



**PROFUSION**

# The Chief Data Officer

Today, Tomorrow, Always?



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# A. Foreword

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We are delighted to launch this new report into the role of the Chief Data Officer in today's market. The subject provides a platform and context from which to explore perspectives on data, digital and transformation in both the public and private sectors.

We include an important section covering the key terms under consideration including digitization, digitalization and datafication - together with definitions of the Chief Data Officer role as developed by a range of third party consultancies and vendors.

Please also note the dedicated supplement exploring the state of preparedness for, attitudes toward, and anticipated impact of, GDPR. We believe that GDPR is an important milestone in the evolution of the digital economy, serving to address increasing societal unease around personal data practices, and also that it offers a platform for innovative permissioned data applications.

The report has been built from two main components:

- Extensive secondary research
- Primary qualitative research

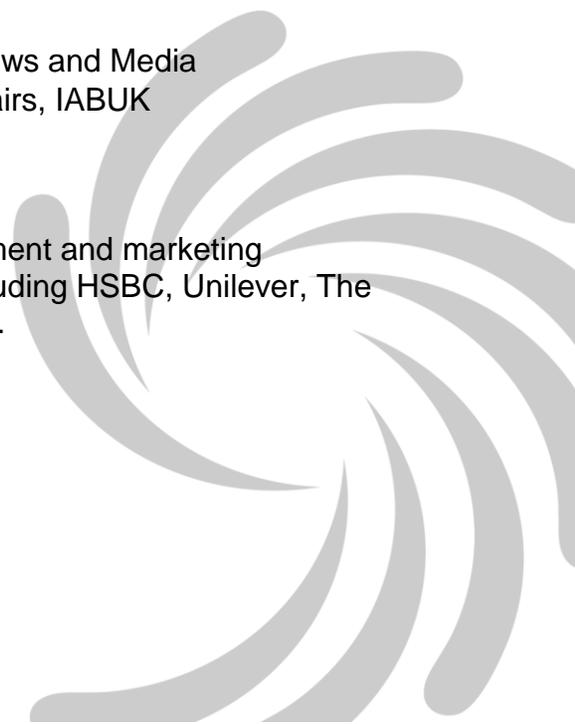
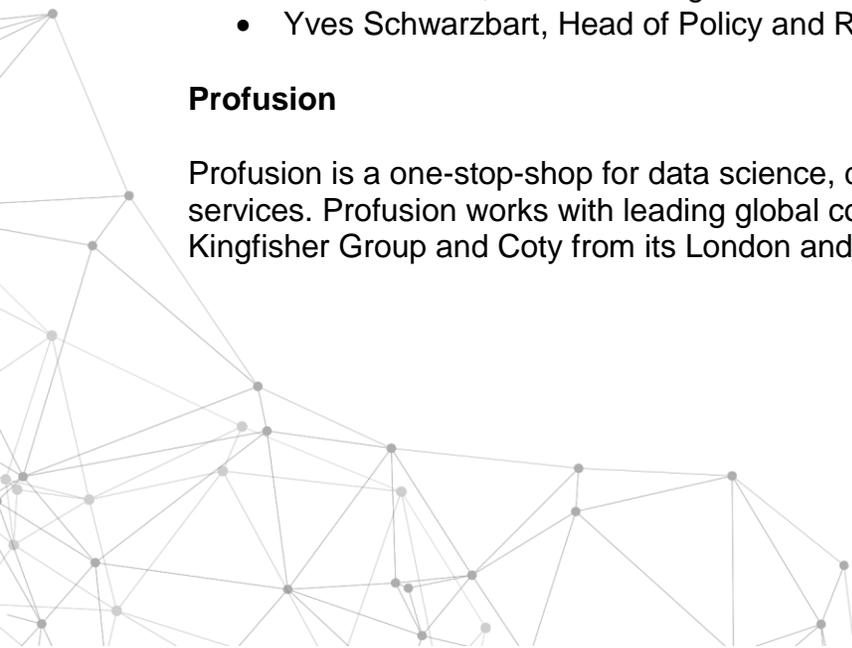
We are profoundly grateful to our research participants for giving up their time – for extended telephone interviews – and for generously sharing their distinctive perspectives on the market

## List of participants

- Michael Abtar, CEO and Principal Consultant, IG Smart
- Catherine Brien, Data Science Director, Cooperative Group
- Darren Cairns, Digital Consultant
- Jamie Graves, Chief Executive, ZoneFox
- Iain MacMillan, Digital Consultant (Personal capacity)
- Henrik Nordmark, Head of Data Science, Profusion
- Craig Patton, CEO, Hydration (Personal capacity)
- Aingaran Pillai, CEO and Founder, Zaizi
- Laura Scarlett, Data and Insight Director, Guardian News and Media
- Yves Schwarzbart, Head of Policy and Regulatory Affairs, IABUK

## Profusion

Profusion is a one-stop-shop for data science, data management and marketing services. Profusion works with leading global companies including HSBC, Unilever, The Kingfisher Group and Coty from its London and Dubai offices.



## B. Why?

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While we would always urge caution<sup>1</sup> regarding the precise forecasts made for the future of data and analytics the sheer weight of expert opinion and research strongly signals the strength of global trends that are, and will, impact on all organisations and individuals.

### In 2013 IDC:

- Predicted the data universe would grow 300 fold (2005-2020) to **40 trillion** gigabytes<sup>2</sup>
- Estimated that less than **1% of this data** is currently being analysed<sup>3</sup> with only **3%** currently tagged
- **25%** of the data universe is considered potentially valuable – rising to **33% in 2020**
- They expect growth in the share of data requiring protection – from **33%** in 2010 to **40%** by 2020
- Estimated that only **20%** of data was effectively **protected** as of 2012
- By 2020 **40%** of all data will be touched<sup>4</sup> by the cloud – with circa **15%** maintained in the **cloud**

### In 2017 IDC were reporting:

- That the data universe would have grown to **163 trillion** gigabytes by 2015 – from **16** in 2016<sup>5</sup>
- That an *average* connected person will by 2025 interact with a connected device **every 18 seconds**
- That **25%+** of global data in 2025 will be real time in nature of which **95%** will be real time IOT data
- By 2025 the share of global data analysed will have **grown** by a factor of 50
- By 2025 the share of global data touched by cognitive systems (ML, NLP or AI) will **grow 100 fold**
- By 2025 **90%** of global data will require protection but less than half will be secured

There were more than **2bn** records stolen in data breaches in 2016.<sup>6</sup> While Yahoo alone, in December 2016, reported the loss of **1bn** data records (in a 2013 breach).<sup>7</sup>

**77% of FTSE 100 executives** say data and analytics is the most important tech trend of next **3 years**<sup>8</sup> (followed by IOT, cyber-security, AI and automation, Blockchain and VR/AR)

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<sup>1</sup> [https://www.theregister.co.uk/2017/04/05/seagate\\_sponsors\\_refashioned\\_idc\\_digital\\_universe\\_blather/](https://www.theregister.co.uk/2017/04/05/seagate_sponsors_refashioned_idc_digital_universe_blather/)

<sup>2</sup> <https://www.emc.com/collateral/analyst-reports/idc-the-digital-universe-in-2020.pdf>

<sup>3</sup> A phenomenon seen at the state-of-the-art CERN research centre – where a fraction of 1% of data is stored for analysis

<sup>4</sup> meaning that a byte will be stored or processed in a cloud somewhere in its journey from originator to disposal

<sup>5</sup> <http://www.seagate.com/www-content/our-story/trends/files/Seagate-WP-DataAge2025-March-2017.pdf>

<sup>6</sup> <http://www.thecsuite.co.uk/ceo/information-technology-ceo/the-biggest-data-breaches-of-2016-should-have-been-prevented/>

<sup>7</sup> <https://www.theguardian.com/technology/2016/dec/14/yahoo-hack-security-of-one-billion-accounts-breached>

<sup>8</sup> <https://www.dwf.law/news-events/promotions/2017/05/city-of-london-blueprint-for-growth/>

## C. CDO – Executive Summary

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This research was undertaken to provide actionable advice and insight to all businesses regarding how datafication and the role of the Chief Data officer will shape their future. Broadly, we uncovered ten key findings:

1. If the prevalence of Chief Data Officers at the FTSE 100 C-Level is a proxy for datafication then **UK PLC is a long way behind the *international competition***
2. **Most UK CDO roles are currently operating below the C-Level** but this is not always unwelcome as the understanding, definition and specification of the role develops
3. We are positioning **datafication as a critical phase of organisational development**, distinct from digitalisation and with far greater reach and implications
4. The relationship between digitalisation and datafication is not always as symbiotic as may be assumed – **data governance and agile working practices can be uneasy partners**
5. Today's operating environment also features a **major crisis of popular trust and confidence** which all **data processing organisations should seriously consider** in developing their data practices
6. While we believe in the importance and potential of **the CDO role it must not be regarded as a panacea for all operational challenges** around data management and optimisation
7. **There is no single off-the-shelf model for effective datafication** – each organisation must develop the right model or process relative to their circumstances, constraints and culture
8. **Datafication is a complex challenge requiring time**, resources and resilience – typically blending internal and external expertise – and will benefit from multi-speed solutions to grow and sustain support
9. **Datafication demands new ways of thinking and working**, hypothesis driven enquiry and evidence based decision making shouldn't be controversial, but are always easier to preach than to practice
10. **Regulations** such as Open Banking and the GDPR together with political realities such as **Brexit**, (public sector) **austerity**, and slow economic growth **add urgency and importance** to the challenge

Each chapter deals with these findings and offers key takeaways that can help shape your thinking and business strategy.

We've also compiled a supplement focusing on GDPR – a pressing regulatory issue which **represents an important and welcome stage in the maturation of the digital economy and especially the approach to personal data management and processing.**



# 1. Introduction

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We hope you find this short paper an interesting and useful contribution to the body of literature addressing the emergence of the Chief Data Officer role. This reshaping of the C-Level is intended to both drive, and to signal, the transformation (or datafication) of today's leading organisations.

We have examined the prevalence of Data Officer C-Level roles in the FTSE 100 and found only a very limited representation of this or similarly transformative roles.<sup>9</sup> It is clear that the majority of UK roles are today operating below the C-Level. It is also clear that this is not always unwelcome, especially as the appreciation and understanding of the role continues to evolve in tandem with the skillset required.

As an independent data science consultancy, Profusion is fully focused on the myriad applications of data to drive organisational efficiencies, performance and growth. In our market discussions we see a wide range of organisational structures in play. We also see significant differences in data management, architecture and focus, as well as across the teams and individuals responsible for developing a coherent data strategy.

This report uses the emergence of the Chief Data Officer as a proxy for commitment to and progress toward datafication<sup>10</sup> in the UK economy. In doing so we have explored the relationship between digitalisation and datafication. The distinction between the two domains being reflected at the C-Level by the two CDO roles in play today - the Digital Officer and the Data Officer.

This perspective is consistent with our experience at Profusion where it is not unusual to see digital pioneers struggling to make the leap toward effective data management and optimisation.

Continuing to use the CDO role as a proxy for datafication we have explored the prospects, and the necessary ingredients, for the Data Officer to succeed in different organisations while also exploring the anticipated longevity of the role. That there is limited confidence in the prospects for CDO success speaks to an insider appreciation of the depth of the cultural and change management challenge.

Perspectives on the longevity of the CDO role reveal key differences between external advisors and internal operators. In simple terms you might say that where one sees a discrete project the other sees a business strategy. At another level it highlights different understandings of digital and data and their inter-relationship.

Our research has benefited from privileged access to some of today's leading data practitioners.

Their views on the key responsibilities, skills and priorities of the Data Officer provide an interesting complement to the wider literature on the subject. They also serve as valuable practical guidance for any organisation looking to develop their data strategy (with or without a Data Officer).

The timing of this report is significant.

**January 2018** will see the full implementation of new Open Banking standards in the UK.<sup>11</sup>

**May 2018** will see the implementation of the General Data Protection Regulation (GDPR).<sup>12</sup> As such we are surely approaching the very last chance to secure scarce resources for investment in

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<sup>9</sup> See for example - PeopleTech 2016 Research into UK Digital Officers across the FTSE 100

<sup>10</sup> Defined as simple terms as the process of turning an existing organisation into a data backed organisation

<sup>11</sup> <http://www.computerworlduk.com/applications/is-2017-year-that-open-banking-becomes-reality-in-uk-3653824/>

<sup>12</sup> <https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/>

compliance. Our research confirms what many surveys are telling us. Levels of awareness let alone preparedness remain alarmingly low across the economy.

**April 2019** will, as things stand, see the UK leave the EU, thus completing the Brexit process. This prospect alone should act as a critical stimulus for datafication to drive the competitiveness of the UK economy. Yet our research highlights the key challenge here – access to global talent and skills.

Into the wider political and regulatory context we can add public sector reforms and austerity.

The continued focus on reducing public expenditure, and the implications for public service delivery, provides another key driver for datafication. It is no coincidence that we see significant CDO recruitment activity across government departments and agencies today.

Thus we see **four key drivers** pushing data strategy ever higher up the priority list for organisations.

In doing so we hope to make it clear this is not a binary choice. You cannot prioritise efficiencies, productivity, innovation or growth over and above a data strategy. Today your data must be integral to addressing these challenges holistically, informing every part of your strategy and improving decision making at all levels.

These new and disparate data flows will need to be managed, stored, analysed and integrated effectively to add new value to organisations. They will also require a clear ethical stance on how data is managed, stored, and used by the organisation and how this is communicated to customers and stakeholders.

Acknowledging these challenges, within our appendices we have taken a look at issues around trust in relation to the digital economy, an extensive look at preparations for, and thinking around, GDPR, together with an exploration of the role of data and datafication in driving UK global competitiveness in a post-Brexit economic landscape.

Critical to success will be the ability to identify which data streams are most important to an organisation – in doing so we move from a 'Big Data mindset' to a 'smart data focus'. The objective being to get the right data to the right people at the right time and in the right way – and that requires a fit-for-purpose data architecture able to effectively combine data-in-motion with data-at-rest.





## 2. The Textbook Chief Data Officer

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*“It is not a transformational role, it is a foundational role to provide, inform and enable transformation. I think the CDO is going to be the powerful function that will enable the kind of transformation that has not been possible in the past”*

James Arnott, Partner, CapCo

Before we move ahead to discuss the findings from our primary research we thought it would be helpful to explore some of the descriptions of the Chief Data Officer’s role and responsibilities that are currently in the public domain – together with the ideal personality attributes.

While there is a huge amount of commonality in the published descriptions of the role, where we do see differences they include how central **business strategy and innovation** are to the overall position.

The quote at the top of the chapter is taken from a report<sup>13</sup> that clearly demonstrates the split in views on this issue – between an active innovation driving role and a passive data management or governance role – the *Yin and Yang* of the Chief Data Officer as we will hear it referred to.

Other areas of difference include:

- The understanding of the role as a **permanent** addition to the **C-Level team** or a **temporary** elevation signalling a commitment to transformation to stakeholders.
- Many commentators (for example)<sup>14</sup> from a technical background tend to present a set of technical challenges with **little reference to the scale of the organisational and cultural challenge**. Change management is a specialist discipline in its own right of course but winning the cultural and resource battle at the C-Level requires an expanded skillset and perspective.
- Extending from the reference to business strategy above we see differences in terms of the **depth of data expertise and technical skills expected of the Data Officer**. We believe it is critical to success that the Data Officer has sufficient domain knowledge to establish credibility – but that they should not be deployed against operational issues but focused on strategic and transformational tasks.
- Finally, we see clear differences in terms of the **orientation of the role**, whether **internally** focused or **externally** facing. Such is the pace of development in the market we believe it is critical to success that the CDO should be significantly engaged with wider market, exploring best practice, new technologies, the *art of the possible* and more.

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<sup>13</sup> <https://www.raconteur.net/data-economy-financial-services>

<sup>14</sup> <https://www.uniserv.com/en/company/blog/detail/article/roadmap-to-digitalisation-the-role-of-a-chief-data-officer/>

The *art of the possible* is a recurring reference point in our research discussions, it's a wonderfully evocative phrase, with deep roots in political discourse. In our context, it speaks to the emergent nature of data applications, the challenges of delivery in the face of cultural, technological and resource challenges and the skills required to navigate these challenges while *getting things done*.



## 2.1. Data Officer Definitions

### How is the role of the Chief Data Officer typically defined?

KPMG<sup>15</sup> refer to the responsibilities and accountabilities of the role:

*“The CDO is a C-Level executive responsible for the organisation’s data management and governance and for establishing and integrating data and information policies in the company. As such the CDO is a pivotal figure in aligning a company’s data and information strategy with its overall business strategy...The CDO is **accountable for designing and implementing strategies that enable an organisation to acquire manage analyse and govern data.**”*

KPMG

DHR<sup>16</sup> refer to the CDO mission:

*“The CDO’s mission is to **create a data-driven culture** where accurate information is gathered ethically, shared widely and used to grow revenue and cut costs.”*

DHR

While Bill Schmarzo,<sup>17</sup> CTO at Dell refers to the CDO charter as being to:

*“**Acquire, enrich and monetise** the organisation’s data (and associated analytics).”*

Bill Schmarzo, CTO at Dell

Wolfgang Martin at Uniserv<sup>18</sup> says:

*“The CDO is responsible for introducing and **promoting digital transformation** by digitising the company’s information management. In particular this means collecting, managing and protecting data and turning it into **monetary value.**”*

Wolfgang Martin, Uniserv

He goes on to differentiate between the CIO and CDO such that:

*“The CDO motivates and **initiates the use of data within specialist departments** and most of all has a **horizontal view** of data across or through all of these departments and functions.”*

Wolfgang Martin, Uniserv

<sup>15</sup> <https://assets.kpmg.com/content/dam/kpmg/nl/pdf/2016/advisory/Chief-Data-Officer.pdf>

<sup>16</sup> [http://38.101.94.41/Public/CDO\\_Whitepaper.pdf](http://38.101.94.41/Public/CDO_Whitepaper.pdf)

<sup>17</sup> <http://www.cio.com/article/3130334/analytics/chief-data-officer-toolkit-leading-the-digital-business-transformation-part-i.html>

<sup>18</sup> <https://www.uniserv.com/en/company/blog/detail/article/roadmap-to-digitalisation-the-role-of-a-chief-data-officer/>

While PWC<sup>19</sup> say that the CDO is charged with:

*“Establishing and maintaining **data governance, quality, architecture and analytics** - enabling organisations to harness information to manage risk and create revenue generating opportunities.”*

PWC

PWC emphasise that the CDO should act as an **enabler within an organisation**. Enabling the organisation to enhance the customer experience, to navigate shifting and growing regulatory demands, to drive innovation and disruptive change, and to reduce costs and redundancies (arising from duplication).

A view supported in Experian<sup>20</sup> research:

*“The CDO is not the sole individual responsible for data within an organisation; he or she should be **regarded as an enabler**...Ultimately the management of data should be a corporate wide responsibility with the CDO spearheading its enablement.”*

Experian

O'Reilly,<sup>21</sup> seeing numerous implementations of the role across different organisations (in 2015) refer to the core responsibilities that they have seen as common to these different manifestations as being:

- **Centralisation** (of data assets, management and governance)
- **Evangelisation** (inspiring a positive data culture with a compelling vision and actionable strategy)
- **Facilitation** (or enablement, making it happen)

And Gartner<sup>22</sup> provide six recommendations for the CDO task list:

- Create an enterprise information management strategy based on the organisations business strategy and predominant value discipline
- Work tirelessly to build trust with various business stakeholders, especially the CIO
- Educate senior leaders and peers about the role that data and information play in overall business success
- Establish baselines on information governance and data monetisation from which progress can be measured
- Tie quantifiable information metrics to quantifiable business KPIs to demonstrate tangible success
- Adopt formal information asset measures and share them with the organisation

<sup>19</sup> <https://www.pwc.com/us/en/financial-services/publications/viewpoints/chief-data-officer.html>

<sup>20</sup> <https://www.edq.com/uk/resources/infographics/rise-of-the-data-force/>

<sup>21</sup> [www.oreilly.com/data/free/understanding-chief-data-officer.csp](http://www.oreilly.com/data/free/understanding-chief-data-officer.csp)

<sup>22</sup> <http://www.gartner.com/newsroom/id/3190117>

While KPMG provide a list of the key skills required of a CDO as follows:

Strategic Thinking

Tech and Data Architecture

Enterprise Data Management

Predictive Analytics

Value Seeker

Curiosity for and alignment with  
Innovation Initiatives

Organisational Change Management  
Capabilities

Knowledge Builders<sup>23</sup> contrast expectations of the CDO role, with what a CDO would like to be doing and then with what the CDO is often likely to actually be doing. It's an instructive approach:

#### **Expectations of the role:**

- Facilitate more strategic use of analytics across your organisation
- Promote the usage of data to drive revenue, improve process efficiency, and help achieve business goals
- Create a culture that is data-driven, where information becomes an integral part of day-to-day operations
- Educate the CEO and the board about the supporting technologies you'll need to be successful – if they know what Hadoop is, and understand the benefits, they'll be more likely to fund your efforts

<sup>23</sup> [http://www.datainnovationsummit.com/assets/whitepapers/WP\\_4actions\\_CDO\\_final.pdf](http://www.datainnovationsummit.com/assets/whitepapers/WP_4actions_CDO_final.pdf)

## Desired activities – Game Changing Approaches

*“Establish predictive and prescriptive analytics as an important part of the executive decision-making process, tap into the massive volumes of unstructured data you have in your enterprise. Data governance programs should also be created to ensure that trusted, high-quality data flows throughout your organization.”*

## Likely activities

*“In reality, you’re probably spending the bulk of your time building dashboards for executive management, making decisions about new technologies (and probably implementing those technologies just for the sake of it), and managing an existing team of business analysts, or engaging in other tactical tasks. **While these are important, they won’t dramatically impact your company’s bottom line or transform the way you operate.** They’re simply tweaks or moderate improvements to the way things have always been done.”*

Knowledge Builders go on to propose the following four key steps for the CDO to focus on in their first year (which is quite an inbox for any new incumbent):

- 1 **Increase analytics availability**
- 2 **Transform the corporate culture**
- 3 **Monetise your data**
- 4 **Promote data governance**





## 2.2. Preparation and challenges

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PWC also make it very clear that any organisation must prepare the ground for the arrival of the CDO, they must ‘*set the stage*’ to promote buy-in for the CDO office, not least within the C-Level but also by deploying a wider stakeholder engagement model.

They also refer to some of the many challenges facing the CDO including funding, scepticism, recruitment, scope, tech/IT barriers and the need for a long term focus (as the full scope of benefits takes time).

While KPMG recognise the scale of the cultural and political challenge:

*“The CDO role is a relatively new one and **not yet well established and accepted in organisations**. This may easily lead to tensions with other C-Level roles...In this setting we expect that the 1st generation of CDOs will struggle and only a few of them will be successful.”*

KPMG

This is a hugely important point, and one that we will return to during our research discussion.

It speaks to some fundamental challenges surrounding the role, including the importance of resourcing and ‘stage setting’ but also the definition and understanding of the role, clarity of objectives – and, therefore, the measures of success - and the relationship with peers at the C-Level.

When starting to consider the cultural challenges involved, it is worth noting the following point at this early stage in our enquiry:

*“Many leaders fail in their efforts to build a data-driven culture because they focus too much on logic and not enough on emotion... Logic makes people think, but emotion makes them act.”<sup>24</sup>*

John Weathington, President/CEO of Excellent Management Systems.

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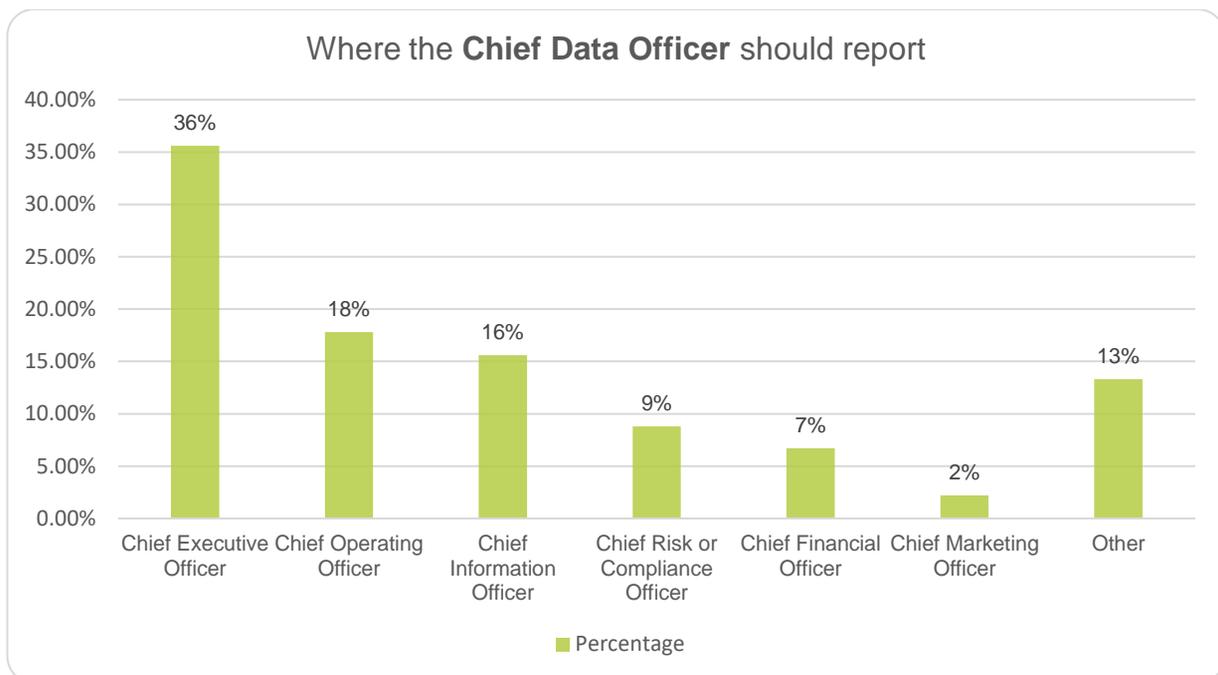
<sup>24</sup> Weathington, John. “How to Build a Data-Driven Culture With Emotion,” TechRepublic, June 2016



## 2.3. Positioning of the role

Key to sustaining a strategic focus is the positioning of the Data Officer role within the organisation.

**(US) Research from New Vantage Partners<sup>25</sup>** shows that almost 36% of respondents felt the CDO should report directly to the Chief Executive, while 18% preferred the COO, 16% the CIO, 9% Risk/Compliance and 7% Finance, 2% Marketing and 13% other.



*Big Data Executive Survey, NewVantage Partners 2017*

While such a spectrum demonstrates the relative immaturity of the role it is certainly encouraging that the majority of respondents are taking a broad organisational perspective rather than housing data within digital, IT or marketing for example.

Other research, for example from PWC, has highlighted the prevalence of the COO reporting line and endorsed this as affording the opportunity for organisation wide integration.

KPMG have looked at a range of reporting lines across the C-Level but also reflected on how the CDO can inform and support all other C-Level roles as follows:

<sup>25</sup> <http://newvantage.com/wp-content/uploads/2017/01/Big-Data-Executive-Survey-2017-Executive-Summary.pdf>

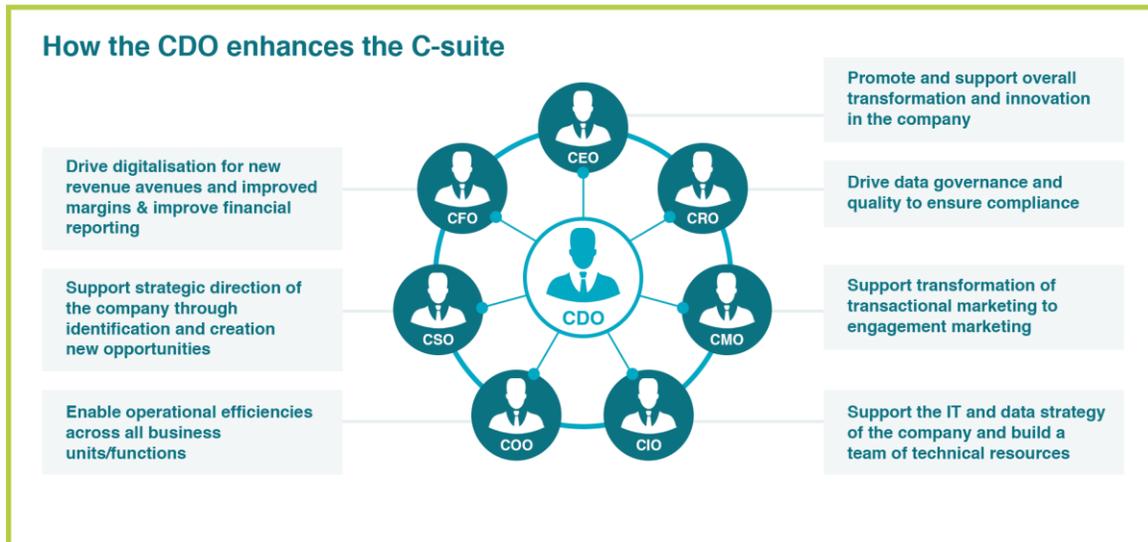


Image: KPMG The Chief Data Officer: A Welcome Addition to the C-Suite 2016  
<https://assets.kpmg.com/content/dam/kpmg/nl/pdf/2016/advisory/Chief-Data-Officer.pdf>

**So there is no simple, universally applicable answer to the ideal positioning of the role,** what is clear is that to generate and sustain the positive mandate (and resourcing) required for success the CDO must have the support of the whole C-Level, with the CEO increasingly prominent in driving buy-in and promoting a positive data culture.

What we are also seeing are a number of specialist committees operating below, but reporting directly into, the C-Level. In the case of BT, for example, the specialist technology committee is chaired by Gavin Patterson, CEO.

When considering the fit and the potential for tension or conflict across the C-Level, do remember the prominent idea that the Data and/or Digital Officer are considered to be particularly well positioned for the CEO shortlist.<sup>26</sup>

<sup>26</sup> <http://www.cio.com/article/3087445/csuite/look-whose-coming-for-the-ceo-role.html>



## 2.4. Personality types

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Finally, in this section it is worth looking at the personality or leadership types who would be best suited to this most demanding of roles. It is particularly important in debunking some of the many lingering stereotypes surrounding a 'data orientation'. As we will hear shining through in our primary research, pure mathematical skills, sophisticated modelling and predictive capabilities, or even the glossiest of dashboards are not sufficient to meet the needs of today's CDO employers.

In this context it is worth referencing the potential role of the 'Smart Creative' – a label introduced by Eric Schmidt at Google<sup>27</sup> to describe the exceptional individuals, ideally suited to the digital age, who can successfully combine business acumen, creativity and technical knowledge.

These individuals are the key to contemporary success because, “the defining characteristic of today's successful companies is the ability to continually deliver great products. And the only way to do that is to attract smart creatives and create an environment where they can succeed at scale”.

So if 'Smart Creatives' are the key to, “digital age speed strategy and product success”, then the CDO will certainly need to be able to harness their distinctive, and disruptive, talents. We will go on to explore the importance and the challenges of this digital relationship to the CDO role.

Executive recruiters Heidrick & Struggles have produced some fascinating work looking at the ideal attributes or leadership archetypes of a *transformative* Chief Data Officer.<sup>28</sup>

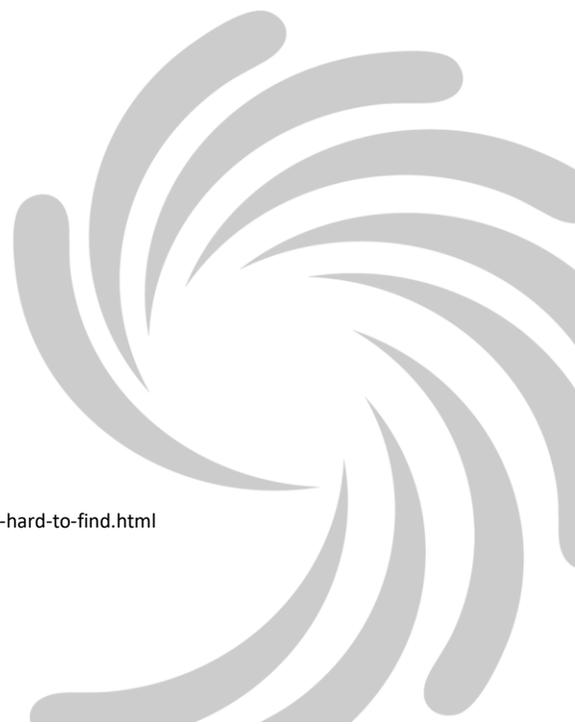
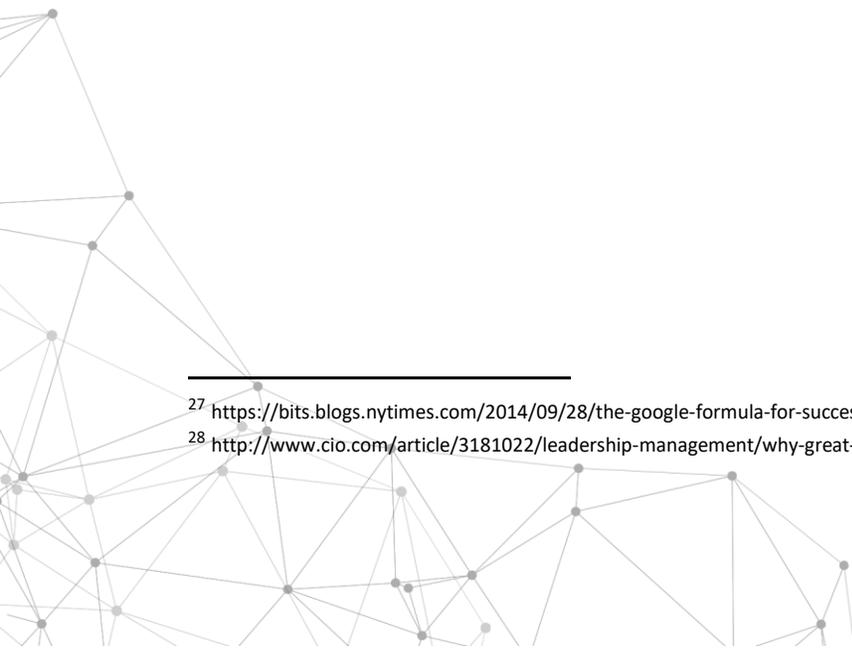
Their initial reflections on the evolution of the role are consistent with our own primary research discussions, where, initially at least, data experience and capabilities were sufficient qualifications for the role. They draw comparison with the technical requirements of the first wave of Chief Information Officers, before an expansive strategic orientation was considered essential to success.

Based on their own research Heidrick & Struggles have identified eight CDO archetypes in play today – welcoming the diversity as ideally suited to the fluid evolution and development of the role.

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<sup>27</sup> <https://bits.blogs.nytimes.com/2014/09/28/the-google-formula-for-success/>

<sup>28</sup> <http://www.cio.com/article/3181022/leadership-management/why-great-chief-data-officers-are-hard-to-find.html>



## The eight archetypes of leadership



### Collaborator

Empathetic, team-building, talent-spotting, coaching-oriented



### Energizer

Charismatic, inspiring, connects emotionally, provides meaning



### Pilot

Strategic, visionary, adroit at managing complexity, open to input, team-oriented



### Provider

Action-oriented, confident in own path or methodology, loyal to colleagues, driven to provide for others



### Harmonizer

Reliable, quality-driven, execution-focused, creates positive and stable environments, inspires loyalty



### Forecaster

Learning-oriented, deeply knowledgeable, visionary, cautious in decision making



### Producer

Task-focused, results-oriented, linear thinker, loyal to tradition



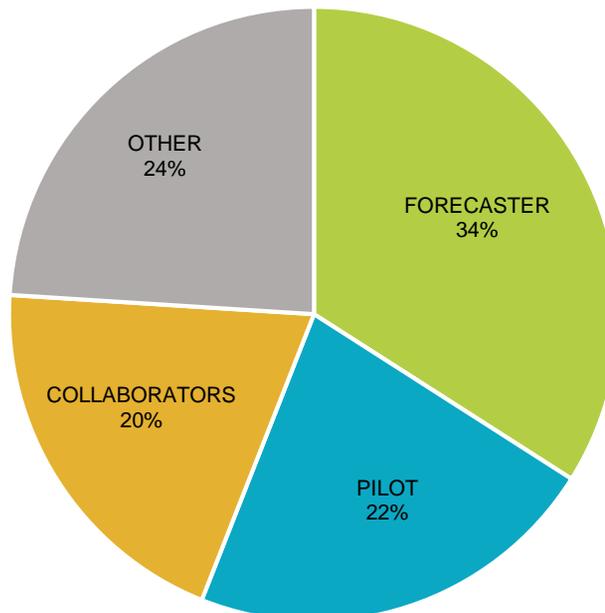
### Composer

Independent, creative, problem solver, decisive, self-reliant

Image: Heidrick & Struggles

<http://www.cio.com/article/3181022/leadership-management/why-great-chief-data-officers-are-hard-to-find.html>

Of the eight, three dominate, accounting for three-quarters of the CDOs interviewed.



### Leading the way with 34% is the FORECASTER:

Forecasters are "learning leaders", they seek to expand their knowledge and enhance their subject matter expertise — so much so that they have often been promoted based on that technical knowledge. They gather data, reflect on it and make their decisions.

But their reflective nature reveals a weakness, as Forecasters sometimes wait too long to make a decision that they miss their window of opportunity.

**Followed, on 22% by the PILOT:**

Pilots are strategic visionaries who can transform large-scale concepts into action and results. They appreciate environments weathering significant disruptions, such as fast-moving markets and start-ups, where rapidly commercialising ideas is essential. Unlike Forecasters, Pilots are immune from "analysis paralysis" and are open to working with other people. But Pilots can sometimes push their business colleagues faster than they are willing and ready to move. Moreover, Pilots struggle in rigid, risk-averse environments fraught with micromanagers who prefer conservative approaches.

**On 20% are the COLLABORATORS:**

The Collaborators are team-first players. They may install as lieutenants Forecasters and Pilots where they can excel and share credit for the collective success. As a result, they have little trouble attracting talent. If there is a knock against Collaborators it's that their team-player approach can sublimate their identities as leaders. Sometimes their obsession with cultivating people and relationships comes at the expense of strategic vision and planning. They may struggle to assert themselves — so much so that they may make a better No. 2 to Pilots.

The authors explain that as recently as 2014 they rarely encountered any archetype other than Forecaster and that the rapid expansion of different archetypes highlights the fluidity of the market and the evolving needs and expectations of employers.

We should also note the particular importance of different styles and personality types as the prevalence of the CDO role reaches diverse parts of the economy - beyond the first movers in finance and health for example and including central and local government and related agencies.





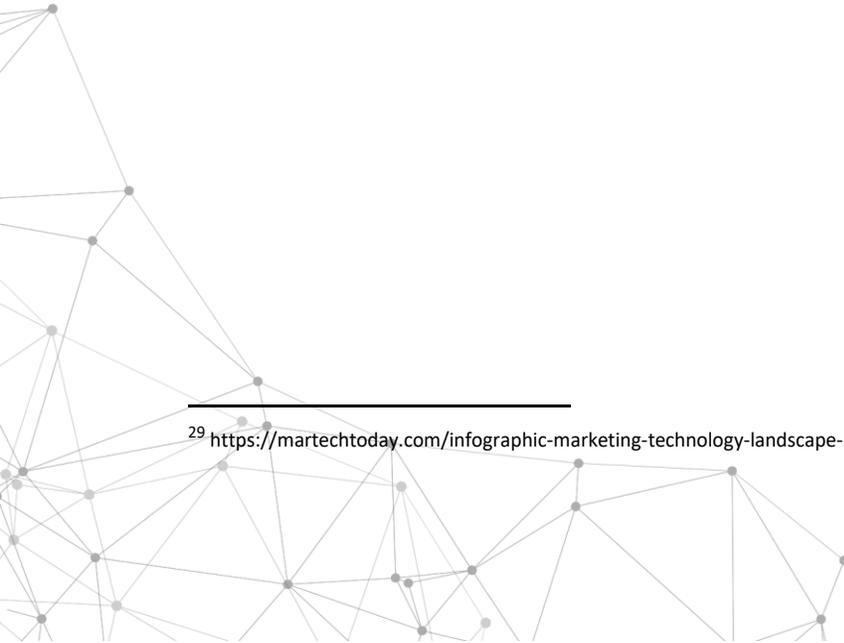
## 3. Terms of reference

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Fundamental to our discussion of the role of the Chief Data Officer in the UK today is the need for a clear understanding of the terms under consideration. You may have noticed that this is a sector awash with jargon – when all around are craving simplicity.

You only have to look at the extraordinary work of Scott Brinker<sup>29</sup> in mapping the martech landscape to see the challenges facing organisations in selecting the optimal set of technologies required for their business. Consider what is required to manage all of the resulting data flows before we even get to processing and enriching that data to facilitate business success.

Key terms to consider include digitisation, digitalisation and datafication but we should also consider the changing nature of terms like insight - especially in the context of the demand for 'real time insights'.



<sup>29</sup> <https://martechtoday.com/infographic-marketing-technology-landscape-113956>



## 3.1. Insight

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Insight is as ever recognised as a source of competitive differentiation, a fresh, distinctive perspective built out of the available research and data sources – and one that is traditionally supplemented with a healthy element of intuition or inspiration.

Insight is formally defined as, ‘an accurate and deep understanding (of someone or something)’. For marketers’ **insights are the foundations for branding, positioning and communications, identification and ownership of a market segment, new product development, innovation and more**. Therefore, insights are fundamental to a true appreciation of the marketing function as being *responsible for identifying, anticipating and satisfying customer requirements profitably (CIM)*.

Inherent in both terms – insight and marketing – is a predictive component: Where are (our) consumers today and where are they going to be tomorrow, and how are we going to (profitably) meet their evolving needs?

We will hear in our research that the CDO has a critical intermediary role to play in being an *arbiter of truth* for the organisation and also that their role should evolve to effectively become that of *Chief Insight Officer* – both roles with a real strategic value to any organisation.

Yet, too often insight is conflated with real time observation – enabling us to adjust tactics to improve our KPIs – be they engagement metrics, conversions or similar.

**Real insight should be a holistic, strategic, innovation driving function.** It will challenge the relevance of conventional metrics, highlight ambiguities and the need for better data, and be deeply grounded in the business context, objectives and strategy.





## 3.2. Digitisation

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*“The conversion of text, pictures, or sound into a digital form that can be processed by a computer.”*

There are many statistics on the pace of this transition from analogue to digital such that in a very short space of time almost all of the world's *information* shifted to digital.

*“In 2000 only 25% of the world's stored information was digital – by 2013 it was estimated that only 2% of the world's stored information was non-digital”<sup>30</sup>*

As we go on to consider the cultural challenges facing the CDO it is vitally important to keep in mind the speed of this overall transformation and how it has impacted on today's senior leaders – with the average age of a FTSE 100 Executive Director today between 50-55 years of age.

Now, take a look around your office and consider how deeply embedded digitisation is today. How much of your day-to-day activity is fully digitised i.e. machine readable?



<sup>30</sup> <http://www.goodreads.com/book/show/15815598-big-data>

## 3.3. Digitalisation

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*“The use of digital technologies to change a business model and provide new revenue and value producing opportunities. The process of moving to a digital business.”*

**Digital Transformation** is a key term in this context, it is defined by eMarketer<sup>31</sup> as:

*“The process by which business leaders harness the capabilities and advances of emerging technologies to digitally reinvent their company’s operations, products, marketing, culture and goals for future growth.”*

eMarketer

The key point here is that technology is a means to transformation not the end in itself and that the focus should be on setting a clear vision for the future and then setting a strategy to realise that vision:

*“A digital business strategy creates value and revenue from digital assets. It goes beyond process automation to transform processes, business models and customer experience by exploiting the pervasive digital connections between systems, people, places and things.”<sup>32</sup>*

eMarketer

You can perhaps see the logic of positing a specific time-frame to deliver on digitalisation and yet it becomes more challenging when we consider the (supposed) end-state – *the digital business*.

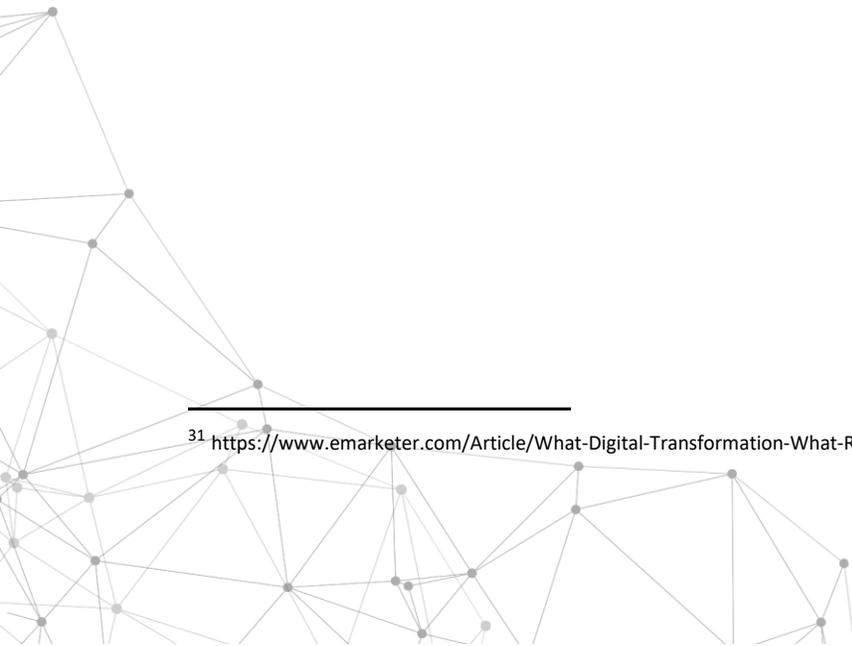
So what do understand by that particular term and objective? A digital business:

*“...manifests itself through industrialisation, agility, compliance, and smart performance. It is based upon a comprehensive approach to service-based business process management and is based on information management, performance management and analytics.”*

Wolfgang Martin, Uniserv (2015)

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<sup>31</sup> <https://www.emarketer.com/Article/What-Digital-Transformation-What-Require/1015854>



In practical terms a successful **digital transformation** will be immediately manifest in:

- Innovative business models
- Digital communications with markets, customers and business partners
- Digitalisation of products and services including related processes
- Transformation of IT architectures to support these demands
- And the extent to which information is used as a strategic advantage

Wolfgang Martin, Uniserv

Ultimately, we believe that datafication is the crucial aspect of this transformation, whether it is core to the initial change programme or not. Implemented comprehensively datafication will provide the springboard for further and deeper innovations.



## 3.4. Datafication

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*“Datafication refers to the collective tools, technologies and processes used to transform an organisation to a data-driven enterprise. This buzzword describes an organisational trend of defining the key to core business operations through a global reliance on data and its related infrastructure.”<sup>33</sup>*

We are positing datafication as a distinct contemporary stage in the evolution of businesses and organisations of all types - while recognising the fundamental inter-relationship between digitalisation and datafication. I am grateful to Schonberger & Cukier<sup>34</sup> for introducing me to the term.

This is brought to life and contextualised with reference to the scope of digitalisation as follows:

*“Think about where the digitalisation of enterprise is happening most profoundly. It is in the areas of production and automation, which have huge amounts of data which are primarily huge opportunities to digitise the business.....thinking about one of our ....clients, the role of the Chief Data Officer there ..... is to understand the opportunities around new sources of data arising from the digitisation of their product/s and associated services. Looking at new ways in which they can fundamentally shift their business model.....it is an order of magnitude of difference in terms of the complexity that they are dealing with [compared to customer experience optimisation – the remit of the Digital Officer].”*

Craig Patton, CEO, Hydration

This perspective is very neatly summarised by Neil Crockett, the recently appointed Chief Digital Officer at Rolls Royce, when he simply stated in an interview with The Daily Telegraph:

*“Data **has** transformed **and is** transforming everything.”<sup>35</sup>*

Neil Crockett, CDO at Rolls Royce

So what exactly is it that we mean by **datafication**?

In the introduction we used a simple working summary such that it is the process by which an organisation becomes *data backed* – and we have expanded on that with the definition at the top of this section - but we still need to emphasise that it is a bigger and more important concept than that:

*“Datafication creates a fundamentally new strategic landscape. Any company, large or small, any NGO, in fact any organisation active in society needs to fully explore the **new value creation space instigated by datafication**”*

Ericsson<sup>36</sup>

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<sup>33</sup> <https://www.techopedia.com/definition/30203/datafication>

<sup>34</sup> <http://www.nytimes.com/2013/06/11/books/big-data-by-viktor-mayer-schonberger-and-kenneth-cukier.html>

<sup>35</sup> <http://www.telegraph.co.uk/education/stem-awards/power-systems/data-is-transforming-everything/>

<sup>36</sup> <https://www.ericsson.com/assets/local/news/2014/4/the-impact-of-datafication-on-strategic-landscapes.pdf>

Again this perspective is re-enforced by comments from Neil Crockett at Rolls Royce in the article above:

*“Entire industries face comprehensive changes to the way they operate, thanks to advances in technology, data science and the internet of things.....If a company can process, analyse and understand all of the relevant data within its operations, the insights gained stand to transform every single aspect of the business, to become more efficient, more profitable and fully optimised.”*

Neil Crockett, CDO at Rolls Royce

As with so much activity in this space we tend to think of datafication as a new phenomenon – one borne of the digital age. In fact, the opposite is true and the principle can be traced back to the birth of scientific enquiry – starting with the need for measurement.

The Greek definition of data still drives contemporary understanding of the term – in that the Greek suggests that data is a *given* (i.e. an objective fact) – which is the default assumption of many actors in the market, but one that has some fundamental weaknesses, especially when we consider the selection and curation of datasets (and their application to advanced algorithms).

From the Ericsson point of view data offers far greater potential for radical disruption than digital and is the far more significant long term trend. In their view, datafication today is quite different to the datafication seen in ancient scientific endeavour – and will come to rely on *new forms of quantification and associated data mining techniques*.

Professor Mark Lycett at Brunel University (referenced by Ericsson) introduces us to three key elements of datafication – abstraction, liquidity and density<sup>37</sup> – but also supports the thrust of the Ericsson argument for the far reaching impact of the concept. As Ericsson further explain:

*“...a new process of datafication is emerging across the world. In contrast to digitalisation, which enabled productivity improvements and efficiency gains on already existing processes, datafication promises to completely redefine nearly every aspect of our existence as humans on this planet. Significantly beyond digitalisation, this trend challenges the very foundations of our established methods of measurement and provides the opportunity to recreate societal frameworks, many of which have dictated human existence for over 250 years.”*

Professor Mark Lycett, Brunel University

So if we buy into the game changing potential of datafication then we will turn now to trying to tease out the practical relationship between digital and data for today's organisations. In trying to do so we asked a number of questions of our research participants – including whether they understood and saw merit in a (highly simplified) linear relationship between the two concepts.

Catherine Brien, Director of Data Science at the Cooperative, for one saw merit in our thinking, in stating that:

*“It is extremely hard to lead with the data agenda unless there are other forces shaking things up [i.e. digitalisation].”*

Catherine Brien, Director of Data Science at Cooperative

<sup>37</sup> <http://bura.brunel.ac.uk/handle/2438/8110>

While Craig Patton recognised the simplified scenario in some organisations:

*“...many [client organisations] have spent a lot of money buying kit and spent more again on beginning to utilise some of that kit effectively. The understanding in terms of the effects of having done that and the data sources they now have access to - I think they are now just starting to appreciate what they have got (in terms of data) and are working out how they apply that.”*

Craig Patton, Hydration

This is a hugely important point and one that speaks to the size of the market opportunity for data management, optimisation and applications across and beyond the business community. Thus, in simplistic terms, there are now a large number of organisations that might describe themselves as digital – but that does not mean that they are necessarily data driven organisations, at least not to the extent that they could be.

Aingaran Pillai, CEO, Zaizi, was firmly on-board with this understanding when he spoke about the Data Officer **following the transformation agenda** – more on which when we look at the relationship between Data Officers and Digital Officers.

We should also note here the exponential pace of development across this sector – at the time when many organisations are building their data capabilities and data science teams.

It's a fascinating feature of the market and certainly another cause or explanation for decision making inertia in the face of such rapid change. As Jamie Graves highlights, with specific reference to genomics – where analysis is now easily accessible from third party cloud providers:

*“It may be the case that we have a period of 5-10 years where we doing everything in-house before slowly then out-sourcing it...but it's a really interesting **pace** that we have right now...”*

Jamie Graves, CEO, ZoneFox



## Additional short definitions of key terms

### Data Management<sup>38</sup>

Data management refers to an organisation's management of information and data for secure and structured access and storage.

Data management tasks include the creation of data governance policies, analysis and architecture; database management system (DMS) integration; data security and data source identification, segregation and storage.

Data management encompasses a variety of different techniques that facilitate and ensure data control and flow from creation to processing, utilisation and deletion. Data management is implemented through a cohesive infrastructure of technological resources and a governing framework that define the administrative processes used throughout the life cycle of data.

### Data Governance<sup>39</sup>

“The exercise of authority, control and shared decision making (planning, monitoring and enforcement) over the management of data assets”.

This definition taken from the DAMA Dictionary of Data Management goes on to position data governance as the core component of data management, tying together nine management disciplines. The following adds another layer of understanding:

“Data Governance is a system of decision rights and accountabilities for information-related processes, executed according to agreed-upon models which describe who can take what actions with what information, and when, under what circumstances, using what methods.”<sup>40</sup>

### Data Quality<sup>41</sup>

Data quality is an intricate way of measuring data properties from different perspectives. It is a comprehensive examination of the application efficiency, reliability and fitness of data, especially data residing in a data warehouse.

Inside an organisation, adequate data quality is vital for transactional and operational processes, as well as the longevity of business intelligence (BI) and business analytics (BA) reporting. Data quality may be affected by the way in which data is entered, handled and maintained.

### Data Strategy<sup>42</sup>

Different for all organisations, the link provides an excellent starting point for considering your own strategy. Note however the Michael Porter definition of a Big Data strategy seen in Chapter 5.

### Data Culture<sup>43</sup>

An amorphous concept best explored through a variety of lenses but fundamentally predicated on data driven decision making. The link provides a rich starting point from which to develop thinking.

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<sup>38</sup> <https://www.techopedia.com/definition/5422/data-management>

<sup>39</sup> <http://www.dataversity.net/the-difference-between-data-governance-data-management/>

<sup>40</sup> <http://www.datagovernance.com/defining-data-governance/>

<sup>41</sup> <https://www.techopedia.com/definition/14653/data-quality>

<sup>42</sup> <https://www.hesa.ac.uk/support/tools/data-capability/signposting/strategy>

<sup>43</sup> <https://www.oreilly.com/ideas/being-data-driven-its-all-about-the-culture>



## 3.5. Marketing in a Digital Age

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While we are addressing the key terms of reference it is useful to consider the rise of digital marketing over recent decades. Profusion began the year supporting the increasing number of commentators appealing for a renewed integration and holistic view of marketing.

What we have seen develop in practice is a wholly unhelpful digital specialism or silo in most organisations and across the wider agency ecosystem – one that urgently needs to be unpicked if marketers are to achieve their objectives:

As Darren Cairns, Marketing Consultant, reflected in our research discussion:

*“Absolutely vital that digital channels are not looked at in a vacuum or a bubble, as soon as you start to create division, you start to measure differently, you start to diversify your analytics and insight and then you get division within the company.....Only one thing should matter and that is “what is the profitability of the customer?”*

**Darren Cairns, Marketing Consultant**

This perspective is supported by Henrik Nordmark, Head of Data Science at Profusion:

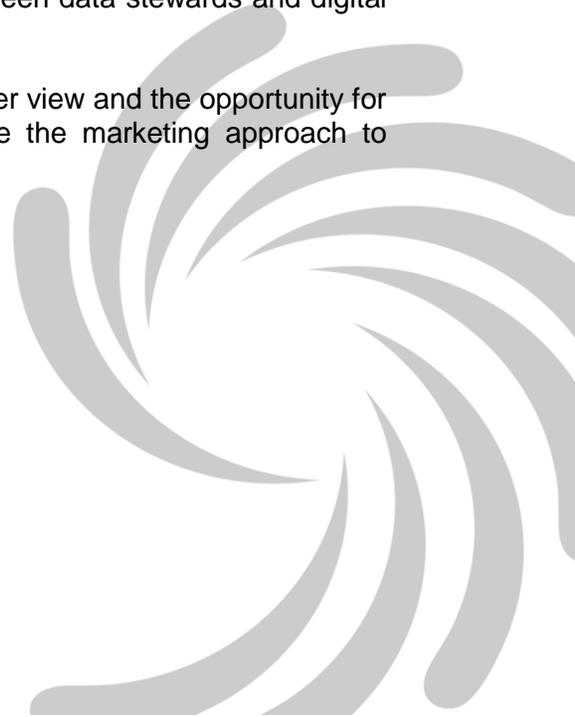
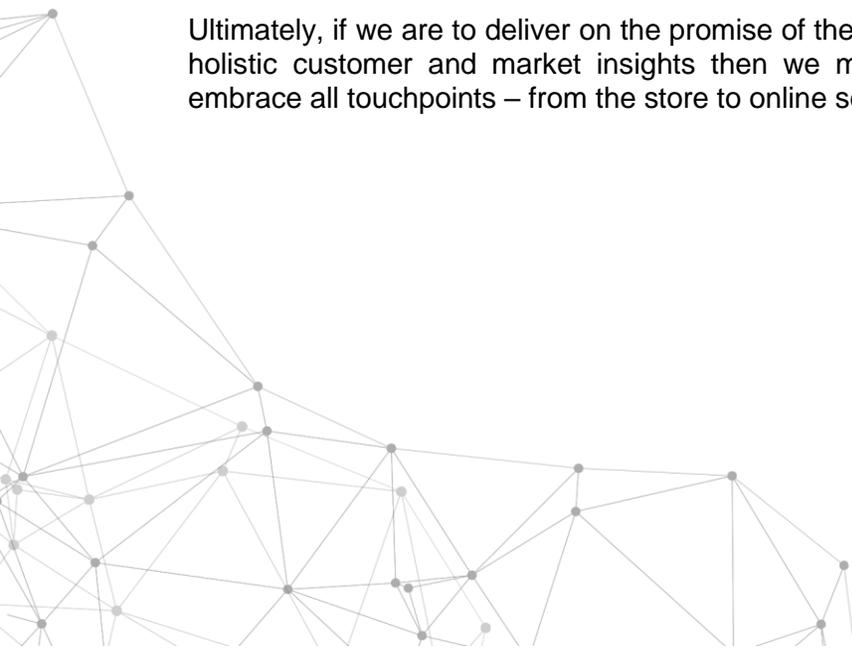
*“Ultimately marketing should be holistic and omnichannel in nature, whether it’s digital or analogue, it seems foolish to create artificial boundaries where they aren’t needed.”*

**Henrik Nordmark, Head of Data Science at Profusion**

To take one very obvious example of this in practice consider the state of attribution today, with multi-touch attribution limited to digital channels only and typically reliant on a wholly inadequate set of assumptions and models (including first click, last click etc.) and the struggle to integrate offline media, let alone retail (store) interactions, or indeed external factors, from weather to competitor activity and wider socio-economic trends, experiences and landmarks.

In considering digitisation and digitalisation in relation to datafication we should also acknowledge that some key components of the digital philosophy – including the commitment to agile working practices – can work against the fundamental commitment to effective data management and quality assurance – such that there will be, and are tensions between data stewards and digital practitioners.

Ultimately, if we are to deliver on the promise of the single customer view and the opportunity for holistic customer and market insights then we must reconfigure the marketing approach to embrace all touchpoints – from the store to online search.



## 3.6. Two CDOs?

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In light of this fresh perspective on the relationship between digitalisation and datafication we were keen to hear our respondents' views on the distinctions and continuities between the two CDO roles – Data Officer and Digital Officer – at a time when some argue they are effectively interchangeable.

Part of the answer lies in their complementary nature of course, as Aingaran Pillai (CEO, Zaizi), suggests:

*“They are fundamentally intertwined, you need good quality data if you are going to do a digital transformation programme...you need a single view of your customer [or patient, or citizen].”*

Aingaran Pillai, CEO at Zaizi

While Laura Scarlett (Data and Insights Director, GNM) spoke of the inter-relationship as akin to **body and blood** – they have a symbiotic relationship, one cannot live without the other. You can extend that thinking to highlight that bad circulation damages the body – which is clearly true of low quality data.

But Aingaran also spoke to the sequential, linear, transformational model as we mentioned earlier:

*“Two distinct roles, **the Digital Officer is looking at how we innovate the business using technology**, changing existing business practices, creating new practices, especially in the public sector their role is to question ‘how can we do this completely differently’- therefore a transformation focus...while **the Data officer follows the transformation agenda** (and the explosion of data generated), the data officer takes responsibility for the data governance, do we have the right systems, do we have the right people in place, have we developed our culture in line with our data requirements and can we sustain our digital transformation. Silos are being broken, cross-functional teams are having to work together in new ways...”*

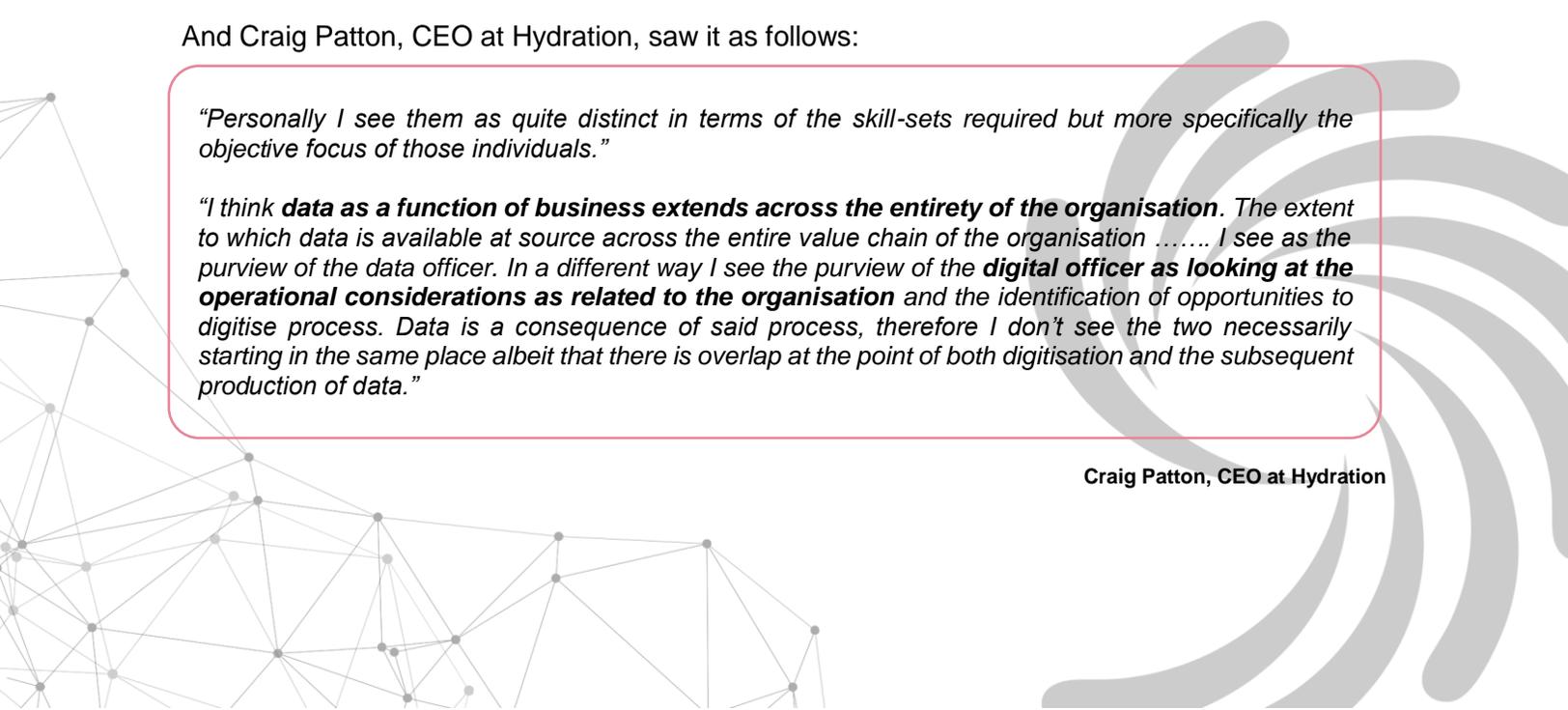
Aingaran Pillai, CEO at Zaizi

And Craig Patton, CEO at Hydration, saw it as follows:

*“Personally I see them as quite distinct in terms of the skill-sets required but more specifically the objective focus of those individuals.”*

*“I think **data as a function of business extends across the entirety of the organisation**. The extent to which data is available at source across the entire value chain of the organisation ..... I see as the purview of the data officer. In a different way I see the purview of the **digital officer as looking at the operational considerations as related to the organisation** and the identification of opportunities to digitise process. Data is a consequence of said process, therefore I don't see the two necessarily starting in the same place albeit that there is overlap at the point of both digitisation and the subsequent production of data.”*

Craig Patton, CEO at Hydration



Darren Cairns, Marketing Consultant, meanwhile took a very different view:

*"I see this quite differently as **I don't think personally there should be a Chief Digital Officer**, there should be a Chief Marketing Officer who has the necessary tools and experience to take responsibility for digital channels, products and teams."*

Darren Cairns, Marketing Consultant

As we will go on to see there are no simple answers here and every organisation has a different context and history - while scale is clearly a key variable. What is evident is that the two roles cover distinct territories that both need to be addressed in order to realise the full potential of transformation.





## 4. Prevalence and positioning of CDO role

*"We're at an interesting inflexion point now, speaking in general terms, around the use of data, we are seeing an acceptance at the C-Suite level as to the importance of data in terms of optimising performance and as a potential strategic asset in terms of driving growth – meaning new areas of organisational focus and business operations."*

Craig Patton, Hydration

The quote above speaks to our experience here at Profusion. We are seeing a huge amount of high level interest in leveraging and optimising data to drive business efficiencies, enhance customer relationships and to drive performance and growth. Yet, it is also fair to say that in some instances this interest is still relatively unfocused – an aspirational mindset rather than actionable objectives.

While Henrik Nordmark, Head of Data Science at Profusion argues that:

*"In some ways things are easier today, despite greater competition, as we don't need to spend as much time educating the market - which allows us to focus directly on the business problems..."*

Henrik Nordmark, Head of Data Science at Profusion

It is also true to say that there remains a significant job to be done in terms of education and guidance in implementing a data driven strategy, but that as the market develops this increasingly needs to be in the form of concrete use cases and success stories.

Taking a step back and looking more broadly across the market there is a huge amount of hype and excitement surrounding the Chief Data Officer role. The Chief Data Officer, as we have seen, is broadly considered to be the individual responsible for developing and driving a **coherent data strategy**.

In relation to the Chief Data Officer, the headline projection is that from Gartner<sup>44</sup> in January 2016 where they predicted that 90% of large organisations would have a Chief Data Officer by the end of 2019. Consistent with perspective from Craig Patton above, Mario Faria, VP Research at Gartner said:

*"Business leaders are starting to grasp the huge potential of digital business and demanding a better return on their organisations' information assets and use of analytics"*

Mario Faria, VP Research at Gartner

What is interesting is that the very same organisation, in the very same release argue that only 50% of Data Officers will be successful within the same time frame (year end 2019) – a subject we will return to.

<sup>44</sup> [www.gartner.com/newsroom/iD/3190117](http://www.gartner.com/newsroom/iD/3190117)

Yet it is clear that in the UK at least we are a very long way from such a scenario.

This is not to say that data is not being taken seriously at the highest levels of many organisations and across government – indeed the public sector is seeing a major recruitment drive at the moment – from the Government Digital Service<sup>45</sup>, across government departments and on to individual agencies such as Ordnance Survey<sup>46</sup>.

As Aingaran Pillai, CEO of Zaizi, a data engineering consultancy specialising in public sector applications, points out:

*“Data is on everyone’s agenda, it starts off in the centre and trickles down...We would expect most (public sector) organisations to have a CDO in the next 12-24 months.”*

Aingaran Pillai, CEO at Zaizi

So very positive progress is evidently being made across the UK Public Sector. This in itself is a critical asset for the health of the UK data economy, such is the range of public datasets that once made accessible can be leveraged for wider research, contextualisation and application.

In the FTSE 100, however, there is an incredibly low share of businesses with this Chief Data Officer role in place. Our own research identified no businesses with the specific job title on the main company board – and only a **small number** with something similar at the C-Level or Executive Committee level.

For example, Lloyds Bank have a Group Director for Digital and Transformation while Aviva have a Chief Technologist and Information Officer, Kingfisher Group has a Chief Digital and IT Officer (together with a Chief Customer Officer and a Chief Supply Chain Officer) while Sainsbury’s have a Digital and Technology Director (and appointed a CDO in 2016<sup>47</sup>). All of which roles sit on the Executive Committee. There are a number of Chief Information Officers and of course Operations, Risk and Strategy Officers to also consider.

The ranks of non-exec Directors are also replete with relevant industry experience including a former Director General of Mi5 at HSBC, Matt Brittan, President EMEA for Google, at Sainsbury’s and Gillian Kent, former MD of MSN UK at Pendragon.

All of which supports the findings of a digital audit conducted by customer management consultancy PeopleTECH last year which suggested that only 2% of FTSE 100 companies had a Chief Digital Officer on their board, rising to only 5% if we consider their presence at the C-Suite or ExCo level.

Of course the absence of such senior roles does not mean that businesses are not engaging with digital transformation, but as Mike Hughes MD of PeopleTECH reflected at the time; *‘it can be no coincidence that organisations said to be ahead of the game with digital transformation, generally have a senior digital executive to **bring it all together.**’*

That complements our own research findings and discussions – in that data ownership is a critical aspect of the Data Officer role. Data must be recognised as a company asset, with the potential for multiple use cases across different functions and departments, supporting the need for a strong organisational focus on data management and especially data quality.

We should also note the rise in Chief Information (or Cyber) Security roles across and beyond the FTSE 100. This clearly reflects the prominence given to this issue in many of today’s company reports and of course the high profile nature of recent events. It also speaks to the nature of the

<sup>45</sup> <http://central-government.governmentcomputing.com/news/manzoni-leads-uk-chief-data-officer-hunt-in-wider-reform-drive-5772562>

<sup>46</sup> <http://www.directionsmag.com/pressreleases/caroline-bellamy-appointed-new-chief-data-officer-of-ordnance-survey/504349>

risk involved – reputational and financial – with research<sup>48</sup> claiming to demonstrate the long term negative impact of data breaches on company share prices (in contrast to other social responsibility related issues).

What we have also seen across the FTSE 100 is a wide range of non-exec roles filled by individuals with strong personal backgrounds and expertise in technology, digital or data – which is a fantastic resource for the board to have access to – but is not necessarily the best place from which to drive organisational change and digital transformation across the organisation.

The roles that we are seeing emerging at the top of the UK corporate ladder include Chief Commercial and Chief Customer Officers – both of which have featured in our research as potential successors to the Data Officer in terms of a long term presence on the company board.

Overall, we are suggesting, and seeing in the literature, an important difference between the UK and the USA in terms of the dynamism of Board and C-Suite structures – with the latter more ready to accommodate new roles and points of organisational focus. In fact, US commentators are already discussing the value of Chief Artificial Intelligence Officers – which reflects a (public) commitment to staying ahead of the transformation agenda.

Craig Patton, CEO of Hydration, argues that this C-Level dynamism reflects a combination of economic realities and cultural difference. In terms of economic realities it is a simple fact that the US remains the most valuable market in the world and one with a disproportionate influence on the wider global economy. This means that relatively minor shifts in costs, profitability and revenue can have a huge impact on the business bottom-line - thus justifying a C-Level strategic focus.

In terms of cultural difference, Craig put it this way:

*“**Culturally** there is a difference in mindset **in terms of the US** appetite to seek advantage, differentiation and value through the application of technology and by extension data, they are very **proactive seekers of new forms of value** and these are seen positively as opportunities to differentiate and grow into new areas”*

Craig Patton, Hydration

So we can see the degree of circumspection in the UK market as having both economic and cultural drivers, although with a new generation of digital native businesses maturing on both sides of the Atlantic, we might expect, and already are seeing more commonality than difference in company attitudes, behaviours, cultures and structures.

In terms of positioning within the organisation, we have seen a real dearth of Data Officers at the top of the ladder, so how are our senior data practitioners ensuring that their voice is heard within these critical decision making fora?

Among our respondents, Laura Scarlett, Data and Insights Director at Guardian Media Group stands out as reporting into the Chief Strategy Officer while Catherine Brien, Director of Data Science, at the Cooperative reports into the Chief Digital Officer. Both, therefore, benefit from a direct line to the C-Level albeit with different points of entry.

Laura argued that the reporting line into the strategy directorate was an important influence in joining the business in that it clearly positioned data at the heart of the business strategy and avoided the potential for conflict with the Digital Officer role.

It is the importance of clear lines of demarcation and the avoidance of any distracting, damaging conflicts at senior level that provides an argument against racing to create these new roles.

<sup>48</sup> <https://www.cgi-group.co.uk/news/cost-of-cyber-breach-to-plcs-cgi-study>

As Darren Cairns put it:

*“Should you have a Digital Officer, Data Officer and Marketing Officer in the same organisation, no, there **must be some common sense applied** – this will only create a **top heavy leadership team** and inevitably **lead to conflict** across roles which is the last thing any organisation wants, not good for the customer and not good for the business.”*

Darren Cairns, Marketing Consultant

While Gartner argue that the Chief Data Officer should have a direct line to the Chief Executive, it is evident elsewhere that the commitment and support of the Chief Executive themselves is a critical success factor for many organisations – this is especially so across the SME tier, where scarce resources would limit the potential for dedicated executive roles.

In fact PWC, reflecting on 10 years of momentum in the transformation space report that 68% of CEOs are now taking the lead in this field, up from 33% in 2007 – while the same report<sup>49</sup> also reveals that there has been a significant fall in self-reported levels of organisational ‘Digital IQ’ with only 52% of respondents rating their organisational Digital IQ as strong or very strong.

This is surely a reflection of the relentless pace of change and innovation in the market and, therefore, the dynamic scale against which they are being measured (and measuring themselves). As PWC put it, “while companies are smarter about technology adoption than they were previously the questions keep getting harder.”

The same report from PWC also highlights the enduring role of the Chief Information Officer in leading transformation alongside the Chief Executive. In fact, they reflect on the hype surrounding the Digital Officer role in recent years and report that only 7% of respondents have one in place – with the vast majority of organisations not planning to add the position.

That figure is not too far removed from that reported by KPMG<sup>50</sup> regarding the Data Officer role across the S&P 500 – with 10% having formally appointed a CDO or having created C-Level functions with a comparable range of responsibilities.

Where we do see real momentum it is in those sectors such as finance, health and pharmaceuticals – and now the public sector - where there is a necessary and established relationship with regulatory compliance across a broad spectrum of activities. So it is in banking for example that they are having to grapple with Open Banking regulations in tandem with GDPR (not to mention MiFID II).<sup>51</sup>

In summary, it is clear that there are many more organisations and businesses operating without a Chief Data (or Digital) Officer at the C-Level than with. In reality, many such officers are operating below this level with a direct reporting line into strategy, risk, finance, IT or digital. It is also worth restating that this is not always unwelcome as the nature of the role and the requisite skillset matures. Finally it's important to emphasise again the critical importance of the Chief Executive's sponsorship and support in driving cultural change and so improving the prospects for success.

<sup>49</sup> <https://www.pwc.com/us/en/advisory-services/digital-iq.html>

<sup>50</sup> <https://assets.kpmg.com/content/dam/kpmg/nl/pdf/2016/advisory/Chief-Data-Officer.pdf>

<sup>51</sup> <https://www.fca.org.uk/markets/mifid-ii>



## 5. The responsibilities of an effective CDO

### Practitioner perspective

*“Turning data into something that really fuels your business.”*

Catherine Brien, Data Science Director, Cooperative Group

Having previously reviewed some key definitions of the Chief Data Officer’s role and responsibilities before exploring the prevalence and positioning of the role in the UK today, we can now add another layer of insight by learning from the experience of our research respondents.

As we have seen there is broad agreement as to the key responsibilities of an effective CDO. There are nuances to the specification relative to the maturity and scale of the organisation but all are aligned on the starting points and the ideal destination – the rest is of course the strategy:

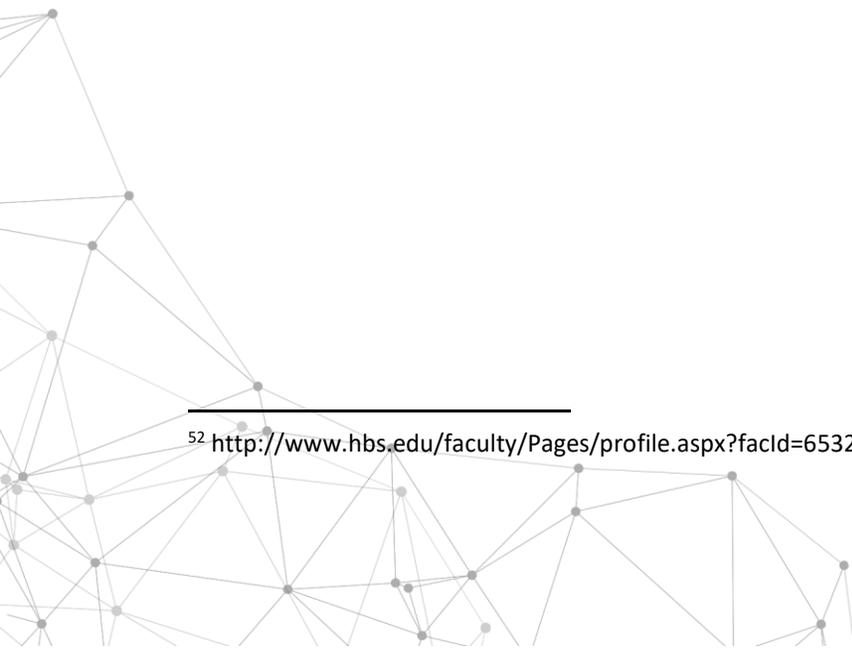
Michael Porter<sup>52</sup> defines strategy as, “*choosing to create a unique value in a unique way*”, which when applied to a Big Data world means that, “*Strategy is a question of capturing and using data across a system of activities in a way your rivals can’t.*”

Such a strategic perspective makes it very clear that this is not about one individual, no matter how talented, nor is about one role, no matter how well positioned. A true strategic transformation requires fundamental changes to business culture, structures and processes. This of course takes time (and requires resources) and resilience in the face of high expectations (and doubts).

So what can we learn from our research respondents, all leading data practitioners?

Let’s start at the beginning, what is seen to be the first or primary responsibility of a CDO in practice?

<sup>52</sup> <http://www.hbs.edu/faculty/Pages/profile.aspx?facId=6532>





## 5.1. Data Strategy, Management and Governance

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*“A consolidation, synthesis and efficiency play.”*

Craig Patton, Hydration

We saw broad appreciation of the fundamental importance of data management across our interviews with a recognition of the importance of understanding what data the organisation is capturing, where it is stored, what data is, and should be, processed, and what data is most useful to the organisation.

As Michael Abtar put it:

*“What data will lend itself, readily, to enabling the organisation to achieve its objectives?”*

Michael Abtar, IG Smart

This perspective extends from data currently accessible to the best datasets available to enrich the current data repertoire, thus data enrichment naturally forms part of this process, meaning that there is already an external, market facing perspective at the outset.

From Darren Cairns marketing perspective the most important starting point is data quality, with confidence in the validity of each data point critical to any analytical initiative but also vital to getting and sustaining support from across the organisation. This speaks to the importance of the data architecture and management processes and sits with the aspiration for omnichannel capabilities.

Catherine Brien takes this forward with reference to the crucial importance of creating a seamless (single) real-time view across the organisation such that decision makers across business functions are all working from the same ‘single version of the truth’.

While Michael Abtar of IG Smart memorably put it this way:

*“[Without] a clear policy, or focus, on data quality... that gives rise to a whole host of risks – banks lose money, hospitals kill people - as a result of not having access to accurate and up-to-date data.”*

Michael Abtar, IG Smart

Central to this challenge is of course data harmonisation across myriad business systems and third party platforms, but even before that we cannot overlook the importance of data cleaning and ensuring that data is fit for analytical use.

You may be aware of the fact that perhaps 80% of many valuable data scientists’ time can be taken up with data cleaning and harmonisation at the outset. You will also hear people refer to ‘Big Data’s Dirty Little Secret’ in this context.

Less well known is that as a KPMG research participant revealed, the CDO can also be expected or required to fulfil such operational tasks, quite the contrast with our perception of a C-Level executive and surely indicative of a lack of organisational appreciation and support for the role:

*"I'm forced to spend too much time on operational activities like cleaning up data, defining business rules and setting up business processes. Instead I should be spending my time on transformational activities that help create new value."<sup>53</sup>*

KPMG

Happily that does not seem to have been the experience of our practitioners, with Laura Scarlett, Director of Data and Insights at Guardian News and Media, reflecting that the first step for her is:

*"Data Strategy, which means long term planning for how an organisation collects the right data to support the business strategy [so aligning data with the organisational strategy]."*

Laura Scarlett, Director of Data and Insights at Guardian News and Media

With the data strategy determined and aligned to the wider organisational strategy you can then move forward with:

*"Data governance.....covering quality, privacy, compliance, accessibility and also data architecture."*

Laura Scarlett, Director of Data and Insights at Guardian News and Media

In fact, Laura went on to highlight that on arrival at GNM one of her first actions was to develop a Data Governance Framework for the organisation along with creating a cross-functional data governance team (meeting monthly) and then a C-Level Data Governance Council (meeting bi-monthly). This latter body is the ultimate data authority within GNM and is ideally placed to discuss key strategic issues (including GDPR for example).

Already we can see that as Catherine Brien argued, this is not a sequential process or a roadmap that you can work through, rather it is a complex eco-system of many parts moving simultaneously and in relation to each other.

A key part of data governance today is managing internal data access and permissions. This will need to include a full operational audit of who within the organisation has access to what data and whether they are the right people with access to the right data or not.

**So while democratising access to analytics is crucial to developing a positive data culture and demonstrating the value of the approach it is a double edged sword in terms of the risks involved from both a compliance and security perspective.**

Self-evidently, in tackling this issue the Data Officer will have to have the mandate and authority to take ownership – on behalf of the organisation – of all data held and processed across all departments and functions. A major challenge of course as there will inevitably be a strong sense of data ownership in different functions and departments – be that finance, customer service, logistics, sales or marketing.

<sup>53</sup> <https://assets.kpmg.com/content/dam/kpmg/nl/pdf/2016/advisory/Chief-Data-Officer.pdf>

As Laura Scarlett reflects:

*“10 years ago perhaps marketing was seen to be the natural home [of my role]...now the debate is whether it is a directorate in its own right, or whether it sits within the digital directorate or similar.”*

**Laura Scarlett, Director of Data and Insights at Guardian News and Media**

This, necessary, centralisation of data ownership and management is also essential to the single real-time view of data across business functions. This is crucial for driving more effective decision making and to sustain faith in the overarching datafication programme. It is also fundamentally important to data security and to delivering on the GDPR requirement for notification of data breaches within 72 hours – more on that later.



## 5.2. Towards better decision making

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For Catherine Brien, better decision making is what this is all about:

*“Value only comes when the people who make decisions - business decisions - are able to make better decisions than they were before, and they do that because it’s easier for them to do it, because they have the data in front of them served up in a way that is actually valuable.”*

Catherine Brien, Cooperative

So how do you move forward to realise this objective? We have already referenced the work involved in data management and governance – and the need for this to be a holistic and sustainable, organisational commitment.

In this context, the importance of the vision and the strategy are highlighted by our respondents. Another interesting view is offered by Craig Patton when he speaks of the development of the role as follows:

*“Among more mature organisations, having undertaken and delivered on those initial responsibilities, the role then becomes more that of an **arbiter of truth** in terms of business performance, **speaking truth to the management**. In playing that role they have an important additional remit in terms of connecting data points across organisational silos through what is a fundamentally rational pursuit of information.”*

Craig Patton

Such a perspective speaks as much to the simple definition of datafication we used in our introduction as to Catherine Brien’s observation above. Thinking about the scenario for a moment we can see the challenges this presents for many organisational leaders.

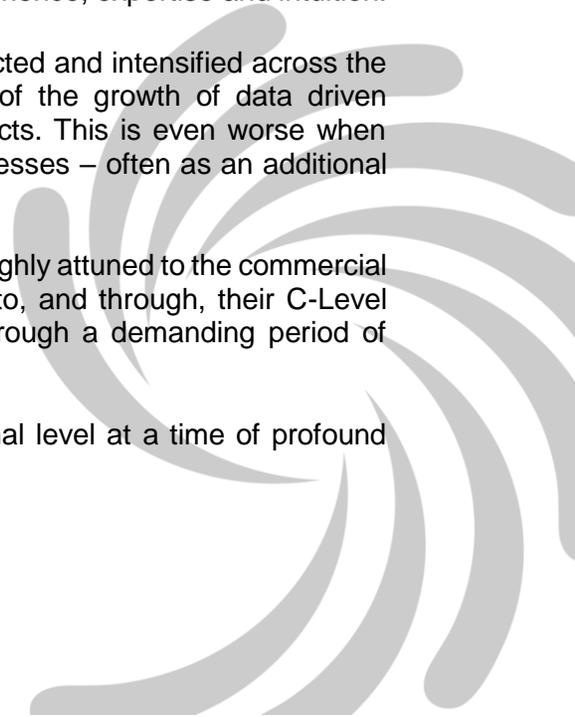
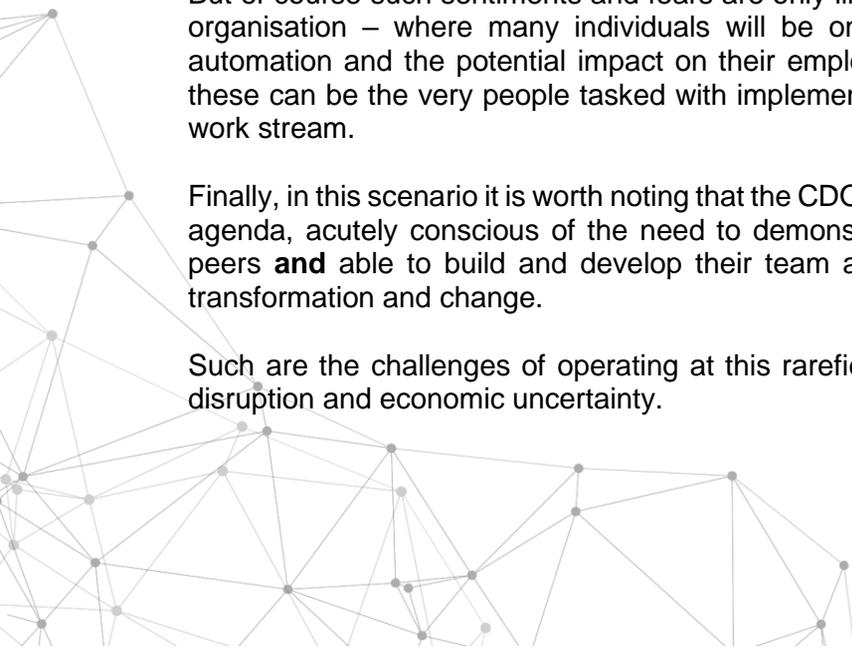
The very people hired, and paid handsomely, on the basis of their experience, judgement and intuition are now confronted with a new and alien decision making environment, one that is likely to feel like a very real threat to their status and future position.

Catherine has a real sympathy with the importance of such accumulated knowledge and intuition to any organisation, suggesting that an effective CDO needs the **discipline** to know when to disregard data and the **humility** to recognise the real value of experience, expertise and intuition.

But of course such sentiments and fears are only likely to be reflected and intensified across the organisation – where many individuals will be only too aware of the growth of data driven automation and the potential impact on their employment prospects. This is even worse when these can be the very people tasked with implementing data processes – often as an additional work stream.

Finally, in this scenario it is worth noting that the CDO needs to be highly attuned to the commercial agenda, acutely conscious of the need to demonstrate the ROI to, and through, their C-Level peers **and** able to build and develop their team and function through a demanding period of transformation and change.

Such are the challenges of operating at this rarefied organisational level at a time of profound disruption and economic uncertainty.





## 5.3. Data Culture

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*“If data is king and context is queen then culture is the throne.”*

Yuval Dvir, Strategy Head, Google

Central to the construction of a positive data culture is the articulation of a clear vision – underpinned by the strategy to deliver on that promise. Such a combination provides the overarching narrative that sustains practitioners through the hard challenges that any transformation brings.

We should also consider, in highly practical terms, to what extent this vision and culture reaches down to, the first point of data entry, privacy protection and information security. This is essential to ensuring there is no need for the expensive remedial processes too often required of data scientists before they can really get to work.

Thus our culture harnesses vision, strategy, change management and individual behaviours to drive effective datafication and transformation.

The importance of developing a positive data culture, and building that culture from the top, is reflected in the attributes required of a successful CDO, such that diplomatic and political skills and awareness are key factors.

As Darren Cairns has stated the individual must:

*“...have a high degree of **gravitas** among their peers, across the organisation and among the stakeholder group.....[and] be able to carry people with them and...be able to project the forward view – in practical terms, beyond the dream of a data driven tomorrow - understanding & developing the practical steps that must be taken to get there.”*

Darren Cairns, Marketing Consultant

While Jamie Graves refers to two key requirements of a CDO as follows:

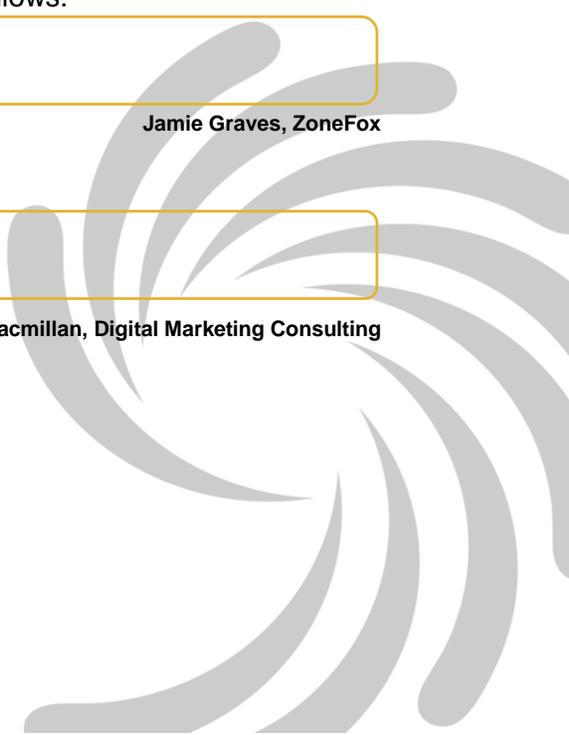
*“Engagement and enablement are two core areas the CDO requires.”*

Jamie Graves, ZoneFox

While Iain Macmillan refers to:

*“Vision setting, relationship building and execution/delivery.”*

Iain Macmillan, Digital Marketing Consulting



For Aingaran Pillai at Zaizi the culture element is woven through the foundational data management, governance and security requirements which is surely correct:

*“The data culture, good data management practices, including governance and security.”*

Aingaran Pillai, Zaizi

The cultural approach speaks volumes for the data maturity of an organisation and is neatly summarised in a paper<sup>54</sup> by DHR International as follows:

*“In an anti-data culture employees form opinions and then find statistics that support preconceived conclusions. In a data-driven culture employees ask questions, form hypotheses and then test these hypotheses against the data. A data driven culture is comfortable with ambiguity and being wrong.”*

DHR International

The DHR paper (Emergence of the Chief Data Officer (2013)) is an excellent reference point when considering the impact of a scientific data-driven approach within any organisation. Note that to deliver on the many positive impacts identified in the paper the authors’ emphasise that the CDO team should ideally be responsible for all data generated across the organisation.

Equally important is the final point in the quote above, and this is one that relates very directly to our experience at Profusion. The CDO must set the expectations and understanding for the organisation – including the fact that some data experiments will fail, others will deliver ambiguous results and some hypotheses will simply be wrong. This is the nature of scientific enquiry and is the essential price to be paid to drive successful innovation.

Of course this is not what any C-Level executive wants to hear and so without the right cultural understanding it is all too easy for one failed experiment to be leveraged by opponents to undermine and question the value of the overall approach.

An alternative view is taken by Catherin Brien, recognising the significant and sustained investment required to drive the vision through to realisation Catherine argues for the importance of a multi-speed approach to datafication, such that the long term plan is punctuated by early revenue generating wins.

Such cultural and change management elements of the role speak directly to the skillset required of the CDO, succinctly described by Michael Abtar as:

*“Strategic thinker, problem solver and influencer.”*

Michael Abtar, IG Smart

<sup>54</sup> [http://38.101.94.41/Public/CDO\\_Whitepaper.pdf](http://38.101.94.41/Public/CDO_Whitepaper.pdf)

Not to mention the balance between domain expertise and a wider strategic toolkit. As Jamie Graves sees it:

*"I think we'll probably see the same cycle (to that seen in security) whereby highly technical and very capable people are promoted or appointed to certain positions, and, subject to their complementary (soft) skill -sets for example may or may not struggle, and then we'll see an evolution from the technical and toward a more typical C-Suite skillset."*

**Jamie Graves, ZoneFox**

But most importantly they all add up to the importance of a strong commercial aptitude and the direction of travel for the role – toward that of a (C-Level) business strategist.



## 5.4. Converting data into value

“What revenue opportunities exist and how do we monetise that data?”

Michael Abtar, IG Smart

The final part of this chapter speaks to the commercialisation of data within an organisation, recognising that this takes time, resources, resilience and stamina. Every one of our respondents referred to the importance of the commercial, strategic value of data being realised.

To varying degrees they also all spoke about *the art of the possible* in terms of data applications, tempering this with reference to regulatory compliance and ethics, such is the importance of a sustainable approach to leveraging data, not to mention the looming shadow of GDPR.

An interesting area to consider here is the economic value of data per se. One school of thought, represented by Hal Varian, Google’s Chief Economist, argues that data exhibit, ‘decreasing returns to scale’ (and that the real value of data lies in the algorithms that crunch the data). The other school of thought, represented here by Bill Schmarzo, CTO at Dell, argues that data exhibits a, ‘rule of appreciation’, such that the more they are used and enriched the more valuable they become.

The middle way, and you should always look for a middle way in this minefield of self-interest, is that the marginal value of increasing data flows can only be measured in light of any new applications, products or services developed on the back of the long tail of data. Data neither exhibits a concrete law of appreciation or depreciation per se – such measures are subject to the use of the data, now and in the future.

Such differences of perspective help to explain the slow development of any real market in data, despite the promise highlighted by the World Economic Forum back in 2011.<sup>55</sup> The advent of GDPR along with open banking and similar (data portability) initiatives may start to see this change.

They also help to explain both the dominance and the volatility<sup>56</sup> of tech stocks globally, with the S&P 500 only just recovering the losses generated by the dot-com crash at the turn of the century.<sup>57</sup> Whether we are heading for another crash remains a matter of discussion but the current valuations for the major players are eye-watering.<sup>58</sup>

Returning to our task it is clear that realising the potential value of data requires a collaborative cross-functional approach – as seen in our company reporting lines. Such collaboration should develop a road-map that supports Catherine Brien’s shrewd recognition of the importance of early business wins.

Darren Cairns acknowledges that his interest in data lies in how it can inform much more efficient marketing investments and, therefore, greater ROI and of course this is a crucial driver behind the growth and sophistication of digital marketing – it is fundamentally measurable – and while we

<sup>55</sup> [http://www3.weforum.org/docs/WEF\\_ITTC\\_PersonalDataNewAsset\\_Report\\_2011.pdf](http://www3.weforum.org/docs/WEF_ITTC_PersonalDataNewAsset_Report_2011.pdf)

<sup>56</sup> <https://www.ft.com/content/a9639534-6a03-11e7-bfeb-33fe0c5b7eaa?mhq5j=e1>

<sup>57</sup> <http://www.marketwatch.com/story/after-17-years-sp-500-tech-sector-finally-regains-lost-ground-2017-04-24>

<sup>58</sup> <http://dogsofthedow.com/largest-companies-by-market-cap.htm>

may challenge some of the metrics in the market, particularly their relevance and value to business outcomes, we are wholly aligned on this point.

For Henrik Nordmark of Profusion this agenda speaks to the Yin and Yang of the Chief Data Officer role – the *Yin* being the passive governance, management and security aspects - and the *Yang* being the active interrogation of the data through various techniques and disciplines.

While for Darren Cairns this requires the CDO to be a capable data analyst or scientist able to demonstrate ROI through data modelling and predictive analytics – being able to take a hypothesis from any business function test it against the data and respond with recommendations in a timely manner.

Ultimately, it will be the value generated by datafication that will be the measure of success, optimising existing operations but most importantly opening up new opportunities and revenue streams.

The valuations of the leading players in the S&P 500 make clear the faith (or hope) that investors have in data driven commercial operations, with the leading players creating the conditions for their future success through industrial scale harvesting of data streams today.

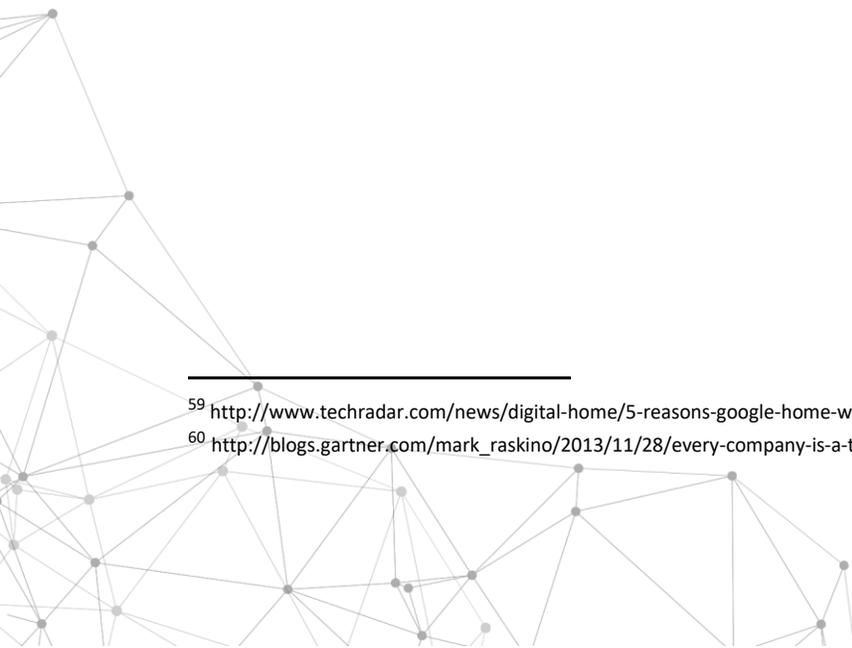
A clear example is that of Uber with the journey details generated through today's private hire service providing the data to underpin tomorrow's autonomous vehicles. Note also how Google Home is already regarded by some as a superior assistant to Amazon Echo due to the troves of data captured through search and related services.<sup>59</sup>

Of course the value extends far beyond Silicon Valley and technology businesses - with the likes of Rolls Royce and many others transforming engineering and manufacturing while financial services agriculture travel and tourism and many more are reaping the benefits. We may not all understand ourselves as tech businesses<sup>60</sup> – but more and more of us are.

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<sup>59</sup> <http://www.techradar.com/news/digital-home/5-reasons-google-home-will-beat-amazon-echo-1321967>

<sup>60</sup> [http://blogs.gartner.com/mark\\_raskino/2013/11/28/every-company-is-a-technology-company-more-and-more-evidence/](http://blogs.gartner.com/mark_raskino/2013/11/28/every-company-is-a-technology-company-more-and-more-evidence/)



## 6. Success and longevity of the CDO role

*“One of the biggest challenges that CDOs will face is people understanding what they do.”*

Michael Abtar, IG Smart

We have looked at the top three responsibilities of the CDO through the eyes of our research practitioners and we have already shared some interesting insights as to the character and attributes required of an effective Data Officer.

One question we wanted to explore was whether the *first generation* of CDOs were likely to achieve success – a question posed in response to observations made by commentators including Gartner and KPMG.<sup>61</sup> The question generated some particularly impassioned responses.

Many of which appeared to reflect a degree of frustration with the *noise* surrounding the development of the role and the broader opportunity. Another example of which is perhaps the concept of Big Data itself, now so widely used as to be all but devoid of meaning – and so pervasive that it was dropped from the Gartner Hype Cycle in 2015.<sup>62</sup>

Before moving on it is worth reflecting on the *first generation* positioning adopted by KPMG.

Our own work suggests that this is a reasonable reflection on the state of the UK market today i.e. we are living with the first generation of CDOs (albeit relatively limited in number) – but far from the global reality in that the first generation of Data Officers were appointed in the USA in the first years of the 21<sup>st</sup> century – led by Visa in 2001.<sup>63</sup>

Therefore, **the UK experience is in fact the *second generation* of global CDO** roles and includes many of the elements of the Chief Analytics Officer role discussed here<sup>64</sup> and adopted by a number of global organisations (including Omnicom for example).<sup>65</sup>

It would be reasonable to hope that this second generation would be in a better position to identify and to deliver success for their parent organisations. Yet that perspective assumes that organisations have gone to market to learn from their peers as to how to establish the conditions for success ahead of appointing an individual to the post.

*“No one individual will make this a success – must be a collaborative effort across teams & functions – finance, technology, marketing, strategy – no one individual part of that will make this a success.”*

Darren Cairns, Marketing Consultant

<sup>61</sup> <https://assets.kpmg.com/content/dam/kpmg/nl/pdf/2016/advisory/Chief-Data-Officer.pdf>

<sup>62</sup> <https://www.datanami.com/2015/08/26/why-gartner-dropped-big-data-off-the-hype-curve/>

<sup>63</sup> [https://en.wikipedia.org/wiki/Chief\\_data\\_officer](https://en.wikipedia.org/wiki/Chief_data_officer)

<sup>64</sup> [https://en.wikipedia.org/wiki/Chief\\_analytics\\_officer](https://en.wikipedia.org/wiki/Chief_analytics_officer)

<sup>65</sup> <https://www.annalect.com/people/mark-reggimenti/>

That is the essence of the responses received, while there is strong support for the role, this is a team game, success in data requires organisational commitment and is predicated on building a positive collaborative data culture across teams functions and departments.

This requires a **positive mandate** from the board – an access all areas remit for the Data Officer to transcend ownership issues and clashes. It is quite a contrast with a limited, reactive, compliance focused mandate, which in the opinion of Aingaran Pillai will (inevitably) lead to failure:

*“This comes down to how the organisation views the role of the CDO. If the view is limited to a compliance or regulatory focus then they will fail. You need to find the right person with the right skills AND a positive (organisational) mandate to drive change. Therefore it is not the individual per se that will determine their success, it is mainly the organisation, they need to clearly define and position the role and their expectations.”*

Aingaran Pillai, Zaizi

As we noted at the top of the chapter it is not just a question of a positive mandate it requires a clearly defined role and a clear understanding of what the role is and can bring to the organisation:

*“I don’t think all of them will fail but I think there is a good chance that in many companies the role will be misunderstood, not just the role in fact, but the role that data can play within companies can also be misunderstood.”*

Henrik Nordmark, Profusion



## 6.1. So, will they succeed?

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*“The right person in the right organisation with the right group of executives around them who are fully behind it **and get it** will succeed, without that, probably not.”*

Catherine Brien, Cooperative

Not the most ringing endorsement from one of our practitioners but a broad perspective shared by Laura Scarlett at the Guardian when she said that she probably agrees with the spirit of the statement because:

*“Data is always at the epicentre of change, it has long tentacles which reach into all business areas, but it is never considered first, it is always an afterthought, which makes it hard, another thing that makes it hard is the clash with digital...”*

Laura Scarlett, Guardian

One of the key issues is managing expectations at all levels of the organisation, as Catherine Brien told us success requires time resources and culture to all be in place – with time perhaps the hardest aspect to manage in the face of understandable impatience to see results, but also requiring work to sustain motivation and effort before seeing the fruits of that labour.

Craig Patton added another dimension to the discussion by highlighting the importance of a clear organisational understanding of where they are on the maturity curve or digital journey:

*“The effectiveness of the individual and or the function within that business should be predicated on an understanding of where that organisation is along their journey. Performance metrics and so success should be judged against clearly contextualised objectives – e.g. joining up data across the organisation. If the aspiration is for the role to drive new revenues that impact the top and bottom line and the organisation is not ready to execute on that basis then where does the fault lie?”*

Craig Patton, Hydration

All of which adds up to a pretty consistent and compelling picture. The appointment of a Data Officer, no matter how talented and skilled – and remember there was some significant divergence in terms of the skills expected of the incumbent – is not a magical panacea. The role in itself will not drive success, but the fact that the organisation is willing to make the hire, surely gives them at least a fighting chance:

*“For those organisations with the foresight and ability to place a marker in the sand as to their strategic vision and where they want to be, and are prepared to take the necessary risks and to manage them effectively, to guide the organisation towards their end point then there are definite opportunities for growth and for success.”*

Michael Abtar, IG Smart

## 6.2. Longevity of the role?

*“The Chief Data Officer is here to stay.”*

Aingaran Pillai, Zaizi

A punchy perspective to start this section, one that is broadly representative of the perspectives shared by our respondents - and in contrast to much of the noise in the wider market where the role is often understood as part of a transformation programme and so with a finite shelf life (circa 3 years).

This is a view consistent with that from the McKinsey Digital Officer playbook with the Digital Officer positioned as the *Transformer in Chief*<sup>66</sup> driving organisational change and targeting obsolescence as their key success metric. It’s an important reference point because, as we know, there are many who conflate the two roles and consider them as interchangeable titles.

This is certainly not the case among incumbents – who typically then go on to demonstrate many of the attributes declared as integral to the digital officer – innovative, disruptive, bold, determined, socially adept etc.

In fact, McKinsey suggest two primary drivers for hiring a Chief Digital Officer:

*“When an organisation needs to approach the first principles behind digitalisation. When the CEO realises they can’t deliver integrated transformation within their current construct.”*

McKinsey

Both of these drivers could equally be applied to the appointment of a Chief Data Officer and in fairness to McKinsey they have been very flexible when it comes to which roles are the best fit for different organisations including Chief Analytics Officer, Data Officer, Digital Officer, Information Officer or Technology Officer. For them the key point was to expand leadership capacity to deliver against this burgeoning opportunity.<sup>67</sup>

We saw earlier that Iain MacMillan was broadly supportive of this transformation mindset, going so far as to suggest that a smart organisation would phase the Data Officer appointment to follow but, critically, to overlap with the Digital Officer position.

By contrast Laura Scarlett at GNM argued that such a perspective reflected:

*“... a fundamental misunderstanding of the topic.”*

Laura Scarlett, Guardian

<sup>66</sup> <http://www.mckinsey.com/business-functions/organization/our-insights/transformer-in-chief-the-new-chief-digital-officer>

<sup>67</sup> <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/mobilizing-your-c-suite-for-big-data-analytics>

Laura believes the “*strategic management of data is a permanent ongoing requirement*” – not a remit that can be limited to a transformation programme or an initial set-up operation.

A view supported by Jamie Graves - “*If you are going to take the digital economy seriously you need someone or something within your organisation to take care of that.*”

Other respondents referred to the pace of change in the sector and the need to keep on top of and to integrate the latest developments effectively. Even for digital native businesses, and this includes some of our prospect discussions at Profusion, it is clear that it is extraordinarily difficult to keep up-to-date, not least if your organisation has scaled rapidly and is way beyond the initial start-up mindset.

As Aingaran Pillai put it:

*“I would disagree, because even if you are a digital native business, the technology is always evolving, constantly transforming (even in last five years – e.g. voice). Most importantly the key thing is the data innovation piece, the application of clever data science, being able to bring your customers and stakeholders with you – because people will start to destroy their data...”*

**Aingaran Pillai, Zaizi**

Darren Cairns was equally emphatic in his view:

*“Of course I don’t agree with that, in order to agree I would need to have a crystal ball, to be able to see the technology and data landscape across the next ten years...It may be that the role becomes more of a marketing role, but I don’t think you can say this role won’t exist, I think the role will evolve, as technology and data modelling develop.”*

**Darren Cairns, Marketing Consultant**

While Catherine Brien was very slightly more nuanced when she said:

*“Something in that but it is so far off as to be meaningless...The role I don’t think goes away but the role shifts towards how are we getting the most value out of this and how do we get more value.”*

**Catherine Brien, Cooperative**

And Henrik Nordmark of Profusion contributed the following thoughts:

*“Data is here to stay, it’s certainly not a fad, whether that data needs to (continue to) be under the control of someone explicitly titled Data Officer or whether it will shift to a different directorate (technology, strategy, science etc.) is a different question, the answer to which will evolve in different ways for different organisations as the technology and data landscape moves forward.”*

**Henrik Nordmark, Profusion**

Craig Patton brought us back to the evolution of the role:

*"I would agree if the definition of the role is to achieve a point of harmonisation of data within the organisation. I would disagree if you take the view that the CDO role will morph into being a much more strategically orientated position focused on the growth of the organisation"*

Craig Patton, Hydration

It is perhaps the strength of the strategic mandate that is central to the longevity of the role. As with other C-Level roles it is critical that the Data Officer is able to take this broad strategic perspective but also that they can *get stuff done* (as McKinsey also emphasise).

**So, is the CDO principally a business strategist (or should they be)?**

*"Subject to the relative maturity of the organisation, certainly I would agree with that directionally, although I don't see many clients who are at that stage .....What I would say is that they can provide the left brain, rational, part of the strategic process by virtue of their access to empirical information, therefore an important (informed) perspective to bring to strategic planning – in contrast to intuitive, empathetic, insights and understanding"*

Craig Patton, Hydration

Interesting here that Catherine Brien, Laura Scarlett and Henrik Nordmark with their strong analytical and data science credentials all broadly support this point of view, but only one would aspire to be a Chief Data Officer themselves.

This surely reflects the blend of skills and personal attributes required of the role, as we have discussed, but also the many exceptional individuals who have taken the lead in driving data forward within organisations and across the economy. Such pioneers, innovators and problem solvers may be the very last people to want to take their seat at the C-Level, but they would certainly benefit from a capable C-Level sponsor able to unlock resources, investment and to sustain organisational commitment.





## 6.3. Evolution of the role

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We have generated a few different perspectives on the future for the Chief Data Officer role including Chief Customer Officer, Chief Commercial Officer, Chief Technical Officer and Chief Digital and Data Officer – along with the retention of the pure Chief Data Officer title.

We have also seen different points of view as to whether this needs to be a distinct C-Level role in the future – whether this elevation provides a valuable transformative focus or has a longer term and distinct strategic value at the C-Level.

Where this is a clear consensus among respondents and commentators alike is that the strategic management and monetisation of data is a crucial source of future growth and innovation. That this remit must cover the whole organisation, must fundamentally address data ownership and lock in the status of data as a crucial company asset, must be forward facing and strategic, and must be backed by investment, time and organisational culture.

All agree that the nuances and focus of the role will evolve in different ways in different organisations and why wouldn't they when the over-arching objective of the role can be summarised as the development of a *cohesive organisational data strategy*?

Looking further afield we can see Gartner forecasting that by 2020 15% of successful CDOs will have taken up different C-Level roles including CEO, COO and CMO.



## 7. Looking ahead

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Our final question to our interviewees positioned the CDO role in relation to that of the Chief Electricity Officer – an analogy that seems to have become increasingly well-known and used.<sup>68</sup>

The relevance of the analogy in relation to datafication extends across a number of aspects of the respective transformations. These include the inevitable internal resistance to new ways of working and especially the (additional) demands made of staff in adapting and transitioning to the new model. This being a particular challenge when the end result may be to make existing roles redundant, at best requiring those individuals impacted to reskill to fit new roles.

In both transformation scenarios there is also the simple and very human fact that the experience, expertise, insight and intuition developed in the context of one paradigm does not simply translate into the new operating environment (something we can see very clearly in marketing for example).

Typically that wealth of knowledge is concentrated in the upper echelons of the organisation – i.e. among the very decision makers required to drive successful transformation – adding a critical layer of internal resistance, one with the potential to stymie the revolution before it can really take effect.

The potential for tensions at the C-Level is particularly strong if the CDO has the appropriate mandate to access all areas of the organisation and to work across all functions and departments. This speaks to the comments made by KPMG in their 2016 paper – where they envisioned a lack of internal support and resourcing and the potential for C-Level tensions, directly leading to their expectation that many (first generation) CDOs were unlikely to succeed.

The statement is of course one of modernity, signposting the direction of travel and positioning the organisation in the vanguard of change. The CDO should in themselves personify this positioning in their relationships and communications, keeping abreast of the latest trends and applications of data, the relevant technologies and architectures, along with potential partners and collaborators. And of course being able to develop and communicate the underlying vision, and the strategy for delivery.

*“As electricity became a utility, a shared resource essential to business operations but inconsequential to competitive differentiation, it no longer required a separate staff to watch over it. It became a routine and largely invisible element of operations, marketing, product development, purchasing, and other traditional functions. Chief electricity officers disappeared, their work complete”.*

Nicholas Carr, *What's a CIO to do?*

Interesting to note here the parallels with the emergence of Digital Marketing as a distinct discipline and ecosystem, with new metrics and approaches to communications and advertising. As above we have argued that now is the time for a reintegration of marketing to reflect the realities of marketing in a digital age and the urgent need to capture the relationship between online and offline touchpoints including retail store or bank branch visits, contact centre communications, events and experience participation and more.

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<sup>68</sup> E.g. *Harnessing our Digital Future* (McAfee & Brynjolfsson 2017) and *The Big Switch* (Carr, 2008)

The Chief Electricity Officer was of course a short-lived phenomenon (a handful of years) and so lost its effectiveness as a source of differentiation. The smart modern organisation of the time may well have already moved to attach themselves to the next big thing – much like the already surfacing debates as to the value of a Chief AI Officer<sup>69 70</sup> (two references from HBR – less than six months apart) or similar.<sup>71</sup>

Interestingly, Jamie Graves highlighted the relevance of the utility analogy in relation to the cloud:

*“It may well be the case that organisations start to outsource their data analytics to the cloud and consume services in a different way - thus not requiring a CDO but requiring people within organisations to understand the impact of the data they are getting from their various processors.”*

Jamie Graves, ZoneFox

Beyond the utility analogy we had some interesting discussions regarding the nature of data relative to electricity – and the extent to which the former could ever be commoditised in a similar manner. A key feature of datafication is of course the ever-changing and ever-expanding range of data that need to be handled.

*“The cloud will become a utility at some point in the future, the question is whether you will have a broad suite of capabilities within the cloud data processing factories in terms of putting data in and pulling insights out.”*

Jamie Graves, ZoneFox

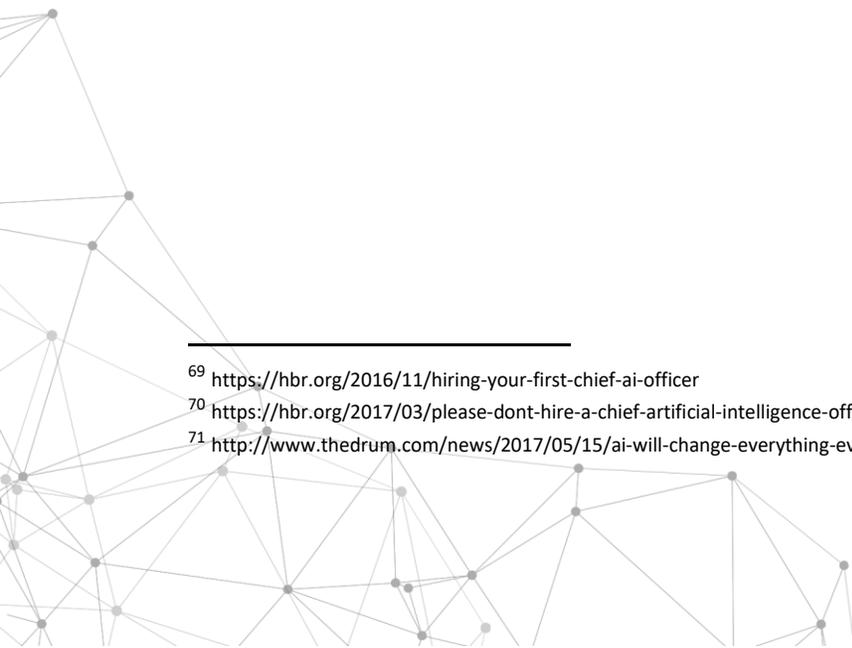
Consider that in the last ten years alone we have seen the rapid adoption of Smart Phones (with the iPhone as the critical catalyst) with all of their data flows, the growth of social media channels and the new generation of messaging platforms, the development of augmented, mixed and virtual realities and voice activated technologies.

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<sup>69</sup> <https://hbr.org/2016/11/hiring-your-first-chief-ai-officer>

<sup>70</sup> <https://hbr.org/2017/03/please-dont-hire-a-chief-artificial-intelligence-officer>

<sup>71</sup> <http://www.thedrum.com/news/2017/05/15/ai-will-change-everything-even-the-c-suite>



## Concluding Comments

Today we are hopeful that with the political and regulatory dynamics in play – including Open Banking, GDPR, Brexit and Austerity – not to mention the global **Dash to Data** that is just starting to take off - the time is now right for UK organisations to make the intelligent investments required to drive the transformational potential of datafication.

We are hugely excited by the immediate applications of data in terms of machine learning and AI in its various forms, we are already working on advanced automation and sophisticated personalisation and we relish the next phase of development including the adoption of blockchain technology in different contexts, particularly in terms of data security and the *technology of trust*. At least as exciting is the emergence of quantum computing with all of its frightening potential – again including security applications.

Last but certainly not least - we are ready to embrace IOT data flows and the value that they can bring to new products and services including key industrial applications such as predictive maintenance or smart city applications and the wider development of enhanced location based insights.

One thing is for sure this ride is only just beginning – and the CDO of today has a hugely exciting career ahead of them including some of the greatest societal and existential debates of our time.

## Our call to action

At least one thing should be clear from this report. In a dynamic, immature and constantly evolving marketplace there are no textbook answers or off-the-shelf solutions that can address all of the needs of any individual organisation – whether for today's performance optimisation or tomorrow's growth opportunities.

It is of course not simply an internal or operational issue today. All organisations must be cognisant of the emerging regulatory landscape, whether in industry verticals such as finance (especially Open Banking) or across the marketing spectrum (GDPR). They must also be sensitive to shifts in consumer sentiment insofar as it impacts on the acceptable limits of individual targeting and data processing more generally.

Most importantly we must build upon the key insight that datafication extends far beyond the marketing function. It can and should be leveraged across the entire organisational footprint, from supply chain logistics, to operations and maintenance, to HR and people management and beyond.

Fundamental to the success of any Chief Data Officer role is the need to centralise ownership of all company data in order for data to be understood as a critical organisational asset. Harmonisation of such disparate datasets is then critical to unlocking the promise of transformative insights (as entertainingly illustrated in the two editions of *Freakonomics* (2005 & 2009)).

**While *Freakonomics* (2005) was arguably the seminal moment in growing public awareness of the promise of Big Data, today we recognise the limited continuing value of such a lens and are far more focused on capturing and leveraging smart, actionable, data. In which context we might reference a similarly disruptive book – *Nudge* (2008). Taken together the two books have had a significant and enduring impact on our understanding of economics and human psychology. They were of course followed by the Global Financial Crisis – the defining event of our times – with all of its continuing implications for our operating environment (especially the crisis of trust). The best data applications should be informed by an appreciation of all three of these strands.**

Apart from the political implications of such a move we should also recognise the need for a secure and robust data architecture to manage such disparate data flows in a single environment.

We have referenced above the rapid development of cloud based data storage and analytical models – with Amazon, Microsoft and Google all to the fore in this space. Clearly, while there is much that can be debated about this approach, these developments make data analytics available to even the smallest of organisations today (just consider the impact of Google Analytics on website optimisation) and so provide a springboard for more sophisticated bespoke approaches.

Yet just at the moment of take-off for datafication we have to contend with the potential impact of BREXIT on the availability of data skills and talent. This is an urgent political and societal challenge for the future of the UK economy – and not something we can resolve here beyond exhorting all organisations to consider how they can support the development of the UK skills base - from schools to apprentices and beyond.

## **So where to begin?**

The key point is to make a start. All organisations will be in different positions, from the traditional manufacturer looking to sustain international competitiveness to the B2C retailer looking to keep pace with digital native start-ups, from the e-commerce pioneer to the local authority laggard and beyond.

Not every organisation, including the vast majority of businesses, will have the resources to appoint a CDO, but that should not be seen as a barrier to moving forward. The baton will need to be taken up by other leaders – ideally the CEO themselves.

The initial focus should be strategic in scope – in simple terms where are we today and where do we want to be tomorrow – and should certainly involve and include C-Level leaders. Other key questions at this stage should include existing limitations arising from data architectures, technology constraints (e.g. legacy systems), data skills and expertise and overall capacity.

Such forums can be developed and delivered in-house but many organisations will feel that they would benefit from an external perspective on best practices, project prioritisation and, arguably most importantly, having an objective outside voice to mitigate and manage internal conflicts of interest.

As discussed earlier in the report there is an essential need to start with an understanding of what data is currently captured, stored and processed, what data should be captured, stored and processed, and what data we would like to have access to. Mapping data flows is a key element of this stage, understanding where data has come from and where it is stored.

This initial audit can be initiated and developed through inclusive workshop style forums including all key functional stakeholders from across the organisation. Ultimately this first step should create a centralised, single view of the organisation's data assets from which platform we can start to review the quality of the data (and initiate remedial actions where necessary) while developing policies and processes for data governance and regulatory compliance.

The key then is to develop and agree a transformation roadmap supported and resourced at the C-Level (ideally featuring explicit CEO support). Such a roadmap should combine small and large projects but most importantly should include some clear early wins for the organisation in order to sustain the energy, momentum and support required to achieve the transformation goals.

Let us be clear that the roadmap isn't a reiteration of the traditional waterfall approach to project management but is fundamentally predicated on agile working practices and in full knowledge that new opportunities and challenges will emerge as work gets underway.

So, let's get started.



## Appendix

# GDPR, where are we today?

*“The implications of the global trust crisis are deep and wide-ranging.....It began with the Great Recession of 2008, but like the second and third waves of a tsunami, globalization and technological change have further weakened people’s trust in global institutions.”*

Richard Edelman, President and CEO, Edelman

## Operating Context

You’ll be aware that we live in particularly fraught and febrile times, with trust perhaps the scarcest commodity available to contemporary business, government and other agencies today.<sup>16</sup> As we approach the 10<sup>th</sup> anniversary of the global financial crisis there remain profound questions to be answered as to the future shape of the global economy.

Cyber security breaches, egregious hacks, WikiLeaks, Edward Snowden, fake news, filter bubbles, fraudulent advertising impressions, made up metrics and many more stories and scenarios have conflated national security and surveillance with contemporary data analytics, advertising, popular culture, politics and psychology.

All of which contributes to a loss of confidence and trust in the digital economy.

Into this broad context we see GDPR as a welcome landmark in the maturation of the digital economy and the wider **dash to datafication**.

A new and de facto global standard for data protection will, we hope, embolden consumers, empower businesses and equip public agencies to harness data more effectively and in doing so to add significant value to individuals, businesses and society.

Today the digital landscape is dominated by a small number of giants (variously described by acronyms such as GAFA, FANG or BAT) with stock market valuations to match. What we also need to see is much more diversification and localisation within the digital economy if we are to meet the needs and address the concerns of the public, consumers and business.

Yet these giants, routinely maligned in many areas of their activity, are also creating the conditions for even the smallest business to optimise and leverage its data and so to thrive in the new economy.

The Chief Data Officer could come to play a key role in navigating these polarities, while promoting the benefits and addressing the concerns around datafication - and who knows - we may in time even develop a form of language that is positively embraced by the wider public.

<sup>16</sup> <http://www.edelman.com/trust2017/>

## State of the nation

*“There are two types of people, those who are sick and tired of GPPR and those who have never heard of GDPR.”*

**Jamie Graves, CEO, ZoneFox**

GDPR is here, GDPR is happening, and (Brexit notwithstanding) everyone needs to get prepared for the May 2018 live date. This much is true, and while a wide range of surveys tend to highlight alarmingly low levels of awareness, appreciation or preparedness there is no doubt that there is a significant amount of activity and noise going on across the industry.

A number of respondents highlighted and endorsed the work of the ICO<sup>17</sup> in growing awareness and understanding of the regulatory framework, together with providing practical guidance for preparedness and subsequent compliance.

And yet, as our own Henrik Nordmark reflected:

*“I think the vast majority of companies do not even understand the implications of the legislation and even among the few that do, they are for the most part not prepared for it.....and I am very conscious that the clock is now ticking.”*

**Henrik Nordmark, Profusion**

Certainly none of our respondents have come across any organisation that is already fully compliant with GDPR requirements, not least as their still remains sufficient ambiguity within the guidelines to obstruct full implementation.

This challenge was referenced by Yves Schwarzbart, Head of Policy & Regulation at IAB UK, who has been closely involved with the development of the regulations over the last seven years, working alongside the UK negotiating team and benefiting from what he described as “an open channel for discussion of our concerns.”

As Yves puts it:

*“Despite the best efforts of policy makers there remain a number of grey areas with sufficient ambiguity for us to have to discuss ways of being able to implement them and also to discuss with regulators how they can be applied on a workable basis.”*

**Yves Schwarzbart, Head of Policy & Regulation, IAB UK**

<sup>17</sup> <https://ico.org.uk/for-organisations/data-protection-reform/>

Michael Abtar endorses that view and adds a broader context to the challenge of implementation:

*“Part of the challenge is that one; the new supervisory authority is publishing the guidance in a piecemeal fashion, some questions remain unanswered, and some areas are still a bit grey and until that guidance comes from the centre people are not exactly 100% sure what they should be doing in very specific use cases. The other issue is the timing of it all in terms of Brexit and the wider economic climate, not to mention all of the cyber-security issues, it couldn’t be timelier - in a good and bad way - for organisations.”*

**Michael Abtar**

While Jamie Graves at ZoneFox highlights some of the specific technological challenges including the right to be forgotten:

*“...things like the right to be forgotten are incredibly difficult things to achieve and there are currently few technologies that are deployable and easy to set-up within organisations to achieve this.”*

**Jamie Graves**

In a nod to the risk and compliance focus dominating enterprise executive minds, Jamie drew attention to the 72 hour breach notification requirement. You will be aware that in some (and especially so in the case of Yahoo<sup>18</sup>) of the highest profile personal data leaks and breaches of recent times there was an alarming time lag before this was made known to authorities or affected parties.

As with other requirements such as the rights to transparency, portability and to be forgotten it is understandable that from the consumer perspective this should feel like a relatively straightforward exercise and yet such is the sophistication and reach of global data architectures that in reality it is a significant challenge to execute.

Happily for ZoneFox this serves to bring them closer to customers grappling with these issues and serves as a stimulus to further product and service innovation:

*“...any challenge that our customers encounter brings us closer to them, so that we can have meaningful conversations with them about how to go about solving that in a manner that works for them from an operational and regulatory perspective, so it’s always good to have things like this because it helps us to push the boundaries and it helps us to fine tune the ‘art of the possible’  
...so it’s very much been a driver of innovation for us, and I should imagine many other start-ups are seeing that as a great opportunity too.”*

**Jamie Graves**

ZoneFox have launched a GDPR dashboard that speaks specifically to the 72 hour breach notification requirement, unsurprisingly, this is attracting a lot of interest and curiosity as a practical step forward - beyond the theorising that has dominated GDPR discussions to date. Another aspect of GDPR we were keen to explore is the requirement for intelligible explanations of algorithmic decision making (and the ability to opt-out of such automation) an issue that has

<sup>18</sup> <https://www.theguardian.com/technology/2016/dec/14/yahoo-hack-security-of-one-billion-accounts-breached>

been widely discussed – including by Nesta here<sup>19</sup> – where they also highlight the likely need to automate permissions themselves as the IOT grows and matures.

It is clear that this area could be highly problematic and if implemented poorly could act as a significant drag on data innovation. As Jamie Graves put it:

*“It’s a real problem if you’re talking about things like machine learning, there is no service that allows you to quantify or to understand the outputs...”*

Jamie Graves

For a very simple example of a neural network in action see this example<sup>20</sup> - and then consider for a moment how you might explain the process in *Plain English*.

We await clarification and development of that requirement while hoping for a relatively light-touch approach in all but the most sensitive of cases and applications.

## Global reach

Despite the many ambiguities and technical and cultural challenges still to be addressed within the UK and across the EU, what has been interesting to hear during in our research is the extent to which GDPR is already acting as a **highest global denominator** when it comes to data permissions, data privacy and data protection standards.

This does of course make sound business sense – ensuring that you are aligned to the best standards available in today’s global market will save additional investment further down the line.

In an interesting research discussion, Michael Abtar of IG Smart referenced a recent trip to Ghana where GDPR was very much on the agenda as a key issue for businesses across the continent to address. This, in the context of a dearth of domestic regulations, feels like a huge leap forward for business and other organisations.

In fact, though it brought to mind the African mobile experience, bypassing the fixed-line internet stage and going straight to mobile (due to infrastructure constraints), and so empowering a new generation to pioneer the development of new mobile financial and farming services for example. Might we see the same pattern in relation to GDPR driven data innovation?

The *global standard* view was endorsed by Yves Schwarzbart, Head of Policy & Regulation at IAB UK:

*“Seems to make perfect business sense, it is of course a challenge, but once you have cracked that challenge you can be confident in your approach to other regulatory frameworks.”*

Yves Schwarzbart

<sup>19</sup> <http://www.nesta.org.uk/blog/user-illusions-data-and-algorithms-will-address-long-standing-consumer-issues-create-new-ones-too>

<sup>20</sup> <http://boingboing.net/2016/05/06/baby-names-generated-by-a-neur.html>

And speaks to the compliance and risk focus recognised by Craig Patton as the primary driver of senior executive level interest in GDPR:

*“Managing risk is the primary focus for many global clients today – that is the key driver relative to strategic value at the moment – but that will change fairly rapidly I’m sure.”*

Craig Patton

Thus any temptation for the UK to take a different path in the face of Brexit should be resisted as the reality is that global businesses will already be working toward these exacting standards as part of their risk management strategy.

## UK Preparedness

Yet, research continues to show some belief (perhaps hope) that Brexit will make GDPR irrelevant (not helped by ambiguities in the government position<sup>2122</sup>) which prompts us to consider the current level of preparedness across the UK – and it is a hugely varied picture – with Darren Cairns for one suggesting that from his perspective:

*“[I think]...we’re seeing a lot of complacency – similar to what we saw with Y2K.”*

Darren Cairns

While Yves Schwarzbart suggests that company size is a key variable when considering UK preparedness:

*“[UK preparedness]....Very much differs and I think one key variable is the size of the company.”*

Yves Schwarzbart

This, of course, makes good sense in terms of the personnel and resources available to enterprise level organisations relative to the SME tier. It also speaks to the scale of risk involved at the enterprise level, both in terms of the fines (up to 4% of global revenues) and the impact on share prices but also in terms of reputational risk in this most febrile of public climates.

Indeed as Iain MacMillan reflected, in recognition of the myriad challenges facing UK businesses today; *“I think there are many more important and pressing issues facing most SMEs”*.

Broadening our perspective to include the UK public sector we are seeing similarly mixed levels of awareness and preparedness, with Aingaran Pillai at Zaizi reporting that from his vantage point he is seeing a *“really mixed bag across the public sector”*; while acknowledging that there is a widespread understanding that they *“must manage data better”*.

Michael Abtar at IG Smart endorsed the mixed view but also referenced the positive strategic work going on at NHS England with regard to developing a new approach to effective data management.

<sup>21</sup> <http://www.wired.co.uk/article/the-uk-needs-europes-data-protection-laws>

<sup>22</sup> <https://www.technologylawdispatch.com/2017/06/privacy-data-protection/the-queens-speech-2017-the-future-for-uk-data-protection-regulation/>

It is in the health space, specifically in the NHS, that we have seen a key example of the public withdrawing consent from data sharing - leading to the Care.Gov initiative being delayed and the ongoing disputes around data sharing contracts between NHS trusts and Deep Mind.<sup>23</sup>

In thinking about the future health of the digital economy we were particularly interested in the extent to which our respondents saw the withdrawal of data permissions as a significant threat. Indeed Elizabeth Denham, Chief Information Commissioner has highlighted research suggesting that 75% of the UK public do not trust companies with their personal data<sup>24</sup> – a key element of the crisis of trust (referred to above) in established (establishment) institutions across society at present.

While it was clear that our respondents broadly consider today's challenges around privacy and protection (and advertising practices) to be little more than growing pains resulting from a new light (and wider focus) being shone on data practices, it was equally clear in the context of GDPR that many considered this an important step forward in (re) building public confidence and trust.

As Darren Cairns put it:

*“For me it’s a step in the right direction, we have to make sure it doesn’t go too far, but we do have to respect and honour the right to consumer privacy.”*

**Darren Cairns**

It was notable that Laura Scarlett, Director of Data and Insights at GNM, highlighted the fact that the time is coming when we [business] will need to reward individuals for the use of their personal data while Iain MacMillan highlighted the need for a ‘more inclusive and expansive mindset’ among digital leaders – leveraging their talent and technology in addressing societal challenges.

It is clear that for many organisations GDPR is seen as an onerous regulatory burden. As our own Henrik Nordmark reflected:

*“At some level you might argue that all of these data protection laws are a nuisance to business, but I think they are also a great opportunity however, as it means you have to be that much cleverer in how you leverage data, and while they do create barriers to entry and possibility, it means that there are more opportunities to find niches within that (regulated) space.”*

**Henrik Nordmark**

It could be the case that many practitioners would benefit from a change of perspective, taking their business hat off and taking a fresh look from a civilian angle. Take Jamie Graves for example:

*“My personal opinion is that it’s a good thing, because it forces people to think about these things, if I think about where my data is held I would like people to have their very best people make their very best effort in order to secure that data....and so I feel happy as a consumer, and I feel happy as a security professional, because there is a lot of good stuff in there.”*

**Jamie Graves**

<sup>23</sup> <http://www.wired.co.uk/article/deepmind-nhs-streams-deal>

<sup>24</sup> <https://ico.org.uk/about-the-ico/news-and-events/news-and-blogs/2016/09/transparency-trust-and-progressive-data-protection/>

## CDO (DPO) and GDPR

So what is the role for the CDO in relation to GDPR, how necessary is the presence of a CDO and does GDPR presage any issues ahead for the CDO role?

*“For those companies that have a Data Officer, I think it is certainly the case that there is a higher level of [GDPR] awareness and that these individuals tend to be more practical in how they are looking at the compliance challenge.”*

Yves Schwarzbart

Yves Schwarzbart above is seeing a positive impact in relation to GDPR preparedness, not least as IAB UK guidance aligns with the collaborative, cross-functional approach required of an effective CDO:

*“Furthermore our GDPR advice to members is always to include as many business teams, functions and departments as possible in preparations – in order to generate the broadest perspective (and buy-in) on the impact across business functions and processes. Where there is a Data Officer in place they may already have developed this level of cross-functional experience, buy in and relationships to build from - which can only make this (compliance) process more seamless and painless.”*

Yves Schwarzbart

Again, we can see that the size of the organisation is a key variable when it comes to the desirability and importance of the CDO role in relation to GDPR and beyond:

*“For larger enterprises I think it’s a very important thing to have.....Someone who has the perspective (and authority) to be able to say this is [the data] we actually need, this is how it needs to be structured, this is why we are collecting it, and this is how we are going to turn it into actionable intelligence, money or whatever the desired outcome is. The bigger the organisation (and related proliferation of data) the more important it is to have a CDO.”*

Michael Abtar, IG Smart

At the Cooperative GDPR preparedness sits under the remit of the Chief Risk Officer at the request of the Director of Data Science, a decision driven by recognition of the importance of the separation of roles – more on which shortly.

As Henrik Nordmark argued each organisation will identify the most appropriate directorate for them:

*“For those companies with a CDO in place or planning to appoint one it makes a very natural fit for them to lead on GDPR compliance and beyond....Is it absolutely necessary? Probably not, there are other people within an organisation that can play that role whether it is a risk officer, legal officer or similar. One thing that is important is not to put the head of IT in charge of this as the GDPR is very clear on a necessary separation of roles.”*

Henrik Nordmark

At GNM Laura Scarlett is very much in the driving seat for GDPR compliance, working in close collaboration with key colleagues across different (tired) fora:

*“(My) lead role is absolutely critical, one of the first things I did was to set up a data governance framework with a data governance team meeting monthly, plus a data council (at C-Level) that meets every two months, that’s been a great framework to discuss and make decisions on certain uses of data and of course the Data Council will be leading the GDPR implementation.”*

Laura Scarlett

We mentioned above the importance of a clear separation of roles in relation to GDPR, this speaks directly to the requirement for all public sector bodies and other (large scale) personal data processing organisations to appoint a Data Protection Officer.

This sounds pretty straightforward and essentially common sense. As Michael Abtar notes:

*“Whether you are formally required to have one under GDPR or not I think all organisations that process personal and sensitive data should have someone who fulfils that function.”*

Michael Abtar

We are certainly seeing a lot of recruitment activity out there, there are estimates suggesting that there is a need for 75,000 Data protection Officers<sup>25</sup> globally – so here at least is one area where data is definitely helping to grow employment!

Note, however, that the role can be filled by existing personnel, subject to the requisite separation of roles, as Aingaran Pillai notes in the context of the UK public sector:

*“In fact they already have them in place, senior security officers, who will be the ones picking up the GDPR gauntlet.”*

Aingaran Pillai

Inevitably, it’s not nearly as straight-forward as it might be. As Yves Schwarzbart explains:

*“[It’s a] difficult one as not every business I speak with has a Chief Data Officer in place. What makes it more difficult is the question of the Data Protection Officer role under GDPR. The Protection Officer must be quite independent of any C-Level role within that company under GDPR. This is tricky in itself (and not overly practical) as there is also a requirement that the Protection Officer should have a sound strategic understanding of the business context, culture and operating environment – while being independent of decision making.”*

Yves Schwarzbart

<sup>25</sup> <http://www.darkreading.com/careers-and-people/75000-data-protection-officers-needed-by-2018-to-handle-eu-law/d/d-id/1327444>

Henrik Nordmark was in tune with the spirit of the regulations when he suggested the following:

*"It is certainly important for large or small organisations that have data at their core, to think about the role for a Data Protection Officer and a DPO that can, if needed, be a whistle blower, and one that has a reasonable amount of independence....Another interesting option for many organisations may be to consider one or more non-executive director role - acting as the Data Protection Officer."*

Henrik Nordmark

While Jamie Graves noted the potential for conflict at the C-Level further down the line:

*"I think where there may be a bit of contradiction is between the role of the DPO and the CDO where the CDO is tasked with making the most of and exploiting data within the organisation and the DPO under GDPR is about showing compliance and risk management, adherence to security and so on, I'm interested to see how that will play out."*

Jamie Graves

In some respects the Data Protection Officer may come to occupy the (Passive) Ying role - just as the Chief Data Officer has moved forward to take on the (Active) Yang role. Born of necessity this may become an ideal model for many organisations.

Overall, it appears clear that for large organisations of any type the presence of a CDO can and should play a key role in marshalling a coherent approach toward GDPR across all functions, unlocking the resources and budget required, and addressing multiple stakeholder concerns.

Yet the absence of a CDO need not be a barrier, as we have seen the Risk Officer and others are taking the lead in different environments. For the smaller organisation we would hope to see the CEO play a lead role with the support of external expertise and agencies as appropriate to the individual organisation.



## GDPR, innovation and future competitiveness

As part of our research we were keen to learn to what extent organisations were viewing GDPR as a platform for innovation – in line with the thinking at the Open Data Institute where Peter Hall, Head of Policy, was explicit in terms of their perspective on the opportunities that data portability could unlock – not least in tandem with the Open Banking standards set to take effect in the UK in 2018.<sup>26</sup>

It would certainly be fair to say that banks and the wider financial services industry are facing significant challenges across the regulatory spectrum from capital requirements to ring fencing to GDPR and Open Banking – little wonder that the sector has been to the fore in recruiting Chief Data Officers.

We have already seen that for most organisations the short-term focus is very much on risk management and compliance, but what about the wider opportunities arising?

In this context I was struck by the comments of our own Henrik Nordmark in this respect:

*“I think the question to ask from a business strategy point-of-view is - what are the kinds of things that you can do in the EU - because of all this extra legislation that is in place - which you wouldn't be able to do in the USA, China or the UAE for example?”*

Henrik Nordmark

Among our research respondents both the Cooperative and GNM have been highly proactive in engaging their customers, members and readers in open discussions as to their views on acceptable uses, and sharing of their personal data.

Laura Scarlett was very clear as to the GNM view of GDPR:

*“GNM see GDPR as an opportunity for innovation and to get closer to our readers”*

Laura Scarlett

It may be no surprise to learn that GNM have a full GDPR readiness plan in place with budget allocated, clearly the structure that was put in place by Laura is bearing fruit in the context of this challenge while the Cooperative have been boosting their resources with the recruitment of a new head of information security.

This consumer focus echoes the (B2B) sentiments of Jamie Graves in relation to GDPR - as creating an opportunity to open a new dialogue with prospects and customers and so to develop ... solutions to client needs.

Both GNM and the Cooperative have focused on *‘being trusted with data’* as a key business mission, yet as Catherine Brien provocatively states in relation to learnings from their focus groups:

*“The public needs to work out its point of view on that and where the line is as to what is appropriate and what isn't... What is absolutely clear is that there is no single policy that will work for everyone and what we need to do is to enable individuals to choose the package that suits them.”*

Catherine Brien

<sup>26</sup> <https://theodi.org/open-banking-standard>

It is certainly clear that there are significantly different perspectives across the generations, with younger people much more aware of the relationship between data, advertising and (free) online content with a clear recognition of the now established truism 'if you're not paying for the product then you are the product'.

In which context it is worth noting that today, despite all of the (apparent) furore and fulminating over fake and biased online news only 6% of the UK public currently choose to pay for online news in any form – compared to 16% in the USA at present.<sup>27</sup>

This simple example highlights the significant challenges in sustaining the advertiser funded model of free information provision - at a time when many of us (circa 40%) choose to use ad blocking software to improve the user experience.

The opportunity here is to find new sources of value in the available data, thus we see leading packaged goods (FMCG/CPG) producers experimenting with Direct to Consumer models, we see new and deeper models of personalisation impacting on products and pricing as well as sites, services and messaging, we observe new platform propositions operating across new partner ecosystems, and we expect the growing Internet-of-Things to turbo-charge all of the above including the current vogue for (mobile enabled) in-the-moment or micro-moment targeting.

Thus the news brand, for example, evolves into a platform proposition, built on the strength of the audience relationship and brand affinity, orchestrating a targeted array of additional products and services for readers, members or (premium) subscribers.

To unlock this potential, while growing and sustaining consumer trust and confidence - as Catherine Brien notes above - there is a pressing need to create a suite of packages with various level of data processing and sharing that speak to individual perspectives and requirements – while sustaining the flow of the commercial revenues critical to survival.

So, what drives the effectiveness of the targeting, personalisation and the platform proposition? The quality of the data at the heart of the platform and the richness of the single customer view – as long as we can sustain the free flow of customer data into and across the organisation.

Interestingly, Yves Schwarzbart, perhaps the closest of our research respondents to the evolution of the GDPR, and someone who has been actively involved in the development of the regulatory framework for up to seven years has his doubts:

*"Yet to be convinced that GDPR can drive innovation in the privacy space.....in the way that we have been promised by some European commentators ...think there are other considerations influencing how individuals choose who they want to interact with, I could be completely wrong but not convinced that it [GDPR] has the potential that others seem to see."*

Yves Schwarzbart

That may well ultimately prove to be true but what GDPR has already achieved is a new organisational and especially business focus on issues of data privacy, security, processing and permissions. It will likely lead to a diminution in the volume of marketing messages sent (not to mention the addressable audience for such messages), as well as a broader humanisation of data cultures and a new and transparent dialogue around automation and algorithmic decision making.

All of which will be built on new and robust data architectures and systems that better reflect the status of data as a (if not the) key organisational asset.

<sup>27</sup> <http://www.digitalnewsreport.org/survey/2017/paying-for-news-2017/>

## Data, competitiveness and Brexit

*"To some extent the arms race is just starting [and] Brexit is irrelevant in this context."*

Catherine Brien, Director of Data Science, The Cooperative

Here at Profusion we passionately believe in the power of data to transform customer relationships, to accelerate business performance, to drive operational efficiencies and to create new sources of value and growth. We recognise that this is still an emerging field for many organisations and have a strong appreciation of the particular challenges faced by many legacy organisations.

We can see the progress and development across the sector, from the growth of empowered in-house data science teams, to the emergence of an array of data science consultancies, the expansion of services from management consultancies, communications agencies, media networks and more.

With the advent of Brexit threatening to cut across the rapid growth of the data sector we felt it was important to ask our research respondents for their thoughts on the situation here in the UK.

Post-Brexit, the UK aims to launch a new age of global economic reach, seeking to boost trading relationships with the fastest growing and most valuable economies in the world, including China, India and the USA but also fast emerging markets such as the CIVETS, or the Next 11 for example.

To realise that vision the UK needs to look to its economic strengths, and there is little doubt that the tech digital and data space is increasingly important to the UK economy, is by far the largest in Europe, and (still, despite Brexit nerves) has access to the funding to drive global reach<sup>28</sup> - given the right operating environment.

Figures<sup>29</sup> from BSA - The Software Alliance suggest that the software sector (directly and indirectly) contributed almost £125bn to the UK economy in 2014 (7.1% of GDP), higher than any of the other 'Big Five' European markets, and part of an overall software contribution of almost £710bn to the EU economy – approximately 7% of EU28 Total GDP

While Tech City UK in their third annual TechNation report (2017)<sup>30</sup>, with a foreword by the Prime Minister herself, highlight record levels of inward investment (£6.8bn), total digital tech sector turnover of £170bn, and 1.64m digital tech sector jobs across the UK in 2016.

Of course if we are looking to scale the tech sector still further and to create a global market for UK data products and services we will need to compete for and to attract the best talent into the sector.

We all recognise that the UK education system is not producing nearly enough alumni with the right skill sets – and so we rely on our ability to import the brightest and the best – themselves attracted to the UK (principally, but not exclusively London) by its culture, diversity, economy and history.

At this critical moment there is suddenly a real threat to the future free movement of labour as part of the (already torturous) Brexit negotiations. We are already seeing rapid decline in the number of EU nationals heading to the UK for work - with (NHS) nursing, for example, seeing a 96% decline in EU registrations across the twelve months since the referendum (with only 46 EU nationals registered in April 2017).<sup>31</sup>

<sup>28</sup> <https://www.finextra.com/pressarticle/69936/london-tech-scene-shrugs-off-brexit-fears-as-record-levels-of-capital-roll-in>

<sup>29</sup> <http://www.cityam.com/267848/britains-software-sector-must-protected-throughout-looming>

<sup>30</sup> <http://technation.techcityuk.com/>

<sup>31</sup> <https://www.nursingtimes.net/news/workforce/stark-decline-in-eu-nurses-coming-to-work-in-uk-continues/7018688.article>

## Open for business

So what of our research respondents, what were their thoughts on this most troubling challenge?

We saw at the top of this section that Catherine Brien at the Cooperative was keenly aware that Brexit (or GDPR) notwithstanding, the *Dash to Data*, is only just beginning – and Brexit is irrelevant to the simple fact that we have to align ourselves with this reality if we are going to be able to compete internationally – as Ericsson make clear in their thoughts on datafication (which we don't apologise for repeating):

*“Datafication creates a fundamentally new strategic landscape. Any company, large or small, any NGO, in fact any organisation active in society needs to fully explore the new value creation space instigated by datafication”*

Ericsson

We have already seen outstanding success stories – largely identified with the Unicorn phenomenon and heavily linked to Silicon Valley operations and platform economics (think Airbnb or Uber). Yet the tricky thing about the platform model is that there can only ever really be one or two sustainable platforms in each sector, the rest are playing catch-up or seeking out sustainable niches in the (remains of the) market.

While the figures may be disputed it is clear that the UK does have a number of its own Unicorn success stories, and indeed a disproportionate share of European Unicorns,<sup>32</sup> including twice as many FINTECH Unicorns as the rest of Europe combined.<sup>33</sup> You may well recall the end of 2016 (£1.4bn) sale of one of our home grown successes – Skyscanner – to cTrip a Chinese business.<sup>34</sup>

While business leaders tend to be a pragmatic bunch, personified by Darren Cairns' comment:

*“Brexit has happened, whether we like it or not, we have gone down that road.”*

Darren Cairns

It is also worth noting Craig Patton's comments such that many UK politicians appear to have lost touch with a daily reality that is second nature to many individuals (of all ages) and organisations:

*“My concern is a lack of recognition of that [connected] reality among policy makers, regulators and politicians, where we are seeing a turn inward toward nationalism and populism, and to some extent seeking to, to some degree, uncouple some of this interconnectedness across geo-political boundaries.*

*“Major advertisers who have to date driven this idea of a global community are struggling in response to today's political environment and are reacting against it – including WPP who have publicly come out against Brexit along with a number of our clients.”*

Craig Patton

<sup>32</sup> <http://www.gpbullhound.com/wp-content/uploads/2016/06/GP-Bullhound-Research-European-Unicorns-2016-Survival-of-the-fittestest.pdf>

<sup>33</sup> <http://www.telegraph.co.uk/technology/2017/04/19/uk-capital-europe-fintech-unicorns/>

<sup>34</sup> <http://www.bbc.co.uk/news/business-38088016>

While many advertisers and businesses try to shy away from political controversies, Brexit has generated such strength of feeling in the business community that they are prepared to take a stand. Of course there are other businesses and business leaders championing Brexit – but those voices are not being heard in the tech digital and data sectors of the UK economy.

We mentioned Skyscanner above, the Edinburgh based Unicorn business. While we can only imagine the details of their path to success we know the business was established by four graduates of Manchester University. As such it's highly likely they will be able to relate to this evocative picture painted by Jamie Graves of ZoneFox:

*"From my perspective I am saddened by the fact I can't bump into someone from Spain or Germany in Edinburgh for example and hire them immediately, I've been able to do that, and it's been great, serendipity is a wonderful thing and innovation thrives on that"*

Jamie Graves

Dr Graves went on to add:

*"This is part of the engine we want to build for our economy, but if we close down borders and are unable to have that supply of intelligent, skilled people who are enthused about this country then we are going to fall flat on our face"*

Jamie Graves

While most of our respondents referred to the importance of being able to access skills and talent, and not just from a pure skills perspective but also in recognition of the value inherent in plurality and diversity in the workforce, we were particularly interested in the perspective shared by Aingaran Pillai at Zaizi.

Zaizi specialise in digital transformation across disparate public sector organisations and agencies and from this vantage point Mr Pillai was able to glimpse the potential for future success based on the challenges of targeting resources better and doing more with less. Thus from necessity comes invention:

*"It's inevitable that the (UK) challenges around Brexit will drive us to be a lot more data driven, we need to be a lot more efficient and more effective, and we need to use data to achieve that and to hone in on where the money needs to be spent. When we succeed in that then it becomes a strong set of knowledge and expertise that we can export out." (e.g. Smart Cities)*

Aingaran Pillai

Doing more with less of course also speaks to the wider question of productivity in the UK economy - widely regarded as lagging behind our international peers but subject to considerable debate in terms of measurement techniques and outputs (especially in the digital sector). The TechNation 2017<sup>35</sup> report referenced above includes the latest estimates from Tech City UK on digital tech sector productivity – estimating it to be twice as high as that of non-digital workers.

<sup>35</sup> <http://technation.techcityuk.com/>

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