into force in January 2020, are well overdue. However, there is divided opinion on data protection.

Some see it as a blunt instrument that will hold back the speed of innovation while geographies such as China, which do not have such data protection regulations, surge ahead. Meanwhile, it makes smaller enterprises nervous, as they may lack the skills and competencies to keep within the law.

Oliver Kanders, Chief Client Officer at Zeotap, says that when it comes to data compliance, one big time saver is aiming to create just one legal data contract, which should be organised at the proof of concept (POC) stage. The time taken from POC data testing through to the full onboarding of data can be lengthy and to avoid losing momentum, aim for a single contract to cover all use cases. Kanders has seen instances where marketers lose more than 12 months trying to secure a second data contract from legal departments.

Another good strategy is to draw up an all-in-one data contract that is separate from the final commercial terms. If the vendor is reconsidered at a later date, the data contract can remain valid for much longer than if data and commercial terms were combined. Legal teams unfamiliar with data contracts with a zero-dollar value may need to be educated on the benefits of having two contracts.

Kanders adds that the impact of GDPR has been positive for companies which comply with it. Zeotap picked up competitor clients when they failed at being GDPR ready.

### The impact of the updated EU General Data Protection Regulation

“Even very, very big providers of data have lost sometimes more than 50% of their data, simply because it would not have been GDPR compliant.”

— Oliver Kanders, Chief Client Officer, Zeotap

## 6.7 How to encourage stronger data management

### Centralise data taxonomy and governance and simplify access

According to Gartner, less than 50% of companies have formal corporate data strategies documented for their data and analytics teams, even though it is key for delivering enterprise value.<sup>64</sup> Data taxonomies, data architecture and management require strict compliance frameworks, so that data engineers and data science teams can work with, and build models upon, clean data, and within the law. Returning to the analogy of building the data foundation, the logistics to build a building are thorough and detailed and this is where businesses need to get to with their data infrastructure.

<sup>64</sup> <https://www.gartner.com/smarterwithgartner/why-data-and-analytics-are-key-to-digital-transformation/>

Lines of business metadata should be designed and detailed enough to support changes in those lines of business.

The most important factor is the level of detail achieved in metadata. Data extraction, data appending, and classifications are increasingly automated, as cataloguing by humans is simply too slow and not exhaustive enough. Enterprise data management strategies are required to enable metadata automation and the creation of innovative metadata details and cannot be avoided if businesses are working globally and in many languages.

## **Data access for evidence-based decisions will become simplified and everyone's role**

"Within Beeswax, anyone in the business can pull data queries, no matter whether you are an exec through to a trader through to [a salesperson], everyone can go into data. I think [that] in a company that is digital first, anyone [should be] able to actually access data and go straight to visualisation."

— Simon Kempner, Tech Lead EMEA, Beeswax

## **6.8 How to build strong personal networks**

### **Manage data needs and information through support networks**

There is little formal documentation on how to navigate rapid changes in data management, data laws and the marketing and advertising technology (martech and adtech) that are transforming businesses and industries.

As noted in the previous section, cross-industry collaboration is emerging in broadcasting and likely to happen in other industries beyond media. Competitors of today might be collaborators of tomorrow when it comes to data infrastructure, access and executing with data.

The best way to keep up with the pace of change and remain agile to change is to build out a strong personal network and keep an open mind. Data practitioners consulted for this report strongly suggested that in order to keep up with data and digital transformation, teams must:

- Attend industry events and conferences
- Go to free roundtables, breakfast briefings and learning lunches
- Follow key opinion leaders and hashtag topics such as #data on LinkedIn and Twitter
- Get regular vendor updates on emerging theories and techniques as well as competition
- Read case studies from trade bodies, vendors such as Econsultancy and industry awards
- Be open to connecting in order to quickly build access to information and industry advancements.

## **People in digital industries are open to learning, sharing and building strong personal networks**

"There is a core difference between traditional businesses and direct-to-consumer digital businesses. When running roundtables, I quite often get pushback from people in traditional brands saying they are not sure they can come or share [information]."

## People in digital industries are open to learning, sharing and building strong personal networks

“Digital brands are really open to sharing. There is no need to talk about the next big product launch; instead focus on techniques and the theories that you’re using and get others to tell you about theirs to learn faster. This gives people the confidence to go back to the office and know what to do. If they help each other, they will learn more, apply the learning and move faster. There is a personal and business benefit.”

— Cadi Jones, Commercial Director EMEA, Beeswax

Having a strong personal network and dedicating 1% effort per day to reading and following changes is the suggested method to avoid being overwhelmed. With the speed of change, many practitioners were sceptical about whether academic institutions could get ahead of the digitally-led industries to teach appropriate skills better than a personal network can.

For example, the changes in laws around data sharing spawned a recent emerging trend in building customer data platforms (CDPs). Having advantageous personal networks can help with access to information, such as that about the rise of CDPs, to quickly track visibility into what is changing, why, how and how to respond at speed. Many practitioners interviewed stated that trusted personal networks often become a source of education for keeping up with digital changes and transformations.

### Customer data platforms

Third-party cookie data and data sharing is coming further under privacy pressure. Both Google and Facebook are scaling back on their laser targeting of users. The wider market reaction is to focus on building out in-house solutions to minimise risk from reliance on the third-party data from Google, Facebook and Amazon.

This is a digital transformation as brands focus more on first-party data to have a single customer view and to continue using customer data for marketing and communications. Many industries are affected and need to pivot quickly. The speed of pivoting is where a strong personal network can help.

Figure 16 shows a summary on CDPs by the Winterberry Group in partnership with the trade body the Association of National Advertisers. The summary was made by many industry parties who work in marketing, data, data strategy and advertising, including Acxiom, mParticle and Alliant. By coming together and openly collaborating, their aim is to give clear information about CDPs.

A full report was created to educate organisations on what can and cannot be done with customer data platform solution to manage customer data.<sup>65</sup>

The main point here is that building strong personal networks can quickly make clear what is myth vs. reality to avoid pitfalls from early adoption of emerging technology solutions.

<sup>65</sup> <https://www.winterberrygroup.com/our-insights/deconstructing-customer-data-platforms-myths-vs-realities>

**Figure 16: Deconstructing customer data: myth vs. reality**

	Data management	Identity Resolution	Segmentation	Decisioning	Analytics	Engagement	Measurement
MARKETER NEEDS	<ul style="list-style-type: none"> <li>• Offline data processing (Ingest/ETL, Hygiene, Merge/purge)</li> <li>• Online data processing (structured/ unstructured, anonymous/ known, High volumes)</li> <li>• Regulated data requirements + audit trail (e.g. FINs, Healthcare)</li> </ul>	<ul style="list-style-type: none"> <li>• Customer recognition:               <ul style="list-style-type: none"> <li>-- across channels and devices</li> <li>-- various keys</li> <li>-- various linking approaches</li> </ul> </li> <li>• Profile management</li> <li>• Identity graph management</li> </ul>	<ul style="list-style-type: none"> <li>• Rules based</li> <li>• Machine learning</li> <li>• Real-time</li> <li>• Visual UI</li> </ul>	<ul style="list-style-type: none"> <li>• Determine who receives what in what format and on which device, at what time, or other context</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive analytics</li> <li>• Predictive analytics</li> <li>• Prescriptive analytics</li> </ul>	<ul style="list-style-type: none"> <li>• Delivering the content to the recipient via channels such as website, email, and mobile</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the effectiveness of marketing activity</li> <li>• Determine most effective channels</li> <li>• Provide insight to optimize future activity</li> </ul>
CDP	<ul style="list-style-type: none"> <li>• Ingest &amp; process cross-channel online data and processed offline data</li> <li>• Merge/ match</li> <li>• Manage profiles</li> <li>• Store data</li> </ul>	Everything short of identity graph production/ management -- especially related to unknown devices Partnerships	<ul style="list-style-type: none"> <li>• Rules based</li> <li>• Machine learning</li> <li>• Real-time</li> <li>• Visual UI</li> </ul>				
ALTERNATIVE SOLUTIONS	Master Data Management, Enterprise Data Warehouse/ Data Lake, Service provider (e.g. MSP)	Identity solution vendors	BI tools, Analytics platforms	Journey Optimization engines, Campaign management/Marketing automation / Enterprise Decision Management	BI tools, Analytics platforms/ workbenches;	Channel solutions -- ESPs, MSPs, DMP/DSP,	Attribution vendors, BI tools
WHY CDP	Speed and volume of data	Speed and volume of data	Speed and volume of data				

Source: Winterberry Group. *Deconstructing Customer Data Platforms: Myths Vs. Realities*<sup>66</sup>

## 6.9 How to secure investment

### Speak the many languages of business

Data practitioners interviewed for this report unanimously agreed that marketers need to speak the language of business, as well as marketing. Increasingly, marketers also need to speak the language of finance, technology and in some cases, programming, as well as data terminologies.

Evidence-backed decision-making focusing on business metrics in business language is where marketing leaders are winning investments at the C-suite and board level. Where they continue to secure funding is through executing and delivering on promises.

While evidence matters, speaking in a language that decision makers understand along with building trust is important. Data may only account for part of the decision-making process. As little as only one-third of the proof points to making decisions in marketing may be data backed according to David Boyle, Director at Audience Strategies. After all, investments are often being made in things that have not been done before and where little data or evidence exists to guide decision.

Many business leaders struggle to translate data points from social metrics such as likes, comments, views and shares into sales, market share, category growth and solid ROI. While many excellent data models are now in place to show causal impact from advertising, as well as modelling and predicting future outcomes, the board and C-suite want to hear the direct business benefit in their business language.

### Success is almost always tied back to financial goals and securing budget

“Success is the increasing market capital of your company, or the increase in revenue of your company, or whatever you’re trying to grow.

“I think it’s essential for marketers to tie what they’re doing to top-line growth. If you’re measuring your share of voice, and that’s everything you’re focused on, that’s too small, and not going to get you a seat at the table.

<sup>66</sup> <https://www.winterberrygroup.com/our-insights/deconstructing-customer-data-platforms-myths-vs-realities>

## Success is almost always tied back to financial goals and securing budget

“Marketers must be the chief growth officer; they need to succeed in growing business, as it relates to digital transformation, getting the buy-in of your organisation, the support of your CEO. I think success is budget. So much in corporate America is tied to budget and your ability to get budget to do the things that need to get done.”

— Allison Stern, Co-Founder, Tubular Labs

Recommendations by data practitioners include focusing on the following when trying to secure investment:

- Marketing business efficiencies: cost per contact, cost per lead, customer acquisition costs, customer lifetime value with and without acquisition costs
- Reach: new audience revenue growth segments, reach conversion improvements, triggers to trial and sales, reducing churn
- Sales: growth segments, cross-selling, upselling, creating new sales channels and distributions
- Market share: growing categories, creating new categories, growing share of category
- Better ROI: with underlying marketing costs removed to show true ROI
- Building to meet a consumer truth: based on changing consumer attitudes and trends detected in data and insights
- Building to block competitors: owning end-to-end delivery and value chains blocks competitors, such as direct-to-consumer propositions
- Innovation building: automatic recommendations and predictive forecasting that influences more optimal use of resources or maximising sales.

### Securing investment

Those interviewed for this report advise starting with quick wins that have a visible impact or going after nascent opportunities that are low risk though might be a major revenue or customer stream in 10 years.

Five percent of product sales on one channel may become 30% or more in the future. Focusing on those channels now gives the time to build up best-in-class experiences outside the pressure of failure with a bigger line of business.

The interviewees also noted that if there are investments to be made, the CFO will want to see that the risk is taken on investments in infrastructure by both the company as well as by vendors or partners.

### McDonald's: AI taking orders?

McDonald's is investing in AI assistant capabilities to test a solution at the drive-through windows of its outlets. The investment is made on the premise that the technology will improve sales, taking advantage of the fact that AI is never tired, distracted or overworked, and cannot sound stressed. McDonald's recently acquired Apprente, an AI voice firm that specialises in translating sound into meaning.<sup>67</sup>

While early generations of AI focus on words spoken, this service moves into the realm of tone and mood. The tone and mood of customers will be analysed in real time to detect whether the customer is happy, stressed, in a hurry or frustrated, for example.

<sup>67</sup> <https://www.wired.com/story/mcdonalds-acquires-apprente-voice-ai/>

The aim is to test whether consumers order more from an AI assistant than from human staff. In this instance, the investment in AI will have a direct impact on the bottom line, potentially reducing costs over time and increasing sales. This is an example of innovation building to secure investments.

Another great example of securing investments is the case study below about the digital transformation and overall transformation journey of Shiseido. This case highlights early examples of how the Fourth Industrial Revolution will change how businesses can innovate with biometric data.

## Case study: How Shiseido reinvented itself with a data-driven approach

Shiseido is an established beauty brand from Japan, with more than a century of experience. With marketing budget cuts in branding and deeper cuts into retail stores, a new CEO, Masahiko Uotani, was appointed in 2014, the first CEO in Shiseido's 140-year history to be appointed from outside the company. He went straight to the floors to listen to staff, of whom there are more than 20,000 beauty consultants.

His mission:

- To become global
- To plan for the next 200 years
- To change the organisational mindset and culture
- To invest deeply in beauty innovation and transformation.

Uotani said that the brand's purpose was to bring *"a sea of energies, confidence, empowerment and happiness to the consumers around the world"*.<sup>68</sup> It sought to reframe beauty as a lifestyle, not just a product.

### Culture transformation undertaken after five years:

- Removed business hierarchy
- Brought in hybrid diversity in culture and expertise
- Emphasised diversity of gender, nationality and experiences
- Appointed four French regional CEOs
- Set official business language to English
- Committed to 30% female management (a goal reached early and revised to 40% by 2020)
- Achieved an unheard of and unprecedented level of female leadership in Japan.

### Digital transformation with 'Optune'<sup>69</sup>

Optune is a new personalised skincare foundation created by Shiseido to aid women with their daily makeup and beauty regimes. Optune launched in the summer of 2019 as a daily personalised makeup subscription service for Japanese women. Using data such as the mood, health and sleeping patterns of a women along with the humidity and temperature of a room, Optune dispenses a personalised foundation daily for women to use and look their best.

This digital transformation journey started in 2017 when Shiseido acquired MatchCo, a Silicon Valley-based solution focusing on matching skin tone and conditions to exactly the right makeup.

<sup>69</sup> <https://www.shiseidogroup.com/news/detail.html?n=00000000002712>

## Case study: How Shiseido reinvented itself with a data-driven approach

In 2018, Shiseido identified more than 1,000 skin types. After making further investments in data points and metadata, it launched Optune in July 2019, which offered more than 80,000 variants of personalised makeup combinations that it could match to daily skin conditions.

### Open for the future

Shiseido's CEO is fully backing transformation and as a result, 2020 sales targets were reached three years early. Marketing budget commitments were also increased and set to \$1.1bn over three years. Uotani says Shiseido is opening business innovation centres in China, Japan and the US and seeking all ideas from entrepreneurs so that they may create value together.

— Shiseido CEO interview, Rise Conference 2019<sup>70</sup>

<sup>70</sup> <https://riseconf.com/blog/top-lessons-learned-rise-2019>



# 7. Applying Data: Time Savers, Issues, Known Misunderstandings and Recommendations

The process of adopting, applying and using data is part of the long winding journey of digital transformation. Where the last section covered more practical business skills, this section focuses on some key time savers, known issues and explanations as to why they happen, as well as recommendations to save businesses time and money.

## 7.1 Key time saver: making data decisions fast

Speeding up executing decisions with data is a time saver. While this might sound obvious, there are three common situations where things get stuck and if left unmanaged, can seriously hamper business productivity and staff unity.

- 1. Analysis paralysis:** Seeking perfection in data can lead to inaction. In marketing, many CMOs are moving from research where they would wait several months for data to now having overnight data. Even if the data quality is only good, it is likely good enough to make decisions from, while checks happen over time on the data quality. Fast data that is good enough to aid continued productivity is better than slow data that may never reach perfection and paralyse business decision making. This is a particularly important consideration for businesses that are early on in digital transformation and still exploring and refining options. Pareto's rule of 80/20 is a great guide to follow: focus on reaching 80% as the last 20% can cause more work than the first 80% output.<sup>71</sup>
- 2. The paradox of choice:** Having too much data can also cause decision making paralysis. If a business culture is extremely risk adverse, choices can feel like risks. Most open digital businesses work from the mindset that risks and mistakes are a given and experimentation is a necessity to agile decision making with a multitude of choices. Throughout digital transformation, aim to make choices about data in application quickly, and course correct even more quickly if there is a better choice. Leave failures in the past, treat them as learning and continue to build the muscle of making data decisions with speed. Taking risks and assessing outcomes quickly to iterate on with a multitude of choices is part of transformation.
- 3. Business decision making culture:** There are many companies that have centralised decision making. Junior staff can end up stuck without a decision in complex matrixed organisations when data sources are owned and used by several departments. This is common for businesses that are early in the digital transformation process. Decisions being made by non-data practitioners might hinge more on the capability and confidence of the decision recommender than on the data itself. There are more than 100 decision mental models that can be studied to help handle objections more confidently and overcome challenging decision bias when the data is not allowed to speak for itself as the source of truth.<sup>72</sup> Winning over people with great data may need to happen before great data wins over people.

<sup>71</sup> <https://www.kdnuggets.com/2019/03/pareto-principle-data-scientists.html>

<sup>72</sup> <https://fs.blog/mental-models/>

Data usage will evolve and mature, and the speed of decision making can be the advantage and time saver. If the decision makers are averse to data, it is best to focus on business outcomes and **what data can do** to aid transformation rather than focusing on the data itself.

Audience Strategies' David Boyle, a former Customer Insights Director for Harrods, summarises data sources into three types in the diagram below (*Figure 17*). The outline emphasises the importance of thinking about the decisions that are made by the business each day, how data can support those decisions and how data may be transformed for more complex use cases (i.e. from performance data to predictive data.)

### 1. Owned data

This is all the data proprietary to a business. It can help answer the following questions for the business:

- What happened?
- Why did it happen?
- What will happen?
- How can I make something happen?

### 2. Asked data

This is data generated by people, including customer feedback and market research. It can help answer the following questions for the business:

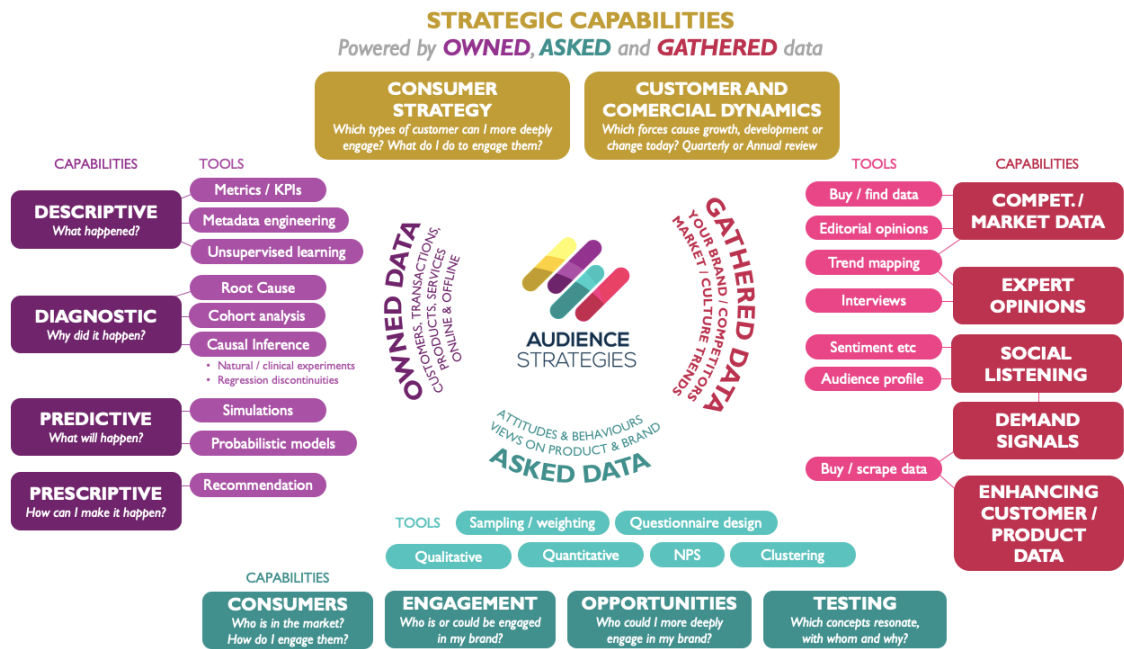
- Who are my customers and how do I engage them?
- Who else could be engaged by my brand?
- How can I more deeply engage them?
- How can mapping big ideas for communication engagement with appropriate audiences lead to outcomes?

### 3. Gathered data

This is any data coming from outside the business. It can help answer the following questions for the business:

- Who and what is my competition?
- What is happening within my market and what are potential new sideways entrants I need to be aware of?
- What are my customers saying that I need to respond to, and how quickly?
- How can I gather feedback on my products and services to improve them?

**Figure 17: Strategic capabilities with data**



Source: David Boyle<sup>73</sup>

By focusing on capabilities of data with stakeholders and minimising the details of the mechanics of data, decision making paralysis can be minimised.

## 7.2 Key issue: bridging legacy data, systems and tools

Businesses are very good at innovating and starting new things. It can be often harder to stop doing things, which includes shutting down or switching off redundant services.

### Recommendations

- **Get permission to disrupt:** Get top-down leadership permission to break contracts or decommission redundant data sources, systems and tools. This may come as a shock to operational teams if they have been working with the same systems for years. A change management journey needs to be managed.
- Being two years late to market with the right vendor, system or tools rather than five years late due to honouring an old contract with old technology and delaying business innovation has an opportunity cost. Speed, quality and cost trade-offs need to be made quickly and businesses need to build out a culture of being able to disrupt itself before it is disrupted by competitors.
- **Over communicate:** Explaining the impact of not decommissioning legacy systems and tech debt is a time saver. People stop resisting change when the threat of **not** changing is greater. Every second spent on trying to manage an ailing system is detracting from investing in the future.
- **Use flexible partners, systems and contracts:** Focus on future-facing contracts with partner-friendly flexible systems. Vendors interviewed for this report stated that data-led clients have multiple partners across technology, data and services, which are brought together. Locking in services with one vendor for everything is risky if the vendor is not innovating fast enough or is not partner friendly enough. Teaming with a partner-friendly vendor will be a time saver in the long run.”

<sup>73</sup> [www.audiencestrategies.com](http://www.audiencestrategies.com)

## 7.3 Key misunderstanding: the capability of visualisation software

### Counting data points is easy. Calculating data points is hard

A frequent misunderstanding when it comes to digital transformation concerns visualisation software. They are often thought of as analytics platforms, but they are not. Most visualisation software can work with metrics that do not require analytics; these are metrics that can have additions or subtractions applied to them, such as looking at orders by city, visits to a website per day or how many ads digital were seen and where. This capability is the ability to filter data by different criteria (normally based on metadata) and cutting data into separate parts and observing differences.

Visualisation software can filter data, it cannot calculate or compute it. Visualisation software needs to be paired with systems and tools that can manage the computations before they are loaded into the visualisation software.

The biggest misunderstanding happens when marketers see visualisation software, and they see the output, rather than the analytics capabilities. This distinction between **filtering** data, and **calculating results** often leads to marketers being wooed by visualisation solutions and onboarding them, only to realise internal data is in no state to be visualised.

Furthermore, many visualisation systems have been restricted by the data source on how much data can be shared with the visualisation software. For example, Google Analytics limits the amount of data that can be directly sent to Tableau. When data sharing is limited, intensive work on some metrics needs to be done elsewhere in another system, data cloud, or data warehouse before visualisation can occur.

The two key metrics types are **count metrics** and **calculated metrics**. Visualisation software works very flexibly with count metrics.

### 7.3.1 Types of metrics: count metrics and calculated metrics

#### Count metrics

Count metrics are data points that tally up easily. Most actions that can be tracked are count metrics. Some examples are:

- Sales data
- Visits or sessions to a digital asset
- App downloads
- Signal data from an IoT device like on/off, in use or not in use, yes/no data
- Any metric where the data can be added up, summed or subtracted.

Count metrics with abundant metadata can be cut up in a variety of different ways; they are only limited by the amount of metadata the metrics have. This is easy in visualisation software, though again, note this would be a filtering (addition or subtraction) function, not a computation.

These analytic points can be ported into other systems and tools and move about easily. Count metrics require little to no rework to port into visualisation tools. They require very little processing power and it is easy to cut the data, filter it, clean, fix and visualise it.

Rich metadata of count metrics makes data visualisation attractive; often the metrics are still simple count metrics, nothing more.

## Calculated metrics

Calculated metrics are more important to marketers and much more complex. The key metrics are measuring people and their behaviours over time. These metrics require data crunching and huge amounts of processing power to stitch people and their actions together.

One example is measuring video completions. It is common for consumers to start and stop viewings over the course of several days to match their lifestyle. To confirm if a video is watched in full takes high computation and needs to be calculated if the viewer, for example, takes three days and several sessions to finish watching a video.

Several key calculated metrics in digital that take huge processing power (with huge cost) are:

1. Unduplicated audiences or unique people defined over a time range. This is a key metric for marketers to work out campaign reach across a multitude of touchpoints.
2. Longitudinal time. In digital, this is often anything more than one day as most analytics reset data every 24 hours. Marketers should work with predefined time definitions and sync everything to it.
3. Cumulative data. When several weeks into a campaign, a marketer needs to know if they have maximised audience and campaign reach and the incremental value being added as the campaign continues.
4. Relational data, which compares two or more metrics. Adding the elements of a **time frame and people** to a count metric automatically will turn it into a calculated metric and require computation.

Visualisation of people-centric data and associated metadata or metrics over time requires computation, which visualisation software is not capable of.

### 7.3.2 Data visualisation software and marketing requirements

Figure 18: Data visualisation software



Source: Pexels<sup>74</sup>

Most marketers need to work with people-centric data and are disappointed by the limitations in the data when trying to work out unique audience reach. When working with anonymous audience data,

<sup>74</sup> <https://www.pexels.com/photo/person-typing-on-laptop-1571699/>

aggregated audience data or cookie-based audience data, calculating a total unduplicated audience reach is challenging.

The definition of 'person' lives in an algorithm proprietary to vendors (Google Analytics, Adobe etc.). It is difficult to replicate this between the original analytics platform and the visualisation software.

Visualisation software solutions are not designed to calculate people-related metrics unless the analytics software and visualisation software are from the same company. An intermediary solution is required to do the computation before the visualisation and the two systems need to be compatible.

## Recommendations

- Ask the data experts to outline which metrics are count metrics, and which are calculated metrics. For quick access data, focus on count metrics.
- Ask vendors if they know the difference between count metrics and calculated metrics and how they approach them. If they do not know the difference, this is an immediate alarm bell. Find vendors that do.
- Use metrics that are about people and how they behave over time sparingly to keep the cost of data management from spiralling. If a conclusion can be made with a small subset of data rather than the whole census data, then this should be done first to save on unnecessary cost. Count metrics about actions cost very little to process compared to calculated metrics.
- For speed of access to people-centric metrics, start with default data normally as single day outputs. This way, daily data can be moved to visualisation software more readily, allowing marketers to conduct single day performance comparisons over a long range of time while managing data costs.
- Counting data is cheap, while processing data is expensive. Data practitioners typically set caps on data file sizes for processed data when testing a hypothesis or exploring data, to control cost and speed up processing. For example, data practitioners might test:
  - 10,000 data points
  - 1 metric with 10 metadata fields
  - 10,000 people and their actions

Note that these samples tend to come in multiples of 10. Ensure that the data practitioner understands that a sample must be processed first. If this is not clarified, they might spend several days focusing on getting the data and even longer analysing the large dataset, while a sample can be accessed and analysed quickly.

- Define time. In digital, most daily unique audiences are automatically calculated to revolve around the definition of a 24-hour cycle or 'day' based on the time zone where the day has been defined. Govern the definition of time to save a great deal of data issues for calculated metrics. Note that audience reach over time is a key metric, and that count metrics are less impacted by the definition of time. Time zone mismatches can cause data analysis issues (for example, if production cycles, analytics tracking, offline audience tracking and online audience tracking datasets are using different time zones). When bringing audiences from different sources together, timing mismatches can create analytics challenges.



## 7.4 Finding truth

An area of exploration with data practitioners was whether or not it is more important to have data they trust or data that is truthful. The conclusion is that through finding truth, trust in data would grow, or on the flipside, finding out the limitation of data and what can make it untrustworthy helps people get closer to finding data sources they trust more. Familiarity and continued usage and application of data helps to build understanding on the capabilities of datasets.

### Recommendations

The data practitioners interviewed had the following recommendations about finding the truth:

- Triangulate data to produce similar metrics from different sources and methodologies. Close discrepancy gaps between them to reach truth.
- Buy in data and ensure a testing period with the data is negotiated for free. Great vendors will allow a data interrogation audit phase before full purchase of the datasets.
- Black box data, or data without any details about its background, should be unacceptable. Without knowing where the data comes from, how it is made, or how the metrics, algorithms and models are built, there is no way to determine its worth and quality. NDAs can be signed. What is there to hide? It is unlikely Google, Facebook or Amazon would agree to the above terms. They are selling marketing solutions built on data, they are not selling the data itself, which might explain why they do not share how the data is made.
- Determine which metrics are critical and have legal implications and standards tied to them. Micromanage these as business priority.
- As more voice data and biological health data come into datasets, treat key data like flying a plane; it needs accuracy. There is no room for breaking truth and trust.
- Audit data. Audit data outputs. Audit data inputs. Audit against the 10Vs checklist in *Section 5.6.6*. The main point is be prepared to ask a lot of questions with the intention of getting answers that build confidence in the decision-making process and trust in the data.

### Data truth or trust?

“Gain experience with a partner [vendor] you truly trust. For instance, second-party data sharing on Salesforce Data Studio is one positive example [of a trusted vendor]. They have established for all Salesforce clients a marketplace to exchange data directly with one another. They are very actively connecting the different participants on that data marketplace with one another and helping also with education.”

— Oliver Kandors, Chief Client Officer, Zeotap



# 8. Why Transformations Fail

Despite best intentions, many digital transformations fail. Failure comes in many forms, from projects meeting insurmountable technical and resource issues, incompatible technologies and under skilled staff through to misalignment between competing resources, goals and team cultures. For many businesses, it is a process that has not been undertaken before and managing business expectations becomes difficult.

This section covers the seven key areas for the failure of transformation, including many issues that are business culture driven as well as data driven. The aim is to uncover these issues and make explicit how important business culture is to the success of transformation.

## 8.1 Lack of discipline

Tony Saldanha, former VP for Procter & Gamble, discusses why transformations fail in his recent book *Why Digital Transformations Fail*. He cites lack of discipline as a key cause, leading to 70% of transformation failures.<sup>75</sup> Marketers must be disciplined when:

- Setting the right transformation goals, and
- Executing the correct processes for enabling change.

Discipline is also required on the leadership team's part, to visibly put their own credibility and resources on the line.

Most businesses have little experience with the impact of undertaking data and digital transformation and the effect it has on productivity, visible business output and staff. Although data management inevitably causes much of the operational workload, it is not always the cause of failure.

## 8.2 Lack of business focal point

This may not be explicitly communicated or known. Every business has a DNA, or focal point, that drives its culture.

While data aids decision making, people are the ones making decisions to use data. If evidence-based decision making is not already part of the business DNA at the top of leadership, then side pockets of transformation initiatives can struggle to scale. Whether it is products, services, customers, distribution, logistics, IP, finance or transaction-based business models, business DNA needs to be made conscious.

The strength of this business nucleus and how much data is already used within it will influence how well an organisation's transformation happens, or not.

### Human capital

"A business is completely reliant on human talent. Reading data, reading insights and having to influence people with data to build a culture that respects data. The fascinating thing about it is, once you have the foundational pieces, it's completely about human capital and talent."

— Allison Stern, Co-Founder, Tubular Labs

<sup>75</sup> <https://www.thenewsminute.com/article/why-digital-transformations-fail-former-pg-vp-tony-saldanha-shares-his-insights-106532?amp>

## Data becomes the language, and for some, the cause

The mindset of leadership to embrace data might not be in place, as for decades the business may have been built around another focal point. Many traditional businesses have been focused on production or intellectual property management (such as media brands), or research and development (such as pharmaceuticals).

Companies previously **mass-producing** products such as shoes are now delivering business models on how to produce products with **mass-iteration**. Nike is a great example with its 'Nike By You' customised shoes, which can be made to a million different specifications.

These businesses, like Nike, may have previously had a product business focal points producing sports clothing and footwear. Moving to a data-as-a-service transformation model empowers businesses to make decisions underpinned by data and knowledge. Effective execution of this knowledge allows businesses to produce personalised products at unprecedented scale. Mass iteration requires data turned into business knowledge to transform processes.

A clear focal point for all the business to align behind sets the tone for digital transformation. A knowledge focal point underpinned by data requires a deep fundamental culture change as well as business transformation. Expect to invest in culture change from the top down.

## 8.3 Poor data management

### Data legacy, quality, complexity or the lack of it

#### 8.3.1 Legacy

With legacy digitised systems, data has typically been purposely collected and housed in a very structured and restrained way for a specific (often singular) purpose. Data security, data integrity and customer privacy are key important historical drivers behind data structure and use.

This is where transformation is needed and where much of the pain points at root cause around transformation can be found – data management. Data in 'digitalisation' mixes structured business data with unstructured data (data with no business meaning appended to it through metadata). Internal and external data are also mixed.

Strict centralised data governance can be painful to implement. It can be like herding cats and requires a task force on its own if the business is sprawling with disparate data. But the long-term business reward is undeniable.

Legacy siloed data ownership can break transformations as teams refuse to or cannot see benefits to digital transformation. They obstruct sharing and, therefore, business change.

#### 8.3.2 Quality

A lot of data is captured with little structure or clarity on its business use. Often data is poorly formed, not granular enough, rich enough or big enough. Attention to detail is crucial, as well as clear guidance on use cases for data collection.

A lack of data harmonisation in data fields, labelling, metadata and structure across and outside the business will render most data nonsensical to businesses and incompatible with meeting the needs of the stakeholder requirements and use case.

Stitching data together becomes impossible if there are not enough 'hooks' to connect sources. Proxies are often created, and the accuracy of matching may lack the rigour to build solutions on.

Lack of quality cannot bring on transformation failure on its own. It is team infighting about who is responsible and accountable for data that does. Where some companies encourage teams to iterate, iterate, iterate and keep going, other companies can come to a standstill through blame.

## Too much data can be meaningless

“Every marketer uses cookies. There are 86 trackers on this one page or 247 trackers on this one page. It needs to be scaled back, [as] too much data sometimes is as bad as not having enough.”

— Shailin Dhar, Data Fraud Expert, CEO and Co-Founder, Method Media Intelligence

### 8.3.3 Hygiene

Teams seesaw back and forth on data integrity, or hygiene. Often, they do not have access to original data sources to make changes. Gaining access to, or asking for changes to the original data source may be impossible. Painful amounts of time are spent by data engineers and data science teams repetitively doing manual cleaning work.

## Getting to workable data

“80-95% of analysis time is cleaning data.”

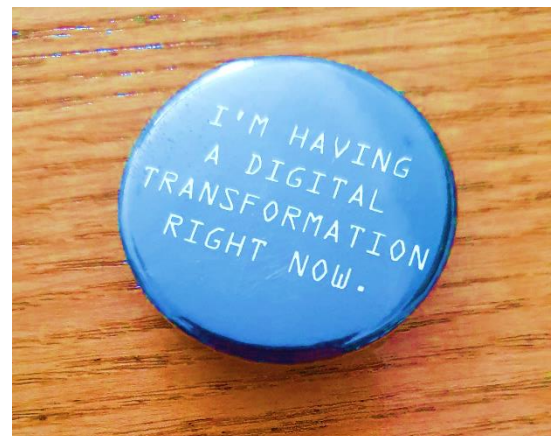
— Bill Winkler, Principal Researcher, US Census Bureau

### Data noise

Digital data also contains a great deal of noise. Operating systems, devices and browsers all have rules and logic disrupting data patterns that are often outside the control of the data architect and product owners. Inexperienced data practitioners may not be fully aware of what noise needs to be removed to get to a workable ‘clean’ dataset.

There are consequences when short-term goals are prioritised over long-term ones to have clean data at source:

- Garbage in, garbage out
- Productivity drops
- A back and forth between teams for workarounds
- Time is lost
- Decisions are stalled
- Businesses panic.



Source: Laura Chaibi

Millions of dollars are being wasted on garbage data science work due to poor data to begin with. As Cassie Kozyrkov from Google has highlighted, do not hire data science staff without the data and tools they need to work. Many data scientists leave jobs after realising there is not enough data for them to do their jobs.

Data science is in the top 25 most sought after hard skills, according to LinkedIn Jobs for 2019.<sup>76</sup> This skills shortage makes it easier for data scientists to move.

Newer, digital-first companies do not suffer from as much productivity loss on data cleaning; they fix at the source. This is where they gain advantage.

<sup>76</sup> <https://learning.linkedin.com/blog/top-skills/the-skills-companies-need-most-in-2019--and-how-to-learn-them>

Note that transformations are not attractive. There can be issues attracting talent to deal with it.

## 8.4 Lack of decision-making frameworks

Forget poor decision-making frameworks. Many practitioners interviewed found no decision frameworks at all.

In order to succeed in their digital transformations, businesses must unlock decision making bottlenecks. Data decisions are often micro decisions with major implications. A simple metadata framework becomes not so simple when entire systems are built around it.

Not getting the small decisions right can cause long-term implications and rework. Historical trend data is lost when iterative changes are made to data. It can take months or years to rebuild a dataset large enough to work with.

Junior staff are not confident enough in domain expertise to make micro decisions and senior staff are not close enough operationally to lean in. Vendors and partners state they have experienced delegation of business decision-making to them, but they too may not have intimacy with the business roadmap or strategy to decide what is right. This chasm has led to transformation failures.

## 8.5 Missing an effective time for change

Digital transformation is best handled when a business is in great shape. The momentum and stamina must be in place to undertake a successful transformation journey. However, timing is also crucial, as the following two points illustrate.

### 1. Is there permission to start full disruption?

Timing can be a frustrating sync in businesses as the time of peak business health is ideal for taking the plunge into digitalisation if they have not already. Any point beyond this is already late. This may seem paradoxical to traditional business leaders. Why change when performance is high?

When tougher times come, businesses that have undergone digital transformation are prepared. When times are tough it is much harder to deliver change and operational productivity at the same time.

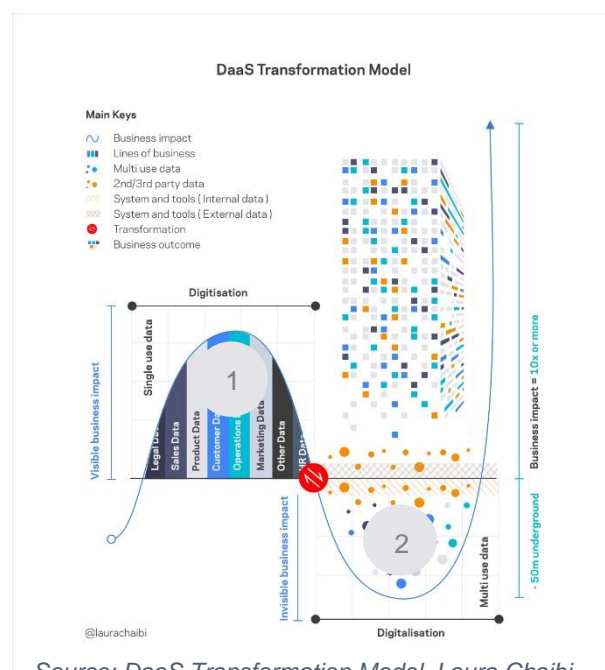
### 2. How long will it take?

Building out the foundations for digitalisation is a phase that can take time and there is low progress visibility. It feels like the business is not getting anywhere as nothing can be seen in the way of business impact while the business transforms.

A high-performing business can weather this and recover quickly. Some businesses may struggle from lack of overall operational efficiency to quickly recover once transformation work is underway.

High-speed data transformation may start to break other parts of business. When this happens, some customers might notice and flock elsewhere.

Figure 19: DaaS Transformation Model



Source: DaaS Transformation Model, Laura Chaibi

As staff take on the extra transformation work to allow for data interoperability, the project can become another added layer of workload and tension if the business is already underperforming or facing difficulties.

## ASOS: A pioneering web brand with transformation issues to scale

In July 2019, ASOS stock had sunk by nearly 60% over the previous 12 months, from £6,256 to £2,033. ASOS sales slumped as clothing stock was not available due to warehousing issues.

*“Execution of our transformational logistics programme has been challenging, but we are clear on the root causes and are moving decisively to address them.”*

— Nick Beighton, CEO, ASOS, Public Earnings Statement, July 2019<sup>77</sup>

## 8.6 Lack of empathy

### Upset staff need active management

Richard Robinson, MD of Econsultancy, says digital transformation is 90% about people and about 10% about technology. Managing staff through change is required as employee happiness and job satisfaction is a critical factor when it comes to transformation success.

People are often scared, lack confidence to deliver and realise the final work outputs they are creating can lead to redundancies throughout digital transformation. A CEO cannot tell the board that slower than expected transformation issues are due to emotional or confidence problems among staff; active change management programmes need to be in place to support this process.

Marketers who are aware of the emotional rollercoaster people go through in digital transformation can better anticipate how to manage them by bearing in mind the following framework.

### 8.6.1 Emotional rollercoaster of data and digital transformation

*Figure 20* illustrates an example the emotional rollercoaster for people working on building out the DaaS Transformation Model through digital transformation. What many people are not aware of is that there are often two stages (if not more, with continuous iterations) to data transformation and the data builders may only be aware of one stage.

#### Many think the digitisation of data is digital transformation

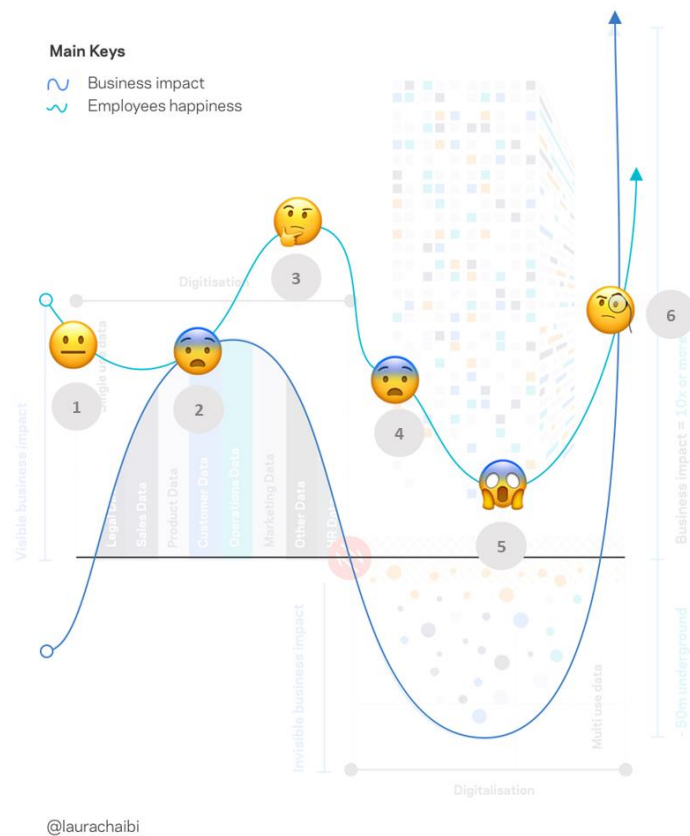
Having to break, rebuild, build even more or start from scratch for digitalisation (DaaS) may come as a great surprise to the people building the solutions with data.

Equally, for marketers who have worked on digital transformation, many early solutions were built from ground zero with external systems, tools and data. It is a great shock to realise this is not a full digital transformation with a sustainable foundation and many have seen marketing solutions tumble as data access is curtailed through changing laws and policies. As a result, many marketers are working towards ‘in-housing’ capabilities built on foundations within the business for sustainable long-term solutions.

The chart in *Figure 20* describes how people often feel through the process. Consider sharing this chart and using it as a point of conversation to identify where staff are and acknowledge what they still need to face. This is especially helpful if staff have never been part of a full transformation cycle before.

<sup>77</sup> <https://www.asosplc.com/~media/Files/A/Asos-V2/reports-and-presentations/P3-19-trading-update.pdf>

**Figure 20: The emotional rollercoaster of data and digital transformation**



Source: Emotional rollercoaster of data and digital transformation, Laura Chaibi

**Table 6: Stage of the emotional rollercoaster identifying how some staff may feel**

Stage	Business stage	Employee Experience
1	Digitisation	Workload doubles as individuals and teams are expected to deliver on their day job and digitise the business at the same time while maintaining productivity outputs.
2	Digitisation done	Data is now electronically captured and automation processes in place. The outcome is either that roles and people change, or that they disappear altogether. A nervous workforce may result from the impact.
3	Digitalisation starts	...Wait, what? After digitising, staff need to transform again, and this may involve radically changing what was just built. Democratise data? This might not have been a business objective before and it will take time to have staff buy into the concept. If purpose is not well articulated, suspicion can set in. High performing business units might resist 'unnecessary change'.
4	Digitalisation in process	Workload triples as staff need to deliver on their day jobs, learn about and accept the benefits of transformation, train for missing skills to deliver transformation and maintain current productivity. This mandate can lead to <b>fear</b> and <b>resistance</b> among the workforce.
5	Digitalisation just before completion of key milestone	Crisis is not uncommon. There is pressure to reach deadlines, and delivery expectations may be unclear as staff are doing things for the first time with little precedent. At this point in the data transformation cycle, where there is the lowest visibility into outcomes (and long build cycle with low business impact), many staff start to question if they should leave or get fired if the completion is not in sight.
6	Reflection	With a digitalisation cycle complete and operational, people feel older, wiser and more experienced. They begin to repeat smarter decisions faster, learn faster and iterate faster. A balance of emotional rigour comes with continual pressure to deliver data rigour.

Source: Emotional rollercoaster of data and digital transformation, Laura Chaibi



When psychological safety is missing, people are less amiable to taking risks. Fear of the repercussions of failure may become an emotional block to productivity. People often leave jobs when they do not feel supported and projects destabilise. Individuals must feel supported through uncertainty and the rollercoaster of emotions during digital transformation. Taking risks and experiencing failure is a necessary part of the transformation process and teams need to be able to positively embrace failure quickly and continue.

Many digital-first companies have mantras such as 'fail forward fast', which means to learn and keep running.

## 8.7 Lack of communication

Communication breakdowns occur, and workplace tensions happen. Many practitioners who were interviewed cited this as a common and correctable issue. They recommend:

- Formalising the planning of communications alongside transformation projects
- Mapping out communications as a business requirement on the business plan
- Explaining the purpose of transformation
- Selling in benefits of change
- Educating and training others
- Where possible, ensuring upskilling and staff security is supported
- Tracking and monitoring communications progress as well as project progress.

Communicating how transformation will happen needs time. Marketers can aid this journey requirement.

Some interviewees stated things typically take much longer than expected. For example, setting up visualisation software and performance dashboards can often take more than six months of back and forth between parties to get the data into a state the way business understands, while it may have been communicated as a four-week delivery estimate.

Communicating with data and low data literacy levels may also be barriers as the rest of the business may have little to no understanding of the marketer's business area and what the data means.

### Marketing internally about digital transformation

"One of the biggest surprises was the amount of communication it took to get this model off the ground. The amount of communication, the time to communicate and communicate again and again, and in another way, and in the same way. I think I completely underestimated that."

— Gerhard Louw, Global Media Buyer, Deutsche Telekom



# 9. Future Possibilities for Data and Marketing

## 9.1 Data and the Fourth Industrial Revolution

Future-conscious CEOs realise the Fourth Industrial Revolution will radically change the role of people in work and workforces. How people work and what will be the domain of humans vs. what is delegated to machines is still to be decided.

Take all the data examples of business data in *Section 3*. Adding human biological data, AI and the ability of computers to replicate human-like capabilities with devices, microscopic sensors and connected devices brings the Fourth Industrial Revolution.

There is equally growing acknowledgement of the responsibility's corporations will have for sustainability and the Earth's natural resources and the biological realm. For the first time in more than 20 years, nearly 200 CEOs in the US signed a new pledge on the responsibilities of corporations to expend their accountabilities to more than shareholders.<sup>78</sup>

### Corporations growing mandates to staff, customers, partners and communities

"Business Roundtable today [August 19, 2019] announced the release of a new Statement on the Purpose of a Corporation signed by 181 CEOs who commit to lead their companies for the benefit of all stakeholders – customers, employees, suppliers, communities and shareholders."

— Business Roundtable<sup>79</sup>

Emerging data examples fuelling the Fourth Industrial Revolution include:

- Data generated by internet-enabled 'things' (IoT)
- Voice data
- Language data
- Human biological data or biometric data
- Spatial data: relational data in space and movement (geo-data, data generated by AR-/VR-enabled systems)
- Haptic/touch data
- Data from nanotechnologies such as sensors placed into single cells in the body
- Automated metadata at scale: text, visual, auditory, sensory, behavioural, emotional, mood, tone and bio metrics.

IDC has predicted there will be an estimated 42 billion connected things by 2025.<sup>80</sup> Data will continue to radically change our world as it is known today.

<sup>78</sup> <https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans>

<sup>79</sup> <https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans>

<sup>80</sup> <https://www.idc.com/getdoc.jsp?containerId=prUS45213219>

## 9.2 Natural language programming (NLP) data

Natural language programming (NLP) data is data generated by and about people and their thoughts, feelings and communications. Marketing and advertising have always focused on understanding meaning behind social constructs and communications, and NLP data is a window into that.

NLP data has unique characteristics, challenges and opportunities. For example, machine learning on natural language data requires vast amounts of data to work out each word's variant use and the context in which it is used. A great example of this in use is Google Knowledge graph, which developers use to enhance SEO.<sup>81</sup> Key areas of NLP data include heuristics and semiotics, which are explored below.

### 9.2.1 Heuristics

Heuristics are human mental shortcuts. Much of heuristics is decoding intuited cultural norms driving behaviour on autopilot (if it is raining outside, bring an umbrella, for example). It is the 'rule of thumb' about situations people automatically follow.

In data science, heuristics is working out possibilities and applying the quickest approximate solutions when there are no direct solutions. 'If X, then Y' is not a direct solution in situational context. Conversational language is situational context. For example, if someone says, "if it is hot outside, I should...?" The responses might include, wear shorts, bring water, put on sunscreen. There is no conclusive relationship between the statement and possibility of answers until more context is given.

Advanced data science, machine learning, AI and natural language programming are codifying these situations and bringing humans and machines closer together. Machines are being programmed to make decisions more like humans grounded in human thinking logic, and illogic. There is a challenge in this called cognitive bias.

#### **Some learned behaviour is biased and ethically concerning**

To teach machines human-like behaviour needs great ethical care. This includes minimising bias about age, gender, race, religion, nationality, income brackets, education and more. Our mental shortcuts are not always inclusive nor kind. Building biased systems can perpetuate more bias and reinforce them with concerning consequences. For example, in advertising, access to communications may be inadvertently filtered, which may be a form of discrimination.

However, bias is also unavoidable. For example, using natural language programming to drive profit and reduce costs is, by definition, taking a biased approach. Some businesses and CEOs are realising the impact of these biases and there is much more to be done to temper them.

### 9.2.2 Data semiotics

In marketing, data semiotics is the complex data covering the interrelationship between culture, language, heuristics and numbers.

This is a deep topic that is moving more into the realm of AI and machine learning. It requires its own report, and expert insights on the topic should be explored for fuller comprehension including exploring ontology, the study of being.<sup>82</sup>

### 9.2.3 Language data for artificial intelligence (AI)

The study of languages (linguistics) has many branches to understand how people communicate, whether it is verbal, written or other forms of communications. There are several key areas of focus that form the systems used to create artificial intelligence (AI) that can communicate with humans, five are

<sup>81</sup> <https://developers.google.com/knowledge-graph/>

<sup>82</sup> [https://perso.liris.cnrs.fr/amilie/enseignements/Ecole\\_Centrale/ontology\\_sowa.pdf](https://perso.liris.cnrs.fr/amilie/enseignements/Ecole_Centrale/ontology_sowa.pdf)

listed below. Programming AI continues to improve as more data is used for machines to learn from to be able to better communicate in a more 'human-like' way.

Language unlike other types of data is not absolute like mathematics, the meaning from language is conditional on sound interpretation, visual cues, social context, norms, traditions and unwritten rules that form a system that humans use to decode meaning to speak to one another. Our learned 'natural' ability to be able to interpret 'what meaning we hear in someone's voice' like an emotion such as anger is possible through the human brain, mimicking this with machines is complex.

Languages also work within the realm of emotions which has historically been the domain of marketers and quite alien to computer sciences. The ability to decode feelings, emotions and human 'irrationality' if happening as more of the world is digitised. Data scientists not only code logical things, but master coding the most illogical things such as implicit meaning within languages (what is meant and not said).

Teaching machines to have human like communication capabilities requires a great amount of conversational data to build solutions from. The five key areas are: semiotics, phonetics, heuristics, syntax and semantics. *This is a greatly simplified summary of how to think about these linguistics frameworks in the context of data and digital transformation underpinning AI.*

- Semiotics is studying symbols and the meaning of the symbols. Language is a form of symbols. Symbols are the data points.
- Phonetics is the way words are pronounced. With so many accents, tones, acoustic variations, and nuances in speech, much of this is raw, unstructured data to a machine until it is codified and structured in a way machines can recognise, store, read and learn from to produce AI.
- Heuristics is studying social context. In the data world this would be the equivalent of the metadata used to give context to a data point.
- Syntax is the governing rules. In the data world, this translates into the logic and rules used to make algorithms.
- Semantics is the underlying meaning and reference behind symbols. In the data and digital transformation process, the models bring all the data, metadata and rules (visible and invisible) together to form multiple meanings is the semantics. These meanings are appended to different situational and relational contexts. *In other words, making human sense or meaning through artificial means (machine learning or AI) enables machines to appear to be able to communicate and deliver human-like interactions and experiences.*

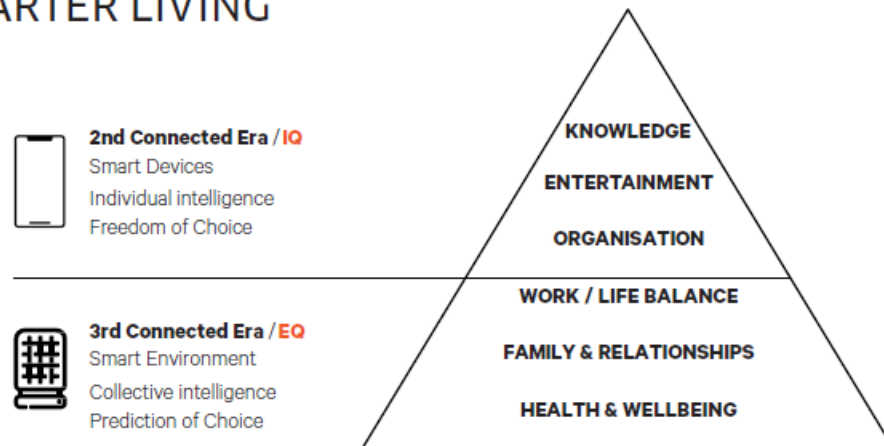
For more information about semantics and machine learning, refer to *Section 11: Further Reading*.

Natural language programming (NLP) data is still in its early stages. While text is being codified, digital transformation data over time will go beyond text and into data covering human emotions, relationships and wellbeing. There is still a long way to go to progress with this data and realise its potential, and careful consideration must be given to the rules and regulations to ensure positive use.

*Figure 21* illustrates that with the adoption of smart homes, data will underpin how machines will move from being intelligent devices in the home, to becoming *emotionally intelligent* devices. The communication between devices and humans will become seamless.

Figure 21: Emotionally smarter living

## EMOTIONALLY SMARTER LIVING



Source: Starcom Futures, *The Future of Connected Living*<sup>83</sup>

### Data and AI training humans to be more sensitive

“Automation and humans need to work together, not one replace the other. For example, in a call centre, using AI to recognise when emotion levels get quite high and quite negative [lets us know] when to step in with a real person.

“I think it is interesting to use AI to train human operatives, to be more sensitive, to be more empathetic. It can go both ways.”

— Daniel Solomons, Digital Transformation Specialist, Byte Behaviour (Google Academy Leader)

## 9.3 Signal data

Signal data is sensor data from any kind of item enabled to send data from one location to another. From fabrics and clothing, through to rooms, surfaces, cars and devices, sensor data is proliferating. The collection and analysis of biodata – signal data generated by wearables, for example – is expected to enable the development of game-changing solutions in healthcare.

### 9.3.1 Ambience data

Temperature, air pressure, humidity and light levels in physical surroundings are all examples of ambience data. This data gives context to situations to make smart IoT devices and experiences. Equally important is new products and services to maximise wellbeing, as seen earlier in the report with Shiseido measuring humidity to personalise makeup products.

Hotels are becoming smarter environments with IoT signal data while the healthcare industry is using ambience data to detect any anomalies. For example, if an elderly person falls in a room, an anomaly detector could trigger a check in on the individual. In general, people have habitual behaviours and so anomalies can be easily detected.

<sup>83</sup> <https://www.starcomfutures.com.au/category/connected-living/>

As mentioned earlier, in Section 2.4, 'nurture marketing', or empathetic communications, will benefit from marketer skillsets and competencies. Marketers can add value when it comes to enhanced communications in AI-supported service-oriented business models to ensure the communications feel human and can deliver relevant opportunities to enhance experiences.

For example, in hotels, the communications within the smart room might include upselling or cross selling services to guests based on the room conditions. Marketers can lead on the curation of these services.

## 9.4 Biometric data

So much signal data has now been created, that some practitioners say that its purpose has moved from that of observation to surveillance (covered in the next section). Biometric data can include:

- Facial encoding
- Fingerprints
- Iris scans
- Voice data
- DNA and biodata

Coupled with personally identifiable data, this creates a very powerful dataset. This level of detailed data is transforming governments, corporations and people. For example, it allows users to complete transactions using biometric data, such as a fingerprint, changing the concept of cash and money.

However, it is also raising great ethical concerns on data and its appropriate usage. Although this data is highly regulated, there is so much data readily available on the internet (such as photos), that controlling its use presents a substantial challenge. Health data records are worth 10 times more than financial data on the dark web or black market.<sup>84</sup>

## 9.5 Surveillance data

Surveillance data is broad and can be as simple as capturing data at regular intervals or in a systematic way through to enterprise level, 24/7 video and image monitoring. This data might allow marketers to audit stock placements, sales and competitors in innovative ways.

Marketers can decode strategies compared to competitors in places where information might be otherwise scarce. For example, by taking photos of shelves in stores, promotions or sales receipts, and digitising, decoding and analysing what is happening at point of sale, marketers can move into near real-time data capabilities to make decisions from.

### Turning photos into auditing data

"Information that previously took several months to procure is now coming in real time. By doing a random sampled data audit, on-site point of sale shelf spaces data is now over 95% accurate. Auditing data can greatly improve accuracy. We are making instant decisions from the data."

— *Pharmaceuticals Digital Transformation Expert*

<sup>84</sup> <https://www.independent.co.uk/life-style/gadgets-and-tech/news/nhs-cyber-attack-medical-data-records-stolen-why-so-valuable-to-sell-financial-a7733171.html>

## 9.6 Dark social data and ecommerce

Dark social data refers to private encrypted activities and communications happening on the web. Dark data includes conversations on messaging services, private stories on social platforms and peer-to-peer interactions. Marketers have little access to this data.

Some of the activities that generate dark data are potentially highly disruptive to businesses, including cross-border commerce. These activities could give businesses insights into how decisions are made by customers and, in some cases, what is being bought through non-traditional channels, but they are encrypted environments and difficult to penetrate.

In Asia, for example, Chinese people overseas are buying and shipping foreign goods back to customers in China with most of the transactions happening only via communications and encrypted ecommerce environments such as WeChat. These shoppers are called 'daigou' and as much of their shopping is on dark social, it is challenging to measure.

### Daigou, dark social cross-border commerce

Daigou, which means 'in place of' in Mandarin, is the name given to those who shop overseas for people in mainland China. Daigou source, secure and ship products to Chinese customers for a profit.

Certain products might not be available, or are more expensive, in China. Product authenticity is a key motivation to Daigou transactions; concern about lax health and safety standards for baby food caused a spike in cross-border commerce in China.<sup>85</sup> Great suspicion about locally made goods and their quality has spurred on daigou, with an estimated 150,000 operating in Australia alone. Transactions and communications are mostly happening in dark social channels such as WeChat with marketing and transacting happening there.

#### The opportunity

Marketers can treat dark social as a new distribution channel. There are an estimated hundreds of thousands of micro distributors using messaging services to market and sell goods. This presents a great opportunity for brands to link and promote their products and influence supply chain movements. Having a B2B2C relationship with daigou can help brands get better visibility and cut out unnecessary middle distributors.

This is an opportunity for brands who gain more cross-border awareness and distribution into countries where they may not be present. However, it is a challenge for brands that do distribute in mainland China. Daigou activity disrupts existing distribution models and distorts supply and demand realities as the goods and services are not used in the place of purchase.

#### Data on daigou is scarce

The New Zealand government is actively working with daigou to help support local businesses getting their products into China.

— New Zealand Trade and Enterprise<sup>86</sup>

<sup>85</sup> <https://www.marketplace.org/2018/10/24/foreign-infant-milk-formula-still-highly-coveted-china-10-years-after-melamine/>

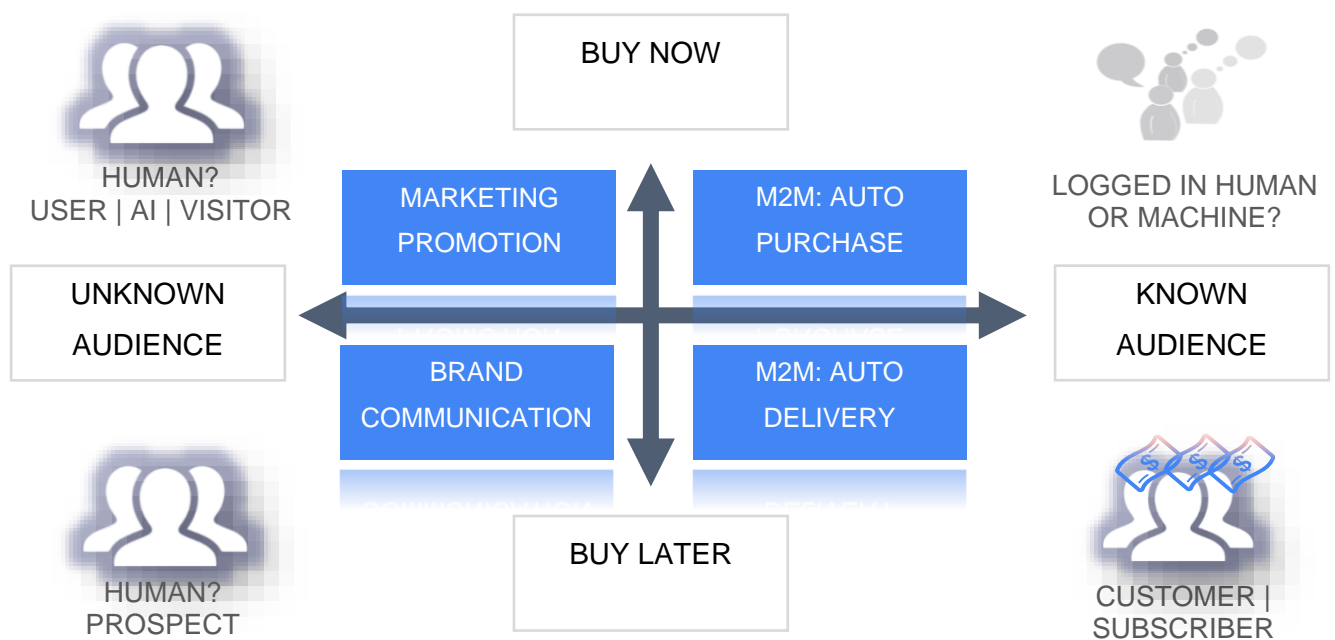
<sup>86</sup> <https://www.nzte.govt.nz/export-assistance/selling-online-overseas/making-sense-of-the-daigou-channel/>

## 9.7 Marketers and future marketing with data

Marketers will continue to rely on data along with the rest of their businesses. With further automation and growing artificial intelligence capabilities, marketers need to imagine how the marketing function and necessary competencies and skills will change.

Influencing a buying journey where part is human and part might be machine will be the new paradigm. Marketing skills will need to adapt to changing buyer behaviours and machine-enhanced capabilities. The main principles of the intersection between consumers buying stages and whether they are a known or unknown audience will be consistent as seen in *Figure 22*.

**Figure 22: Marketing quadrants of the future: brand, promotions, auto purchase and auto delivery**



Source: Laura Chaibi

### What is not changing

Marketers will aim to move audiences into a known relationship with brands from a benefit-led perspective while more consumers might opt for privacy at the same time. What is not changing is that customers will continue to be in different states of relationship with brands and purchase cycles.

What will change, however, is the level of automation and digitally-enabled infrastructure that the consumer has access to in their daily lives. Access to data is a battleground and growing capabilities to delight customers and win over their data in exchange for benefits will continue. The types of data might be more complex and have a personal component, such as biometric data, and so it may be more challenging to access and manage them.

### 9.7.1 Persuasion to switch brands

Marketers will have to figure out how to get consumers to default to the brands they represent. Consumers will be able to set up auto-purchases and getting the brand of choice swapped out will become difficult once the first brand choice is locked in. An example might be having a washing machine with a detergent holder that is able to automatically order new detergent when the amount gets low. Once the brand is in place, the consumer can forget about choice. This will be a new challenge for the marketer.



Product sampling and trials might make a comeback as machine-to-machine (M2M) auto-purchasing becomes more prevalent. Having data in the moment of setting up an automatic order and purchase trigger data will continue to be important.

For example, when a fridge is programmed to order more yoghurt, a sample brand may need to be sent to the customer by means of a trial. As more biometric data is captured and used, a marketer might also get to know if the person or household has allergies to nuts and so start to send nut-free samples, for example. As consumers become differently enabled with enhanced AI and smart devices around them, so too will the marketer become differently enabled to communicate.

### 9.7.2 Creativity to secure unique data

Brands focusing on DaaS will know the right time to send product updates, enhancements or replacements with M2M auto delivery.

For brands with long windows in between purchases, keeping loyalty through service remains key. Collection of data about drivers of satisfaction with service and personalisation will continue. With enough data, it is possible to get timing right with, for example, subscription services of cars, which could send snow tyres or new windscreen wipers at the moment of need, seamlessly. Marketing prowess will be key to creatively finding ways to get consumers to give over data for benefits in exchange.

### 9.7.3 Branding comeback

Marketers spend a lot of time and effort on search. Search has historically offered virtually infinite possibilities in response. However, voice-powered searches on devices without a visual aid will offer just one result. Whereas the brand could survive by appearing on the first page of search results, as it would still get a share of leads, it will now have to master the technology and understand how to be the one brand response to a question posed verbally. This means marketers may need to return their focus to branding to ensure their company is 'the only brand for me' for customers with voice command services.

Marketers will need to understand how smart voice command devices make decisions and then find ways to make the voice output choose the brands they represent. There is no room for second place and a dominant brand might naturally get the lead response output from these devices.

### 9.7.4 Promotions levers and walled gardens

The most challenging data areas are where marketers have little to no visibility. Working with walled garden ecommerce companies is not like working with physical stores where brands can audit why sales are underperforming.

Marketing promotions are a major business lever. Promotions influence purchases in relation to supply chain management. Moving stock needs to be in line with expectations, particularly with publicly traded companies and earnings projections. Therefore, losing promotions levers is like losing control of supply chain management.

Marketers will need to pivot promotions strategies to win sales at intended points of time while still having access to data to aid decision making. The good news is that in the EU there are already regulations coming to help better understand inside digital platforms and bring marketplace transparency. The EU Digital Single Market initiative states: *"When consumers search online, they will be clearly informed when a search result is being paid for by a trader and online marketplaces will have to inform about the main parameters determining the ranking of the results."*<sup>87</sup>

Marketing will continue to evolve and adapt with the changing opportunities that digital transformation and data create. Being open, agile and continuing to learn will be key to the ability to thrive.

<sup>87</sup> <https://ec.europa.eu/digital-single-market/en/new-eu-rules-e-commerce>

# 10. Conclusion

Exponential volumes of data will continue to be created in the foreseeable future, and the aim will be for data to be made much simpler, more meaningful and accessible to all parts of businesses.

More human-related data will be collected, and physical, biological and digital worlds will continue to mesh. Transformation is an ongoing journey with more data discovery and the Fourth Industrial Revolution will radically change the way people live and interact with technology and biology.

Fundamentally, digital transformation depends on data and metadata collection.

The key takeaways from this report are as follows:

- Marketers must understand the main characteristics of data:
  - Where it comes from
  - Its quality
  - Its purpose
  - The context is it made from outlined in the 10Vs outlined in *Table 5*.
- Data transformation is a human journey:
  - Humans transform data for human purposes
  - Data must be electronic and ideally collected for many uses from the start
  - Mindsets, skillsets and datasets all need to align
  - Successful journeys start from top down; leadership and culture are paramount.
- Data management needs a higher level of rigour:
  - Data architecture and strict metadata management must be set
  - Governance and policies must be set
  - There must be considerations of privacy and ethics as more personal or biological data is collected
  - Matrixed partnering with tools, systems, tech and data vendors is set to grow. Having an operating model in place for all vendors to work together speeds up productivity.
- Digital transformation shows no signs of plateauing.
  - Data science roles and functions will continue to evolve as technology advances. A diversified team needs to collaborate and understanding good communication is vital.
  - The DaaS model is a tool to help explain the transformation process for data as well as the human impact of data transformation.
  - As laws evolve, businesses will need to react quickly to legal changes. Being digitalised, businesses can pivot and respond more readily.
- There are many time-saving tips that can help guide marketers through data transformation. However, these are likely to continue to evolve.
- [Keep learning](#), while leaning on strong foundations and networks.

# 11. Further Reading

**Internet Advertising Bureau (IAB) internet and data definitions**

<https://www.iab.com/insights/glossary-of-terminology/>

**MaRS: Data as an intangible asset**

<https://learn.marsdd.com/article/accounting-valuation-of-it-or-intangible-assets/>

**DOMO: CMO's new MO**

<https://www.domo.com/learn/report-marketings-new-m-o>

**Gartner: In search of marketing balance**

<https://www.gartner.com/en/marketing/insights/articles/gartner-predicts-2019-in-search-of-balance-in-marketing>

**IDC: Data to 2025**

<https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf>

**Big Data: Data Science Libraries**

<https://bigdata-madesimple.com/top-20-python-libraries-for-data-science/>

**Top 5 Analytics tools**

<https://towardsdatascience.com/top-6-data-analytics-tools-in-2019-4df815ebf82c>

**Tech HQ: Five types of digital transformation**

<https://techhq.com/2019/04/the-five-types-of-digital-transformation/>

**Spencer Stuart: CMO Churn**

<https://www.spencerstuart.com/research-and-insight/cmo-transitions-the-shuffle-continues?>

**Modern Retail: Direct-to-consumer models**

<https://www.modernretail.co/platforms/its-safer-to-sell-pickaxes-than-mine-for-gold-new-infrastructure-companies-are-capitalizing-on-the-dtc-boom/>

**Deloitte: digital transformation demystified**

<https://www2.deloitte.com/insights/us/en/focus/tech-trends/2019/beyond-digital-frontier.html>

**Harvard Business Review: Digital transformation is not about technology**

<https://hbr.org/2019/03/digital-transformation-is-not-about-technology>

**2020 technology and media trends**

<https://www.slideshare.net/ActivateInc/activate-technology-media-outlook-2020-185417815>

**Research World: Big data and semiotics: big answers powered by meaning**

<https://www.researchworld.com/it-is-time-for-revelations/>

**Alexa Blogs: Machine translation accelerates how Alexa learns new languages**

<https://developer.amazon.com/blogs/alexa/post/7dde86fa-0a4f-4984-82d1-7a7d1282fb0c/machine-translation-accelerates-how-alexa-learns-new-languages>

**Evaluating speech-based smart devices using new usability heuristics**

<https://hci.stanford.edu/publications/2018/speech-he/speech-heuristics-ieeeepvc-20180406.pdf>

**Econsultancy blog: What machine learning and semiotics can reveal about a brand's values**

<https://econsultancy.com/machine-learning-semiotics-reveal-brand-values/>

**Syntactic and semantic checking**

[https://docs.oracle.com/cd/B10501\\_01/appdev.920/a97269/pc\\_adchk.htm](https://docs.oracle.com/cd/B10501_01/appdev.920/a97269/pc_adchk.htm)

**How AI learns language**

<https://www.engadget.com/2018/11/01/ai-can-learn-language-the-way-children-do/>

# Appendix

## 11.1 Data literacy questionnaire

The questionnaire below is a simple framework encompassing the EU data literacy definitions to measure levels of data literacy. Self-assessments of perceived data literacy gaps can help businesses work out a data literacy plan and measure before / after perceptions of data literacy confidence.

Thank you for investing time in your skills. This assessment is for you to gauge your confidence with data.

The purpose is to support you with further training and strengthen your data literacy.

***There are no right or wrong answers, it is your data literacy journey.***

### Data uses

What kinds of tasks are you using data for?
What are the most beneficial pieces of information/data you receive to be able to do your job?
What data systems do you know/use? (e.g.: Google Analytics, Sprinklr, Facebook Analytics, YouTube analytics, campaign analytics, Tubular Labs etc.)
What would you like to do more of with data?

### Data confidence – before and after data literacy development plan and training

On a scale of 1 to 10, 1 being **not confident at all** and 10 being **extremely confident**, how do you rate yourself for the following statements?

Reading data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Organising data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Evaluating data for success										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Explaining data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Manipulating data (like changing to %, averages, or combing metrics to make new ones)										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Requesting data (from someone else – like benchmarks)										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Creating goals based on data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Evaluating competitor data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Evaluating own performance data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Proposing new performance data metrics										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Manipulating data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Applying statistics to data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Creating data algorithms										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Running machine learning with data										
Before	1	2	3	4	5	6	7	8	9	10
After	1	2	3	4	5	6	7	8	9	10

Source: Data Literacy Self Evaluation, Laura Chaibi



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