frontier economics

THE ROLE OF SHAPE IN R&D AND INNOVATION: CASE STUDIES

A report prepared for the British Academy

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EXECUTIVE SUMMARY

FOCUS AND APPROACH

Innovation is a key driver of **economic prosperity**. Innovative ideas have the potential to influence productivity, growth and the quality of goods and services available in a way that directly and positively impacts wellbeing across society. For these reasons, innovation is a **longstanding and consistent focus of UK policy**. Despite this, there is concern that the focus of public support for innovation may not fully recognise the **complexity of the innovation process**.

The British Academy asked Frontier Economics to provide evidence to support a better understanding of the realities of commercial innovation. Two particular issues motivated this study: innovation relies on a much broader set of inputs than research and development (R&D), and R&D and innovation are influenced by a wide range of disciplines and expertise. In particular, there is evidence that the role that **SHAPE disciplines** play in innovation is not fully recognised.

DEFINING SHAPE

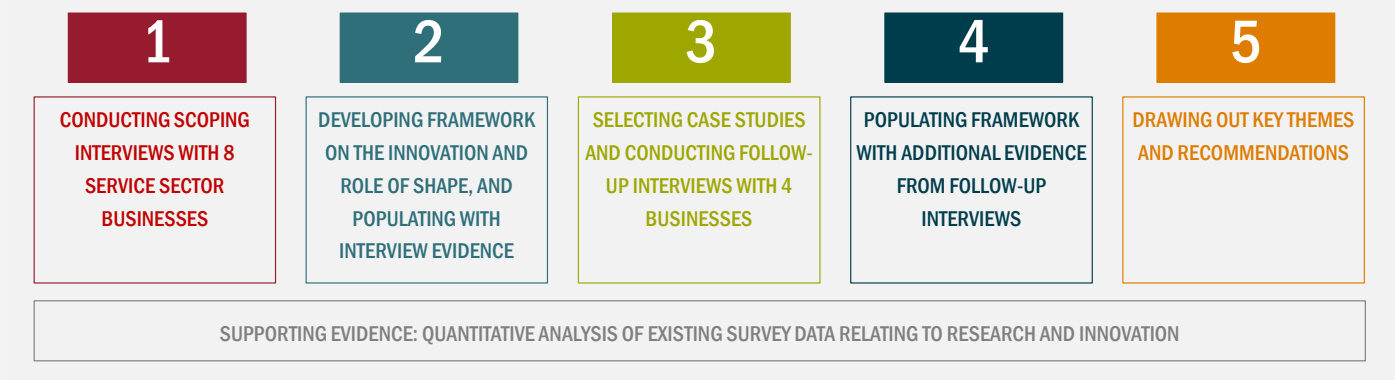
SHAPE stands for **Social Sciences, Humanities and the Arts for People and the Economy.**

The British Academy defines SHAPE as a *"collective name for the social sciences, humanities and the arts – subjects which help us make sense of the human world, to value and express the complexity of life and culture, and to understand and solve global issues"*.

Examples of SHAPE disciplines include (but are by no means limited to): languages and linguistics, history, psychology and cognitive sciences, economics and business, geography, media and communication, law, education, philosophy, theology and anthropology.

To explore these issues in greater depth, we interviewed more than 20 individuals with expertise in innovation from eight large, high-profile service sector organisations in four different industries. This included deep-dive case studies with four businesses: **Tesco**, **Phoenix Group**, **Accenture** and **Netflix**. These expert views gave critical insights into the practicalities of commercial innovation in the service sector, by far the largest part of the UK economy, and the role of SHAPE disciplines in this process.

The main steps of our approach are summarised in the figure below.



KEY FINDINGS

INNOVATION IS HIGHLY IMPORTANT FOR SERVICE SECTOR BUSINESSES

Our conversations highlighted just how important innovation is for service sector businesses which rely on it to help them **grow and weather significant industry changes**. Innovation in services is **centred on customers and solving customer needs**. It is vital in a world where **competition is fluid, cuts across sectors** and is increasingly focused as much on competition for peoples' time and attention as on their spending. Consumer expectations of quality and experience now **drive innovation and insights from one part of the service sector to another** – one interviewee highlighted how people's experiences of user interfaces on streaming services or delivery apps then influence their expectations of how they will engage with their bank online. In this context, innovation is understood broadly, as ranging from **small tweaks** to how things are done, through to **"big bang" transformative changes**.

Our qualitative findings are reinforced by quantitative analysis of datasets relating to R&D and innovation:

- **The service sector is increasingly important as a source of business R&D**. In 2009, just 25% of UK business R&D was performed by the service sector. By 2020 this had grown to 35%. In recent years, the service sector's level of R&D expenditure has increased steadily, while the manufacturing sector's level of R&D has somewhat plateaued.
- **Knowledge-intensive service sector firms are more likely to be innovators than non-engineering manufacturing firms**. In 2018 to 2020, 38% of knowledge-intensive service sector firms reported undertaking internal R&D compared with 27% of 'other manufacturing' firms. On a broader measure of being 'innovative' (which includes investing in innovation projects and new business practices), 62% of knowledge-based service sector firms reported being innovative compared with 59% of other manufacturing firms.
- **Two of the three largest sectors in terms of claiming R&D tax credits are largely service-oriented**: professional, scientific and technical services (24% of the value of claims in 2019–20) and information and communications (20%).

BUSINESSES VARY IN HOW THEY ORGANISE AND UNDERTAKE INNOVATION

How service businesses organise their innovation efforts varies. While most tend to adopt a **formalised approach**, placing innovation explicitly within the responsibilities of selected teams or individuals, the common view we heard over and over again was that **innovation can, and should, happen at all levels of the organisation** as part of a broad **"culture" of innovation**. To support this, businesses tend to source innovative ideas from a wide range of sources both inside and outside the organisation: **internal research and data, formal structures and partnerships, internal or external competitions or portals to invite innovative thinking, academic research and the activity of other businesses.**

BUSINESS INVESTMENT IN INNOVATION IS BROADER THAN FORMAL R&D

We also heard that **formal R&D is only one part of the investments** that service sector firms make in innovation – and sometimes quite a small part. The efforts put into innovation are much wider, particularly the **investment of time and resource** focused on internal innovation teams. These investments, however, often appear harder to measure and value than R&D. Analysis of survey data on innovation investments backs up this point: in 2018 to 2020, internal and external R&D accounted for 56% of business innovation expenditure on average (and a similar share, 55%, in the distribution and service sectors).

A WIDE VARIETY OF SHAPE INSIGHTS ARE PERCEIVED AS IMPORTANT FOR INNOVATION

The businesses we interviewed perceive SHAPE insights, drawn from both internal and external sources, to be **important** for their business innovation. The focus on **customer needs** places human-focused SHAPE disciplines, such as psychology, behavioural science, sociology and ethnography, at the core of efforts to understand where to innovate to add value to customers. This type of insight is also fundamental in helping to develop **customer-friendly solutions**.

We heard a wide range of other examples, beyond the more commonly acknowledged contribution of behavioural insights, of where SHAPE adds value. This includes the role of **economists** in optimising innovation investments, **linguists and storytellers** in developing successful chat bots, **geographers** in optimising physical retail outlet locations, **media and communication** experts in developing engaging apps and educational videos, and **culture experts** in shaping culturally diverse content.

THERE ARE POTENTIAL DANGERS ASSOCIATED WITH EXCLUDING INSIGHTS FROM SHAPE DISCIPLINES IN BUSINESS INNOVATION

As well as noting the added value of including SHAPE insights, many businesses emphasised the **dangers associated with excluding them**. In a world where technology is ever more present, there is a real risk in excluding the SHAPE perspective on how technology can impact people and society, and how people engage with technology in reality.

A common perspective we heard was the **need to integrate insights from SHAPE and STEM**[1] for effective innovation, rather than having them siloed. There is evidence that the "collision of perspectives" that such a combination brings is increasingly appreciated. This includes the establishment of the Human Sciences Studio at Accenture or the investment in developing courses and resources on the social and ethical responsibilities of computing by the Massachusetts Institute of Technology (MIT).

Despite the recognised importance of innovation, businesses do face a mix of internal and external barriers to innovating. The external barriers we heard of include a**ccess to the right talent, regulatory burden and poor dialogue with academia** about real-time industry challenges. Those we spoke with felt that this was a particular challenge within the SHAPE disciplines and an area where STEM research was ahead.

POLICY RECOMMENDATION

Our interviewees had a range of ideas on how policy could help facilitate innovation in the service sector. These can be grouped under the following four pillars of support.

[1] A collective term for the academic disciplines of science, technology, engineering and maths (STEM).

BETTER DIALOGUE

- **Improved dialogue between government and service sector businesses to enhance understanding of innovation and the role of SHAPE in it**. There was a common view that SHAPE insights matter for innovation, but we also often heard a perception that the focus of government innovation policy was on scientific R&D and that policy makers often failed to understand the realities of business innovation. Many large, service-oriented firms already have government affairs teams, but it seemed clear that innovation was rarely a topic on the agenda for conversation with policy makers.
- **Improved incentives for academic researchers in SHAPE disciplines, particularly to support innovation**. This includes creating better fora for industry and academia to come together to discuss practical innovation-related issues in real time, communicating how to better translate academic ideas into commercial solutions, and supporting businesses' ability to shape academic research agendas to better target real-world business needs. A view we heard was that this process had already been quite effective in STEM but that SHAPE lagged behind.

FINANCIAL SUPPORT

- **Support in navigating the policy and funding environment for businesses to facilitate collaboration in this space**. Many noted that they were open to greater interaction with policy and policy makers, but they were keen to understand who to engage with specifically around innovation. And while there was some awareness that innovation funding for some sectors might be available, at least one of our interviewees noted that the landscape was very fragmented and difficult to navigate. This is particularly relevant as we heard that limited financial resources can be a barrier to innovation at the moment.
- **Policy could be more supportive in reducing certain costs even for large firms.** Among the large service sector firms we spoke with, there was not necessarily a strong desire for more specific direct public funding of innovation as a key policy ask (though this is not to say that other firms, particularly smaller services firms facing barriers around access to finance for innovation, would not benefit from additional funding). However, we did hear about specific costs that even large firms could use support with – including making more data freely available (e.g. geographic data) or providing targeted support for innovation-enhancing investments such as IT systems that support testing of digital innovation.

REGULATION

- **Developing supportive regulatory environments for innovation**, balancing the need to protect consumers with the need to innovate for them. We heard that regulation can at times slow down innovation, particularly when regulation lags behind technological developments. The challenge of adapting regulation to technological change needs to be top of mind for policy makers as the rate of technological change is ever increasing.

EDUCATIONAL POLICY

- **Education policy to develop the right talent to support innovation in the services economy.** We heard repeatedly of the importance of combining SHAPE and STEM insights for effective innovation, but there were some concerns that educational pathways in the UK often lead people to specialise early.

1 INTRODUCTION

1.1 CONTEXT FOR THIS WORK

Innovation is a key driver of economic prosperity. Innovative ideas have the potential to influence productivity, growth and the quality of goods and services available in a way that directly and positively impacts wellbeing across society. Innovation itself is a broad term that can have a variety of meanings in different contexts and has no agreed definition. However, the UK's 2021 Innovation Strategy defines innovation as *"the creation and application of new knowledge to improve the world"*.[2]

In 2021, the UK government published *Build Back Better: Our Plan for Growth,*[3] which outlined policy ambitions to support economic growth. This included innovation as one of "three pillars" of investment. Productivity and innovation have, of course, been longstanding policy goals, as outlined in a recent policy review article.[4] The emphasis on innovation to boost productivity was only enhanced by the 2008 financial crisis and the subsequent "productivity puzzle" which saw productivity grow much more slowly post crisis than in the period leading up to it.

The *Plan for Growth* re-affirmed a target (first set in the 2017 Industrial Strategy White Paper) to increase the total share of R&D spending to 2.4% of gross domestic product by 2027, compared with around 1.7% in 2019 (the most recent year for which full figures are available). The Autumn 2021 Budget and Spending Review pledged an increase in public investment in R&D to £20 billion by 2024-2025 and £22 billion by 2026-2027.

Despite this longstanding and consistent policy focus, there is concern that the policy emphasis around innovation may not fully recognise the complexity of the innovation process. In the context of this study, there are two particular issues:

- **Innovation relies on a much broader set of inputs than R&D**. The most recent UK Innovation Survey found that around 16% of firms, only one in six, conduct in-house R&D. But 45% of firms are identified as being "innovation active" when looking at a broader definition of innovation.[5] Recent research has emphasised the role of investment in a much wider set of "intangible assets", including software, branding, design and training, alongside R&D as being critical for innovation.[6]
- **R&D and innovation are influenced by a wide range of disciplines and expertise**. There is often a perception that R&D and other innovation-related investments are about scientific research conducted in laboratories, and the definition of R&D used by HMRC to determine eligibility for R&D tax credits explicitly excludes R&D in certain disciplines (including the social sciences and

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009577/uk-innovation-strategy.pdf

[3] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/968403/PfG_Final_Web_Accessible_Version.pdf

[4] Cook, J., D. Hardy and I. Sprackling (2019), *Productivity Policy Review*, Productivity Insights Network, available at https://productivityinsightsnetwork.co.uk/app/uploads/2019/01/Productivity-Policy-Review.pdf.

[5] See Tables 1 and 2 of the Statistical Annex, available at https://www.gov.uk/government/statistics/uk-innovation-survey-2021-report

[6] See, for example, Haskel, J. and S. Westlake (2017), *Capitalism Without Capital: The Rise of the Intangible Economy*, Princeton University Press.

humanities).[7] However, there is growing evidence, to which this report contributes, that this is too narrow a view.

In this report we explore, in particular, the role of **SHAPE disciplines** in business R&D and innovation.

DEFINING SHAPE

Throughout this report, we frequently use the acronym **SHAPE**, which stands for **Social Sciences, Humanities and the Arts for People and the Economy.**

The British Academy defines SHAPE as a *"collective name for the social sciences, humanities and the arts – subjects which help us make sense of the human world, to value and express the complexity of life and culture, and to understand and solve global issues"*.[8]

Examples of SHAPE disciplines include (but are by no means limited to): languages and linguistics, history, psychology and cognitive sciences, economics and business, geography, media and communication, law, education, philosophy, theology and anthropology.

Recent evidence on the insufficient recognition of SHAPE disciplines comes from a 2021 study commissioned by the British Academy from the Creative Industries Policy and Evidence Centre, led by Nesta.[9] The report hypothesises that:

> *"…without the right definitions and tools to measure R&D, and effective policies in place to support it, the Government* ***risks ignoring the full value of R&D*** *in the UK economy, and* ***missing out on incentivising investment in innovation in arts, humanities and social sciences-related sectors and activities****. Rectifying this could lead to a host of benefits for the UK economy, society, and productivity in the broadest sense."*

Based on a literature review, desk research and interviews with thirteen business, the authors find that SHAPE-related R&D makes "distinctive" contributions to innovation and growth but is excluded from some official definitions of R&D and is likely under-counted in the UK's R&D survey instruments. They find that SHAPE-related R&D has value, but that it is often less tangible. Finally, they conclude that many businesses perceive interconnections between SHAPE and STEM.[10]

Nesta's report focuses specifically on R&D, but it sits within an existing evidence base related to the contribution of SHAPE to innovation more broadly. Examples of other publications on this topic include:

[7] See https://www.gov.uk/guidance/corporation-tax-research-and-development-rd-relief. The OECD Frascati Manual, which provides definitions for R&D that attempt to provide consistency in data collection across countries, explicitly *includes* a wider range of disciplines in the definition. The OECD definition is adopted by the Department for Business, Energy and Industrial Strategy (BEIS) and the Office for National Statistics (ONS) in surveys designed to capture the value of R&D investment conducted by businesses in the UK. There is therefore an inconsistency in the definition of R&D used in the UK for policy and measurement purposes. The 2.4% target is measured using the ONS/Frascati definition.

[8] https://www.thebritishacademy.ac.uk/shape-at-the-british-academy/

[9] https://pec.ac.uk/policy-briefings/business-r-d-in-the-arts-humanities-and-social-sciences

[10] A collective term for the academic disciplines of science, technology, engineering and maths (STEM).

- **Campaign for Social Science** – based on case study interviews, Vital Business (2020) explores how social sciences knowledge and skills are used by a number of UK private sector businesses. The authors conclude that UK businesses "draw heavily" on social sciences, including to "run their business day to day", and that "many companies use social science knowledge and skills to develop new products or ways of working".[11]
- **LaMore et. al** – the Arts and Crafts: Critical to Economic Innovation (2013) study is based on science and technology graduates from Michigan State University and finds that the majority of graduates believe that "their innovative ability is stimulated by their arts and crafts knowledge", and that experiences with arts and crafts are also "significantly correlated with producing patentable inventions and founding new companies".[12]
- **Frontier Economics** – the Absorptive Capacity: Boosting Productivity in the Creative Industries (2016) study, intended to identify opportunities to improve productivity in the creative industries, highlights the important contribution of the creative industries and their innovation to the UK economy. It demonstrates that creative industries are highly engaged in innovation in the UK, "with most sectors being at or above the UK average for product and process innovations and R&D activity".[13]

In this context, the British Academy is seeking to further broaden and complement the existing evidence base surrounding the contribution of SHAPE to innovation and R&D in the UK to ensure that future policy is more adequately informed and targeted.

The Academy commissioned Frontier to provide real-world insights, drawing on in-depth stakeholder interviews and case studies, to highlight the innovation process in UK businesses, the role of R&D and other innovation-related investments in that process, and where SHAPE research, insights and expertise contribute to business innovation.

Our focus is on the service sector, which accounts for 80% of economic activity. Nesta's report suggests that an understanding of R&D in the service sector, which has "origins in AHSS[14] disciplines", may be vital for achieving government R&D targets and "for the direction of policies to promote innovation and economic growth".[15] These conclusions and evidence gaps, combined with the size of the sector's contribution to the economy, are the basis for our focus on services.

We also had a particular focus on larger firms and organisations, many operating internationally. Larger firms are more likely to conduct in-house innovation activity and represent a significant part of the R&D and innovation landscape.

We explore the full process that companies follow as they innovate and the role that R&D may or may not play in this. We focus on the contribution that insights from SHAPE disciplines make, exploring how SHAPE insights feed into the innovation process, business perceptions of SHAPE, and the role that policy can play.

[11] https://acss.org.uk/wp-content/uploads/Vital-Business.pdf

[12] https://journals.sagepub.com/doi/abs/10.1177/0891242413486186

[13] https://www.frontier-economics.com/media/1056/20160707_absorptive-capacity_frontier.pdf

[14] Arts, Humanities and Social Sciences.

[15] https://cdn2.assets-servd.host/creative-pec/production/assets/publications/Policy-briefing_-RD-in-the-arts-humanities-and-social-sciences.pdf

1.2 REPORT STRUCTURE

The rest of the report is organised as follows:

- Section 2 sets out our approach to the study;
- Section 3 summarises our findings (with more detail on the case studies that feed into the summary in Annexes C–F); and
- Section 4 provides our conclusions and key takeaways for policy makers.

2 OUR APPROACH TO THE STUDY

Our approach to this work is largely **qualitative**, drawing on evidence from:

- **Scoping interviews** held with over 20 representatives from eight organisations, exploring broad aspects of their innovation process and the role of SHAPE research and insights; and
- **In-depth case studies** of four organisations (a subset of those with which we conducted scoping interviews), which involved desk research and further interviews with representatives from those organisations to provide a more detailed account (including a deep-dive relating to specific recent innovations).

A list of the organisations we spoke with can be found in Annex A . We are grateful to everyone who gave their time to this study.

We also conducted high-level **quantitative** analysis of existing survey data relating to research and innovation, broken down at a sectoral level, broadly aligning with the sectors covered in our qualitative assessment. This provided contextual understanding for the case study sectors in terms of broad research and innovation performance.

2.1 APPROACH TO QUALITATIVE RESEARCH

In selecting the organisations we spoke to, we focused on the **service sector** for the following reasons:

- As services account for 80% of UK economic activity (gross value added), the growth of the economy as a whole is critically dependent on the performance of the service sector.[16]
- Services account for around one-third of business R&D conducted in the UK,[17] despite limits on the definition of R&D used in official data. Within current definitions, increasing the share of R&D in national income to 2.4% will clearly require a significant uplift in R&D performed by services. Service sector firms also engage heavily in different forms of innovation, as illustrated in our quantitative analysis in section 2.2.
- Much of the focus of research into the innovation process looks at non-service sectors such as aerospace and manufacturing – despite the relative economic weight of the service sector. For example, previous Frontier Economics research on business innovation highlighted the potential for future research specifically into *"[e]vidence on how firms in non-R&D intensive industries innovate…sectors like retail, financial services, transport and utilities represent large parts of the economy, and all clearly innovate, but are much less engaged in scientific R&D and patenting than life sciences, aerospace and other traditional manufacturing industries"*.[18]
- Given the nature of their business, which is often customer facing, services are likely to need to draw heavily on understandings of behaviour, needs and desires at the individual, household and community levels in order to innovate. This is precisely where SHAPE insights can be critical.

As we only carried out in-depth case studies for a limited number of companies, we **focused on large firms** within these sectors to make the case studies more representative, given the larger contribution to the

[16] Source: https://commonslibrary.parliament.uk/research-briefings/sn02786/

[17] Frontier estimates calculated from ONS Business Enterprise R&D statistics (available here).

[18] Frontier Economics for BIS (2014), *Rates of Return to Investment in Science and Innovation* (available here).

economy of these firms and the fact that larger firms are more likely to engage in innovation and conduct R&D.[19]

Interviews were conducted with a clear understanding that, while the organisations we spoke with would be named in the report, the names of individuals we spoke with would not be divulged and quotes would not be attributed to individuals.

We developed a topic guide to structure both the scoping interviews and additional interviews for firms selected for in-depth case studies; this can be found in Annex B. The guide was used flexibly with different interviewees depending on their role and the aims of particular conversations. Broadly, the areas covered in interviews included: how the firm innovates, the importance of innovation for the firm and for the sector in which it operates, and how SHAPE insights contribute to all of this. In addition, we aimed to understand the barriers and enablers to innovation within the firm, including the role of policy, and to gain insights into how the picture might differ across countries for those firms which operate internationally.

Formal scoping interviews were conducted with one or more individuals from selected organisations between March and April 2022. Individuals were selected, in consultation with the organisation, to provide a relatively broad overview of the innovation process.[20] The interviews typically lasted for 45 to 60 minutes, and in most cases were conducted by the Frontier team via Microsoft Teams. When the permission was granted, the interviews were recorded and/or transcribed to aid analysis. We shared a summary of each scoping interview (including key quotes), mapped into key areas for the study, with those we spoke with for them to review, allowing an opportunity for feedback and clarification.

The scoping interviews helped to inform the selection of preferred case studies for a deep-dive assessment. The selection was based on the diversity of examples (including variety of sectors and different angles in which SHAPE insights were relevant to the innovation process) and the appetite and availability of the organisations to engage in more in-depth research.

For each chosen case study, we conducted a further one to three interviews with representatives from innovation teams, finance teams and other parts of the business who could provide further insights relevant to the aims of the report. This included interviews with people who had been involved in recent innovations within the businesses, which provided concrete examples of the more general views raised. These follow-on interviews were also informed by topic guides which were tailored to the specific organisation and interviewees we spoke with. Again, these interviews typically took place using Microsoft Teams, lasted for 30 to 60 minutes, and were recorded and transcribed with permission.

All interviews relating to the case studies were combined into case study narratives, which are presented in full in Annexes C to F of this report. The narratives also made use of public information relating to the organisation, where available (e.g. financial statements, annual reports and other information relating to

[19] The most recent Business Enterprise Research and Development (BERD) statistics (available here, Table 18) show that of the £9.5 billion spent on R&D by service sector firms in the UK in 2020, around 29% (£2.7 billion) was spent by firms with fewer than 100 employees and just over half (£4.8 billion) was spent by firms with 400 or more employees.

[20] In almost all cases we also held informal initial discussions with representatives from the organisation to explain the study, ascertain willingness to participate and identify relevant individuals to invite to a scoping interview. Given the size of the organisations, it was often difficult to find a single person with a broad overview of all innovation done. As such, the people we talked to were likely to have an overview of specific types of innovation only, e.g. behavioural research or production innovation, but, in many cases, they were also able to share reflection on the overall innovation process within the organisations.

innovation or research at the organisation). We shared the draft narratives with those we spoke with for review and feedback before being finalised.

Insights from the case studies and wider scoping interviews were analysed using a **framework analysis**:[21]

- We re-familiarised ourselves with the summaries of the scoping interviews and the case study narratives.
- We used the framework structure of our topic guides as a starting point and mapped evidence and quotes from the interviews and case studies to that framework, identifying new themes that emerged from the evidence alongside those we had initially included.
- We interpreted key features of the evidence identified in each theme, finding associations with observed features of the interviews (e.g. the type of organisation or sector) and points of commonality and difference.

This framework is used to structure the organisation of the evidence in this report.

2.2 APPROACH TO QUANTITATIVE ANALYSIS AND KEY FINDINGS

To provide wider contextual evidence for the qualitative insights, we analysed publicly available data sources on R&D and innovation. We collated relevant data from three key sources: the UK Innovation Survey (UKIS), ONS Business R&D Data (BERD), and HMRC data on R&D tax credit claims and costs.[22] All of these data sources allow high-level analysis at the national level and some degree of sector analysis. More details on these sources can be found in Annex G.

It is important to note throughout that the findings of this analysis depend on the methodology each dataset uses to measure R&D and innovation. As noted in Section 1, for example, previous Nesta research highlighted that BERD does recognise SHAPE-related R&D, but in practice will "likely under-count" it. Similarly, R&D tax credits are not available for SHAPE-focused R&D. The analysis included in this section should be considered with this in mind.

The headline findings and key messages of our analysis are set out below.

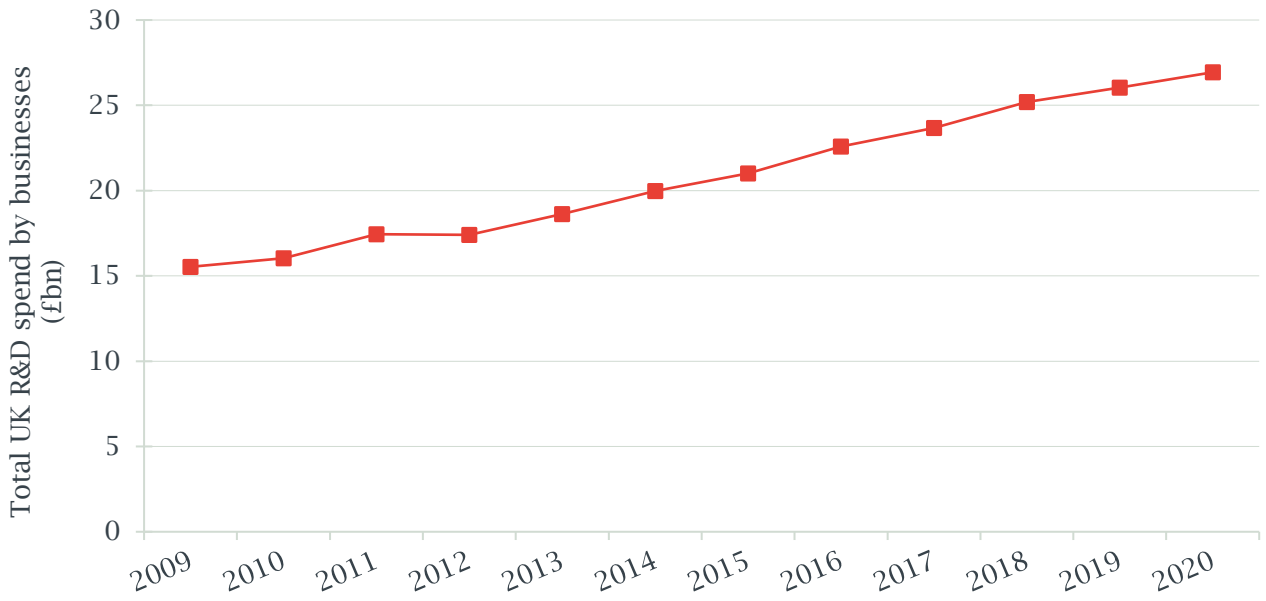
THE TOTAL LEVEL OF R&D SPENDING HAS INCREASED OVER TIME

The total level of R&D expenditure by businesses in the UK, as measured in the ONS BERD dataset, was around £27 billion in 2020. This has been increasing relatively steadily over time, as illustrated in Figure 1 below.

[21] See, for example, Goldsmith, L. (2021), Using Framework Analysis in Applied Qualitative Research, *The Qualitative Report*, 26(6), 2061–76.

[22] We use the following versions of each of these datasets: BERD (released 19 November 2021), UKIS 2021 (released May 2022) and R&D tax credits data (released September 2021).

FIGURE 1 TOTAL R&D SPEND BY UK BUSINESSES 2009-2020



Source: Frontier analysis of ONS BERD data

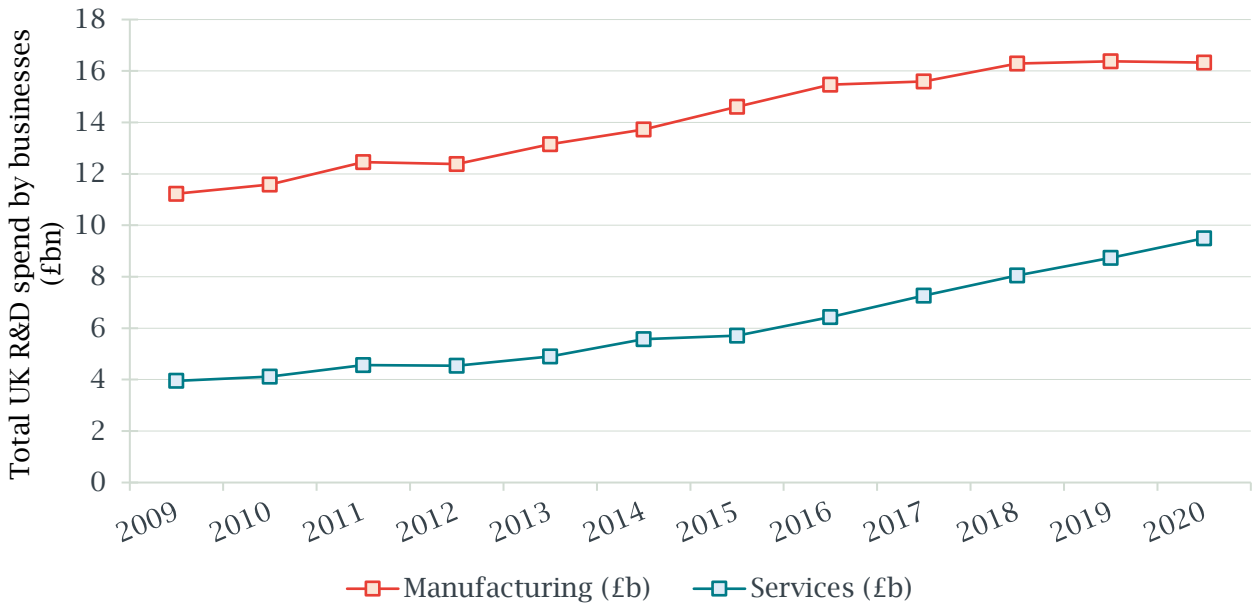
SERVICES REPRESENT A GROWING SHARE OF R&D EXPENDITURE

According to BERD, the service sector made up around 35% of total measured R&D expenditure by businesses in the UK in 2020, at around £9.5 billion. This share is smaller than the broader share of services in economic activity (measured by gross value added), which is around 80%. The largest share of expenditure came from manufacturing, which made up 60% of expenditure for UK businesses.[23]

However, the share of business expenditure on R&D attributed to the service sector has been increasing over time, as shown in Figure 2 below. In 2009, just 25% of business R&D in the UK was performed by the service sector compared with 35% in 2020. In recent years, the service sector's level of expenditure on R&D has increased steadily, while the manufacturing sector's level has somewhat plateaued.

[23] The additional 4% fell under the category of "other", which includes industries such as agriculture, hunting and forestry, fishing, and construction.

FIGURE 2 TOTAL R&D SPEND BY UK MANUFACTURING AND SERVICE BUSINESSES 2009-2020



Source: Frontier analysis of ONS BERD data

A LARGE PROPORTION OF UK FIRMS ARE ENGAGED IN INNOVATIVE ACTIVITIES

The UKIS aims to measure the scale and nature of innovation activity by UK firms. It defines innovative firms in relation to the following four activity types:

1) The introduction of a new or significantly improved product (good or service) or process;
2) Engagement in innovation projects not yet completed, scaled back or abandoned;
3) New and significantly improved forms of organisation, business structures or practices, and marketing concepts or strategies; and
4) Investment activities in areas such as internal research and development, training, acquisition of external knowledge, or machinery and equipment linked to innovation activities.

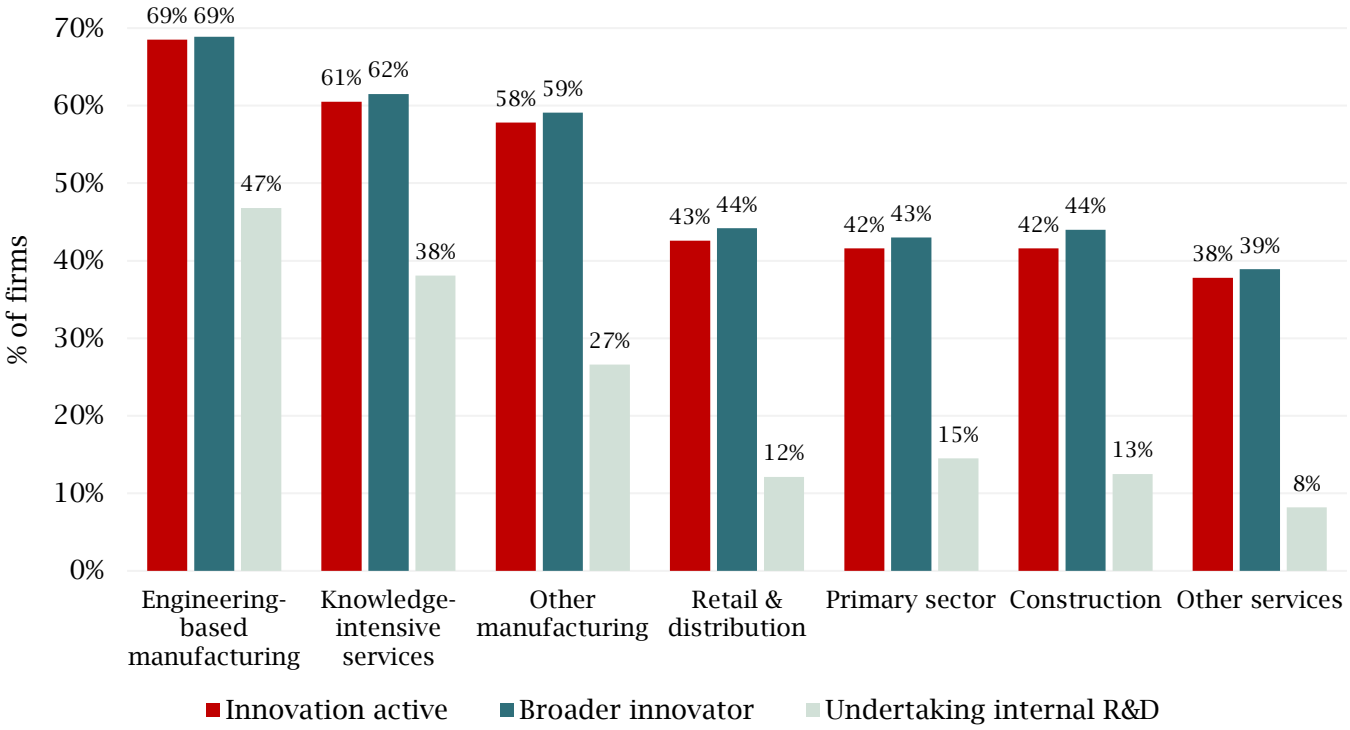
Any firms engaged in activity types 1) to 3) are classified as **"innovation active"**, with the term **"broader innovator"** used to define firms which engage in any of the activity types, including type 4).

The most recent report, covering a three-year period between 2018 and 2020, represents almost 13,600 respondents. Across the whole economy, 45% of firms are said to be "innovation active", rising to 58% among large firms (those with 250 or more employees). The proportion of firms classified as innovation active has increased over time, from 38% in the 2016-2018 survey wave.

There is also observed variation in innovation status between sectors. The share of "innovation active" firms in retail and distribution is 43%, but in knowledge and intensive services it is 61%. A summary of key sectoral breakdowns for the most recent data is shown in Figure 3 below. It compares the proportion of firms defined as being "innovation active" and "broader innovators" as well as the proportion of firms that report

undertaking internal R&D[24] in different sectors. There is a significant difference between the share of service sector firms which report investment in R&D and those which are defined as innovative on broader definitions, particularly in retail and distribution and other services. For example, in retail and distribution only 12% of firms invest in R&D but 44% are "innovative" on the broad definition outlined above.

FIGURE 3 PROPORTION OF FIRMS WHICH ARE "INNOVATION ACTIVE, "BROADER INNOVATORS" AND "UNDERTAKING INTERNAL R&D" – SELECTED SECTORS



Source: Frontier analysis of UKIS data

INTERNAL KNOWLEDGE IS A KEY BUSINESS INPUT TO INNOVATION – BUT IT'S NOT ALL ABOUT R&D

Results from the most recent UKIS for 2018-2020 show that, in terms of business expenditure relating to innovation, "internal R&D" accounts for just under half of the value.[25] Other significant investments include acquisition of machinery, equipment and software (30%), and design (7%). This is shown in Figure 4 below. **In total, R&D (both internal and external) made up 56% of the reported value of innovation investment** – showing that it is far from the only key input to business innovation.

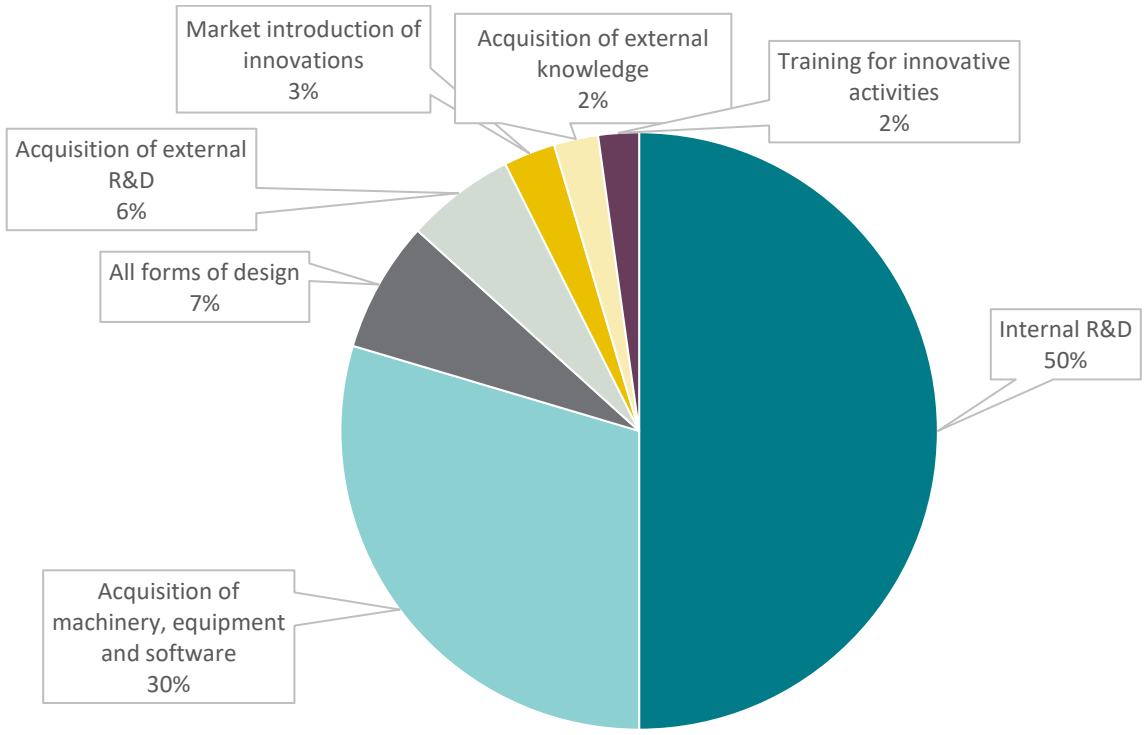
The importance of formal R&D in total innovation-related expenditure varies by sector. For example, in the "distribution and service industries" 55% of investment in innovation comprised R&D, compared with just 41% in "production and construction industries". This difference is strongly driven by the importance of

[24] The UKIS questionnaire available here notes under Internal Research and Development: "This refers to creative and systematic work undertaken within your business that increase stock of knowledge, and in order to devise new applications of available knowledge for developing new and improved goods or services and processes".

[25] The UKIS does not report these figures in absolute terms, only as a share of total innovation-related investment.

investment in equipment, machinery and software, which accounted for 39% of innovation-related investment in the "production and construction industries" but just 25% in "distribution and services".

FIGURE 4 PROPORTION OF BUSINESS INNOVATION EXPENDITURE BY CATEGORY



Source: Frontier analysis of UKIS data

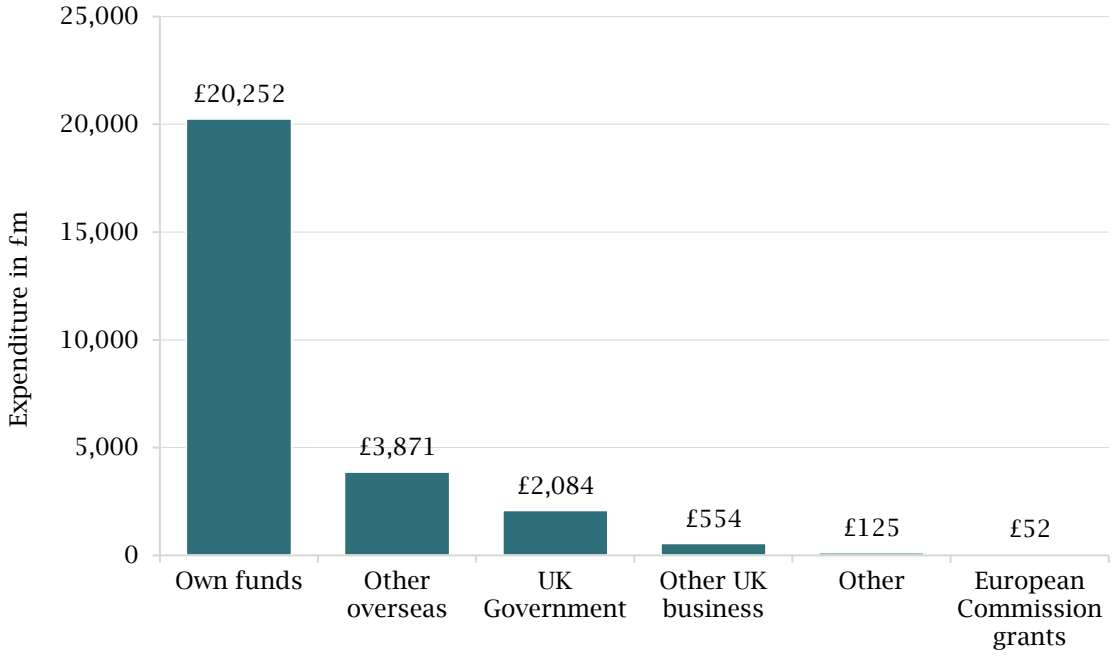
INTERNAL SOURCES OF INFORMATION ARE MOST IMPORTANT FOR INNOVATION

The UKIS asks firms categorised as "broader innovators" about the sources of information they rely on to support business innovation. **Across all sectors, internal information from "within your business or enterprise group" is the single most important source of information**. Forty percent of innovative firms rate internal information as "highly important". This is consistent across sectors, at 41% in "production and construction industries" and 40% in "distribution and service industries".

BUSINESSES RELY LARGELY ON SELF-FINANCING FOR R&D, BUT OTHER SOURCES MATTER

According to BERD, around three-quarters of business spending on R&D in 2020 was sourced through the businesses' own funds. Around 8% of business R&D investment was funded by the UK government (see Figure 5). This split was consistent for service sector businesses, with around 76% of R&D spending being sourced by businesses' own funds and 8% from the UK government.

FIGURE 5 TOTAL UK BUSINESS R&D EXPENDITURE BY SOURCE OF FUNDS, £M 2020



Source: Frontier Analysis of ONS BERD data
Note: EC stands for European Commission

R&D TAX CREDITS ARE CONCENTRATED IN A SMALL SET OF SECTORS

For the year ending March 2020, there were an estimated 18,500 claims of R&D tax credits according to data from HMRC.[26] This totalled to an estimated £7.4 billion of support on approximately £47.5 billion of qualifying expenditure.[27] This is an average of £400,000 of support per claim, although this average is skewed by larger claims from larger companies as 72% of claims were under £50,000.

There are differences in claims by sector. For example, the three sectors accounting for the largest total number of claims are the following:

1 **Information and communication:** accounting for 22% of the total number of claims and 20% of the total amount claimed;

2 **Manufacturing:** accounting for 22% of the total number of claims and 25% of the total amount claimed; and

3 **Professional, scientific and technical services:** accounting for 19% of the total number of claims and 24% of the total amount claimed.

[26] https://www.gov.uk/government/statistics/corporate-tax-research-and-development-tax-credit/research-and-development-tax-credits-statistics-september-2021

[27] Note that the total qualifying expenditure does not align with the figures from BERD, as different methodologies underpin these datasets. For example, BERD does not include overseas expenditure, but this may qualify for R&D tax credits. See more in section 10 here: https://www.gov.uk/government/statistics/corporate-tax-research-and-development-tax-credit/research-and-development-tax-credits-statistics-september-2021

Therefore, these three sectors alone make up an estimated 63% of the total number of claims and 69% of the total amount of support claimed. In contrast, according to data from the ONS,[28] in 2020 these three sectors made up approximately 30% of the total number of businesses operating in the UK.

Strikingly, the three most important sectors for R&D tax credits include two which are likely heavily service oriented ("information and communication", and "professional, scientific and technical services").

[28] https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/bulletins/ukbusinessactivitysizeandlocation/2021

3 SUMMARY OF INSIGHTS

This section provides a summary overview of the findings from our qualitative analysis, both in terms of scoping interviews and the deep-dive case studies. These findings are organised around themes which emerged from the interviews relating to the key research questions regarding:

- how innovation is perceived within the businesses;
- how innovation is organised in the businesses;
- the role of SHAPE insight in innovation;
- barriers to innovation faced by businesses; and
- how the businesses engage with policy at the moment and what policy could do to support innovation better in the future.

Where relevant, we use (anonymised) quotes from individual case studies and interviews where these add particular insights and illustrate points raised or provide a good representation of wider messages we heard during our study.

As our approach is qualitative, we do not attempt to make generalised statements in this synthesis – the findings can only relate to the specific organisations we consulted. We attempt to make some assessment of whether the insights and evidence we uncovered differed across the types of organisations we engaged with or whether we heard consistent messages across those we engaged with. However, we stress that this is not a statistical or quantitative exercise and there is no certainty that our findings are representative of other organisations, or even other large organisations, within the service sector.

3.1 OVERVIEW

Our interviews revealed the following key findings:

- Innovation is perceived to be **highly important for service sector businesses** and is seen as covering small incremental changes through to "big bangs". While businesses in the sector define innovation in different ways, **adding value and solving customer needs** tend to be at the centre of it.

- Service businesses adopt diverse innovation structures, with most taking a formal approach and **building innovation explicitly into the responsibilities of teams or individuals**. However, all businesses interviewed believe that **innovation can and should happen at all levels of the organisation**.

- For all the businesses, **innovative ideas come from a broad range of internal and external sources**. Businesses then adopt different processes for taking innovative ideas forward, with some having more formal, standardised approaches than others.

- Businesses make a **wide set of investments in innovation**, covering more than just "traditional" R&D. **Time and resources of internal teams** are considered the key investment by all the businesses we interviewed.

- Businesses **perceive SHAPE insights to be important** for their business innovation in a variety of ways and they draw that insight from a variety of sources. As well as noting the

added value of including SHAPE insights, the businesses also emphasised the **dangers associated with excluding them**.

- Despite the recognised importance of innovation, businesses do **face a mix of internal and external barriers** to innovating. The external barriers we heard of include access to the right talent, regulatory burden and poor dialogue with academia about real-time industry challenges – particularly within the SHAPE disciplines.

- Businesses **differ in their level of interaction with public policy makers** on the topic of innovation, and those interacting less are generally keen to get more engaged. Often, businesses do claim R&D tax credits, but these do not necessarily cover the full range of activities or influence where individual investments are made.

- Businesses we interviewed had a range of ideas of where policy could play a role in facilitating innovation in practice, including **incentivising crucial investments, supporting access to helpful data and insight** (also through facilitating better dialogue with academia) and **supporting faster adaptation of regulation**.

These findings reflect the conversations with over 20 individuals in eight large firms from four sectors: retail, financial services, technology and digital. The detailed list of organisations we spoke to can be found in Annex A .

3.2 BUSINESS PERCEPTIONS OF INNOVATION

INNOVATION IS PERCEIVED TO BE HIGHLY IMPORTANT FOR SERVICE SECTOR BUSINESSES

The individuals that we spoke to saw innovation as being crucial to their business. Innovation was seen as important historically for weathering significant industry changes and for growth. Many businesses also saw innovation as a core part of their "brand" as well as their internal culture. In some cases, the importance of innovation was formalised by embedding innovation within culture memos or other internal documents.

> "EVEN IN TERMS OF THE MANDATE FOR INNOVATION [...] IT GOES TO THE CORE OF OUR BRAND – LET THERE BE CHANGE – SO WE EMBRACE CHANGE AND UNLEASH INNOVATION "
>
> ACCENTURE

One interviewee noted the idea that the set of competitors and benchmarks that service sector businesses face is often broad and cuts across sectors. Businesses therefore need to innovate fast in order to meet customer expectations. For example, customers will expect the same quality and smoothness of user experience from a banking app as they would from a streaming service or a delivery app. This is reflected in the fact that several businesses we talked to mentioned that they monitor the wider developments in the market instead of focusing only on the immediate set of competitors.

BUSINESSES IN THE SECTOR DEFINE INNOVATION IN DIFFERENT WAYS BUT ADDING VALUE AND SOLVING CUSTOMER NEEDS TEND TO BE AT THE CENTRE OF IT

Although all businesses we spoke to were actively thinking about innovation, only a minority had formal definitions of innovation used across the whole business or a part of it. This included **Accenture,** where innovation is defined as *"a new way of doing things that adds value"*, and **Netflix,** where, for the production innovation team, the role of innovation is to *"identify, experiment, promote, and employ new and emerging technologies that enable our content creators to tell their stories in impactful new ways"*.

While innovation itself is hard to define, and may mean many different things to different individuals, the theme of innovation being about adding value to customers was quite common across the formal and informal definitions we heard. Customer-centric innovation was perceived to be particularly important.

> "GENUINELY, I CAN SAY THAT THE CUSTOMER DOES FORM THE BASIS OF THE START POINT FOR EVERYTHING THAT WE ARE TRYING TO DO NOW."
>
> TESCO

Businesses also often spoke of innovation in relation to solving a particular problem. For example, one interviewee was of the view that *"every change you bring in that solves a problem is innovation"*. Another interviewee noted that they did not necessarily think of themselves as innovating, but instead as problem solving.

In most cases, the problems that businesses saw innovation addressing were customer related and the focus of innovation was to address customer needs and expectations. One interviewee noted that every innovation was solving a customer problem and that new developments were only "innovation" if somebody was deriving use from them. Other interviewees noted that they viewed innovation in terms of working backwards from the customer and raised the point that even innovations that do not necessarily immediately seem relevant to the customer (for example, because they are further up the supply chain) will indirectly affect the service customers receive.

> "...OUR OBJECTIVES ARE ALWAYS OUR CLIENT OBJECTIVES. IT IS SEEING AROUND THE CORNERS AND LOOKING AHEAD TO SEE HOW WE CAN BEST SERVE OUR CLIENTS, WHAT THEY NEED TO BE THINKING ABOUT NEXT AS WELL."

ACCENTURE

"A BIG PART OF WHAT I DO IS HUMAN-CENTRED DESIGN THINKING AND REALLY FOCUSING ON GENUINE CUSTOMER NEEDS. THAT MEANS GOING BACK TO BASE LEVEL NEEDS AND WORKING THROUGH FROM THERE, PERHAPS DEVELOPING NEW CONCEPTS, NEW PROPOSITIONS OR USING NEW TECHNOLOGY / WAYS OF SOLVING FOR THE NEEDS AND PROBLEMS."

TESCO BANK

BUSINESSES SEE INNOVATION AS COVERING SMALL INCREMENTAL CHANGES THROUGH TO "BIG BANGS"

Among the businesses we spoke to, there was a general recognition that innovation covers a wide range of activities and outputs, from small incremental changes and continuous improvement to large disruptive "big bangs". This again speaks to the fact that innovation can be difficult to define.

"WE LIKE TO TALK ABOUT THINGS AS 'CAPITAL I' BIG INNOVATION, THE THINGS WE'RE DOING THAT ARE TRANSFORMATIVE AND ENTIRELY NEW AND THEN THINGS AS LOWERCASE 'I' FOR WHERE WE'RE INNOVATING IN A NEW WAY FOR CLIENTS OR WE'RE DOING EVERYDAY THINGS."

ACCENTURE

"WE HAVE USED THE MCKINSEY 'THREE HORIZONS OF GROWTH' MODEL[29] AROUND INNOVATION WHERE YOU'VE GOT HORIZON ONE: DEFEND AND EXPAND CURRENT CORE BUSINESS; HORIZON TWO: FOSTER EMERGING NEW BUSINESS AREAS; AND HORIZON THREE: SEED FUTURE BUSINESS."

[29] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/enduring-ideas-the-three-horizons-of-growth

Most businesses focused on innovation both in terms of continuous improvement and in terms of large fundamental changes. There was also a view among the businesses we spoke to that the incremental innovations can sum up to large impacts and therefore should be viewed with similar importance to the "big bang" type of innovations. Businesses also noted that it is not necessarily possible to predict in advance which types of innovations will have a large impact.

3.3 HOW BUSINESSES ORGANISE INNOVATION

SERVICE BUSINESSES ADOPT DIVERSE INNOVATION STRUCTURES, WITH MOST TAKING A FORMAL APPROACH AND BUILDING INNOVATION EXPLICITLY INTO THE RESPONSIBILITIES OF TEAMS OR INDIVIDUALS

The businesses we spoke to as part of this study differed in how they structured innovation internally. Some businesses formalised a structure around their innovation process, making innovation an explicit responsibility for certain teams or individuals.

For businesses which formalised the structure of their innovation process, the components we heard about can to some extent be generalised into the following three categories:

- Centralised teams or "innovation hubs" fully dedicated to the pursuit of innovation;
- Smaller teams within different parts of the businesses that have a stated focus on innovation; and
- Individuals within the business who have innovation as an explicit part of their role.

Businesses sometimes adopt a combination of these three approaches. For businesses that have a central innovation team or hub, this team is often responsible for the more disruptive, "big bang" innovations, which tend to have less certainty over long-term returns. Generally, the smaller, continuous improvement innovations tend to be done within individual teams, such as product teams, which are focused on the day-to-day delivery.

THE IDEA THAT INNOVATION CAN AND SHOULD HAPPEN AT ALL LEVELS OF THE ORGANISATION WAS CONSISTENT ACROSS ALL BUSINESSES

Not all businesses adopt formal innovation structures like those detailed above, but that is not to say that they do not innovate or actively pursue innovation. Regardless of the innovation structure adopted or the industry the business operates in, a consistent insight from the interviews was that innovation should be embedded and encouraged widely across all levels of the business. Multiple interviewees expressed the view that everyone should be encouraged to innovate, regardless of their role or job title.

"WE WOULD LIKE TO THINK OF EVERY SINGLE EMPLOYEE AS INNOVATIVE IN SOME WAY."

ACCENTURE

Interviewees also felt that the nature of innovation for their business was that it happens everywhere, across all levels. The type of innovation that happens in a widespread way across the business appeared to often be focused on smaller, more incremental changes (i.e. the "less-disruptive" innovations) which occur within a shorter time horizon. As noted above, these innovations are generally viewed as equally important to the larger "big bang" innovations.

"WE TRY TO HAVE A CULTURE OF INNOVATION FOR EVERYBODY, AND THE DEFINITION OF INNOVATION IS AN INTERESTING ONE BECAUSE LOTS OF PEOPLE DEFINE INNOVATION DIFFERENTLY, BUT WHETHER THAT'S FROM CONTINUOUS IMPROVEMENT TO MORE DISRUPTIVE INNOVATIONS, WE STRIVE FOR AN ABILITY FOR ANYONE IN ANY ROLE TO BE ABLE TO LOOK AT CHANGE."

TESCO

INNOVATIVE IDEAS COME FROM A BROAD RANGE OF SOURCES, BOTH INTERNAL AND EXTERNAL

All firms we spoke to rely on both internal and external sources of innovative ideas, and they listed multiple examples of both types. A universal view was that no business relies on a single source of ideas.

Examples of "internal" sources of innovation covered include:

- Ideas **generated organically from those within the business**, at all levels. One interviewee described how two employees "clashing in a stairway" could lead to innovation. Another interviewee described a historic platform where any employee could put forward an idea for innovation. However, the platform was subsequently closed (at least for the time being) as managing the volume of ideas generated proved challenging. One business described the idea of running regular "hackathons" to inspire internal innovation.

- Ideas generated off the back of **internal research and data**. Some of the businesses we spoke to had internal teams generating insight which might support innovation, for example ongoing customer surveys or wide-casting ethnographic research. In some cases, these teams may cooperate with external partners to produce this type of insight. However, it appeared that businesses are limited in terms of the resources they can commit to more open-ended research where they explore potential customer issues more broadly in searching for innovative ideas. Instead, internal research tends to be used to explore in more depth ideas of innovation which are to some extent already formed.

- Multiple interviewees noted that **client or customer feedback** is often a generation source for innovative ideas, identifying friction or customer problems where finding new ways of doing things could really add value. Customer feedback also plays an important role in testing whether new ideas add value and are fit for purpose, or how different proposition variants appeal to customers.

Examples of "external" sources include:

- **Formal channels** created by the business through which external innovative ideas can be fed to business. These can be very open, sourcing ideas from potentially anywhere: an example of this is **Tesco**'s Red Door,[30] which is an online portal that allows anyone to submit an idea directly to **Tesco** through its website. At launch, Tesco positioned this channel as "inviting innovators across the globe to get in touch with ideas or emerging technologies that can improve the way we serve shoppers".[31] Formal channels can also be more curated: we heard about the Innovation Forum that **Phoenix Group** has established to source ideas from FinTechs for solving various customer challenges.

- Formal **structures and partnerships** with a focus on innovation intended to facilitate the flow of ideas from external innovators. This includes an example from one of our interviews of a cooperation with Innovation Gateway, which is "a group of larger companies that gain access as a collective to different innovations in the markets with either start-ups or scale-ups". Another example highlighted working with FinTech Scotland, where opportunities tend to be *about "small organisations that are trying to test something or come out with a new concept or just starting to build. […] occasionally [we] will actually pick a challenge to look at and bring some organisations into focus on that".*

- All of the businesses we spoke to use **external consultancies or experts** to some degree, in a broad range of settings. This included specialist consultancies in fields like design, economics, management, psychology and market research.

- **Academic research and partnerships within academia** were also cited by many of the businesses we interviewed. This included drawing on insights from existing academic research (we heard about teams being "plugged into the academic community") and (more rarely) commissioning their own research to inform innovation. Sometimes innovative ideas are the result of ongoing partnerships (both formal and informal) with the academic community. Several of the businesses we talked to have regular organised links with the academic community around fellowships and PhD programmes, which may or may not have a financial sponsorship element to them. Other ways to support the researchers consisted of creating opportunities to research and test their ideas and allowing researchers and students (both undergraduate and postgraduate) to use the relevant facilities or estates of the businesses. This type of collaboration can flow both ways: we heard an example where one business used the facilities of a university to run an innovation project and upskill staff for several years. Another example was a less formal relationship between an employee and a researcher, where an initial interest in the research topic triggered an ongoing cooperation on exchange of ideas which has now been running for over ten years.

- Businesses generally also monitor what the **wider market and competitors** are doing, although the importance of this source varies. Some follow it more closely while others do not put much weight on it and focus on using other sources of insight to maintain their cutting-edge position instead.

The interviews demonstrated that innovative ideas can be the result of deliberate efforts by the business to innovate in seeking a solution to a specific problem, but in other settings they are more "spontaneous" or organic in nature.

[30] https://www.tescoplc.com/innovation

[31] https://twitter.com/tesconews/status/1303712575004323841?lang=en

For example, a firm may deliberately innovate by setting up a portal for innovative ideas to feed through, by actively identifying and targeting a particular problem or by actively scanning adjacent markets for new sources of innovation. But innovative ideas may also occur organically within the business. However, in these cases, some of the businesses we interviewed stressed that efforts by and investments in the business to create an "innovation culture" were important triggers to the more organic innovation. One example we heard was using the approach of "infusing" innovation expertise from innovation teams or those focusing on innovation projects specifically into the everyday teams, to ensure innovation siloes are broken down and innovative thinking is built into the everyday operations.

> "YOU DON'T JUST SUDDENLY GO INTO A WORKSHOP AND START DESIGN THINKING AND NOW YOU'RE DOING INNOVATION. IT'S THE MINDSET, THE ETHOS, THE WAY OF THINKING THAT WE ARE TRYING TO INFUSE ACROSS EVERYTHING."
>
> ACCENTURE

External forces that are outside of the businesses' control, for example competitive pressure or customer expectations, may also act as a catalyst for innovation to occur.

Even in the case of working with external partners for innovation, firms noted that this can sometimes be deliberate or it can occur organically. Businesses may approach partners and initiate partnerships, or vice versa.

THE PROCESS FOR TAKING INNOVATIVE IDEAS FORWARD IS ALSO DIFFERENT ACROSS, AND SOMETIMES WITHIN, THE BUSINESSES WE SPOKE TO

Businesses vary in terms of the processes used for taking forward and investing in innovative ideas once they are identified, with some having more formalised approaches than others. Generally, the processes used often involve some kind of proof of concept, an assessment of potential costs and benefits, trialling and customer testing.

Some businesses bring in external agencies to support them in this process. This is often expertise from SHAPE disciplines – for example, economists, behavioural science experts, management consultants, psychologists or design agencies. These partners are able to provide specific expertise and additional perspectives on the rationale for taking innovative ideas forward. For example, one business talked about having *"…pockets of really good customer innovation and understanding and insights, but it wasn't as strong as it could be. So there was a real focus on getting back to what's really important to customers"*. That is when they decided to bring in a company which is expert in design thinking to support them in this process. Input of economists, on the other hand, is helpful in better articulating and testing the business case for the innovation. For example, they may reformulate the analysis to focus on the consumer responses required to generate a certain value from the innovation and assess whether this feels believable based on all the available insight. One interviewee explaining this process commented:

"SO, FOR EXAMPLE YOU SAY YOU WANT TO SEE A 7% SPEND UPLIFT FROM THESE CUSTOMERS. WHAT THAT REALLY MEANS IS THEY WOULD NEED TO DO TWO MORE BIG SHOPS A YEAR IN TESCO. COULD THAT BE POSSIBLE? IT'S THAT KIND OF THINKING THAT I'VE FOUND IS FANTASTIC."

TESCO BANK

The process can also differ within organisations, depending on the scale and nature of the innovation or the team that is taking it forward. For example, for Tesco's Group Innovation Team, which focuses on big disruptive innovations, its approval process is more streamlined compared with the standard investment committee process. There is no set payback target for the innovations the team looks at, which is different to how investments are broadly run. However, *"all innovations are still assessed fully including the likely payback horizon if successful"*. There is also a recognition that the team will have a lower, or at least less certain "success rate" for the innovative ideas that it pursues.

BUSINESSES MAKE A WIDE SET OF INVESTMENTS IN INNOVATION, COVERING MORE THAN JUST "TRADITIONAL" R&D

The firms we interviewed rarely think of the formal distinction between their R&D and wider innovation activity. Indeed, we heard of a wide range of innovation activity and investment that does not fall within the scope of what is considered formal R&D. One interviewee mentioned that, in their view, R&D was when *"…you expect outcomes like papers [and there is] a huge amount that doesn't fall into that bucket"*.

Most of the businesses mentioned the **time and resources of teams and individuals internally** and for many they are the key innovation input. The share of time spent on innovation can be substantial and may account for the majority of some teams in some businesses. For some businesses, employees are expected to think innovatively even when the day-to-day job is not about innovation.

Related to time and resources is the **investment in training and development for staff** to develop the skills relevant for innovation. For example, one firm put a large number of staff through behavioural insights training *"to instil the idea that small things can make a big difference, both positive and negative"*.

Businesses also invest in **collection and analysis of internal data and research**, with most having dedicated internal insight teams which usually bring together data scientists with social scientists to bring SHAPE-related insights. The type of data collected might include behavioural customer data (e.g. based on a loyalty card), customer feedback and complaints or regular customer surveys. For example, Phoenix Group regularly collects several types of surveys to analyse customer behaviours and perceptions.

Some of the businesses we talked to mentioned purchasing external data as an investment in insight to help them innovate better. For example, Tesco's location planning relies on several sources of external data, including expenditure data purchased from Experian or mobility data on customer movements (see Annex C). Access to data was highlighted as a potential policy objective to support business innovation:

> *"[We] pay for external catchment data currently to support our property investment decisions. Although there is some data that is freely available […] it seems that there could be more that is readily and freely available."*

Some businesses make **direct investments in start-ups**, for example if they are developing key products related to a particular innovation. One such example is Tesco's investment in Trigo, a technology company specialising in touch-free checkout and digitised operations.[32] Tesco explained it makes an investment where it feels there is a *"genuine advantage to invest cash in a business, both for them and for ourselves"* and noted that often the businesses it invests in see benefit in terms of Tesco's knowledge of navigating the retail sector.

Many businesses **invest in academic research**, and this type of investment can take a variety of forms. Businesses may commission research papers from academia, triggering an exchange of a specific type of insight for a financial reward. One example of this is the BBC's cooperation with fellow broadcasters and Birmingham City University, where the broadcasters commissioned a Black, Asian and minority ethnic (BAME) terminology review from the Sir Lenny Henry Centre for Media Diversity.[33]

Alternatively, businesses can support researchers with financial support, or with time and access to facilities. This type of support may occur through formal or informal partnerships. Even partnerships and relationships which are considered to be "formal" may not necessarily need to involve financial support, but may instead involve access to resources and facilities and the ability to share and discuss ideas with colleagues at the business.

This type of support tends to be more open ended and aimed at facilitating an exchange of ideas in a specific area, rather than focusing on solving a very defined problem. Several businesses mentioned having fellowships of this kind or supporting PhD researchers in areas related to their business activities, and many of these collaborations are related to SHAPE disciplines, for example sustainability or artificial intelligence (AI) ethics.

As outlined above in reference to the innovation process, most of the businesses we spoke with **hire or contract consultancies or experts**, often with SHAPE-related backgrounds, to support them with innovation efforts, forming another type of innovation investment. Our interviews uncovered two particular types of input from these external experts:

- Support with research and thinking to generate better innovation ideas, which tends to come from agencies with expertise in customer research, conceptual thinking, economics, behavioural science, ethnography or anthropology. An example of this would be the research undertaken by Phoenix Group in partnership with external agencies to help better identify the barriers to digital literacy while Phoenix Group developed its digital literacy pilot (described briefly below and in more detail in Annex D).
- Support with developing and testing innovative ideas, as outlined above in relation to the innovation process.

[32] https://www.grocerydive.com/news/tesco-invests-in-checkout-free-startup-trigo/564360/

[33] https://bcuassets.blob.core.windows.net/docs/csu2021325-lhc-report-bbchighres231121-1-132828299798280213.pdf

EXAMPLE: THE DIGITAL LITERACY PILOT AT PHOENIX GROUP

Phoenix Group is a long-term savings provider which can service its clients in two ways: via a call centre or via a digital platform. However, Phoenix started to become increasingly aware of the digital divide among its customers, and that a lot of its call centre advisers' time was spent on technical assistance with the digital platform. Phoenix researched the availability of publicly available digital literacy resources and found a gap in the pension space specifically – one it subsequently decided to fill with a digital literacy pilot.

An important component of this was thorough research of customers to understand the drivers of digital illiteracy. As with most other customer research, this relied heavily on SHAPE expertise. Phoenix worked with external research firms with SHAPE expertise, and internally a mix of SHAPE experts was involved, with particular focus of behavioural scientists. This included a **customer research company specialising in areas like usage and attitudes, ethnographic research, decision-making and behavioural biases,** and another external agency which tested a variety of different options to help people advance digital literacy skills (developed by Phoenix internally). This part of the study had a strong **ethnographic and anthropological focus** and fundamentally helped Phoenix identify which solutions were unlikely to have much appeal to customers (and therefore prevented spending money on unsuccessful innovations). More detail on the pilot and how SHAPE insight supported it can be found in Annex D.

3.4 THE ROLE OF SHAPE

MANY BUSINESSES PERCEIVE SHAPE INSIGHTS TO BE IMPORTANT FOR THEIR BUSINESS INNOVATION IN A VARIETY OF WAYS

The businesses we spoke to varied in terms of unprompted recognition of the role SHAPE insights play in their innovation. Some interviewees were able to immediately identify relevant examples of how SHAPE disciplines feed into the process, while others needed some prompting with examples of how SHAPE might feature in order to decide if this applied to their business. However, in both types of cases there was a general recognition that SHAPE insights play an important role in innovation. Across the interviews we heard a broad variety of examples on how the insights might be relevant.

Many spoke about the **importance of SHAPE disciplines in understanding their customers and wider society**. This is consistent with the fact that many service sector businesses see innovation as a way to solve problems in a manner that adds value for their customers, as outlined above. SHAPE insight sits at the core of this, particularly the disciplines which help to study human behaviours, including psychology and cognitive sciences, anthropology, ethnography and sociology.

One interviewee commented on the importance of this type of insight in *"linking understanding behaviour, understanding outcomes and recognising that changing things within service organisations is intrinsically very complex".* The same person recognised that relying on true expertise in this area is important, as a lot of existing customer tools may not be fit for purpose and can produce misleading results: *"A lot of the time, they may give you a little insight, but they're also just as likely to throw you off track".*

Interviewees from Phoenix Group commented on the importance of behavioural science given their focus on savings products designed for the long term. In particular, they described *"the challenge of getting customers*

to do something doesn't come naturally, which is thinking about the longer term. Behavioural insights is big part of this […] The detail of how that is executed for that customer is going to make or break it".

Several businesses also mentioned using ethnographic research studying day-to-day customer habits as a helpful way to identify what solutions are most likely to appeal to customers and create value for them. In Annex C and Annex D, we describe two specific examples of innovation from Tesco Bank and Phoenix Group where SHAPE disciplines were fundamental to understanding customer behaviour

Businesses also noted the need for insights from SHAPE and other disciplines to be combined in the development of innovations. Interviewees suggested that it is not necessarily the case that there are SHAPE-related innovations and STEM related innovations, but instead **successful innovations need insights from a combination of disciplines**. One interviewee noted that the *"collision of perspectives"* from utilising a breadth of perspectives drew out *"different ways of looking at a particular problem"*.

A key illustration of the importance of combining disciplines is customer service "chat bots", which we discussed in one of our scoping interviews. To be successful they require the input of machine learning and AI experts alongside the input of social scientists in their design. Linguists are central to this; one business we spoke to mentioned the shortage of these types of experts in the market as, perhaps somewhat surprisingly, they were found to be in high demand with the development of conversational AI. The same business mentioned using a wider set of SHAPE experts, including story-tellers, in refining the technology to better interact with humans. At times, SHAPE experts bring a different perspective to the simplistic approach of technology developers, including building technology in more flexible ways which closely mimic the nature of real human interactions.

This example is an illustration of a broader theme from our interviews, which is **the importance of SHAPE insights in *adoption* of innovations** and the application of these in different settings. Specifically, businesses emphasised the need to understand how customers will respond to or interact with innovations and the space and culture in which innovations exist. As such, it appears that **SHAPE insights become increasingly important the nearer innovations get to the final consumer** and entail an element of human interactions, like the chat bots example described above.

SHAPE disciplines naturally sit at the core of innovation and production in the creative industries, and in the production of creative outputs within other industries. For example, media and communications expertise plays a fundamental role in creating certain customer outputs, from media entertainment content through education videos for customers, to customer apps. An example of this would be the customer videos on digital literacy developed by Phoenix Group which combined expertise in media and communication with behavioural science to appeal to customers better. The example is described in more detail in Annex D. And while the production technology behind these outputs may constantly evolve and rely heavily on STEM insight, the input of social scientists (and those with a creative focus in particular) in this process is fundamental to the production innovation process. Our interviews with Netflix highlighted that, while creatives are the ultimate users of new technology in their work, they are also important contributors to the innovation production process.

" AT THE END OF THE DAY, WE'RE TELLING A STORY, WE'RE PAINTING A PICTURE…BUT THERE'S AN AWFUL LOT OF TECHNOLOGY THAT SITS BEHIND THAT ON THAT FILM SET. […]

"TAKE A DIRECTOR OF PHOTOGRAPHY ON A FILM SET, COMPOSITING. HE'S ALSO PROBABLY A COLOUR SCIENTIST, A MATHEMATICIAN, ENGINEERING IN HOW LIGHT MOVES AROUND AND COLOUR RESPONDS...WE THINK OF IT AS A BEAUTIFUL IMAGE BUT THERE'S AN AWFUL LOT OF SCIENCE GOING IN BEHIND THAT..."

NETFLIX

The role of SHAPE insight was also highlighted in the context of **social and corporate responsibility**, particularly related to sustainability and creative diversity. Sustainability is increasingly at the forefront of many commercial organisations, and understanding what customers want and how they want it delivered (including the cost they are willing to incur personally) are all issues where SHAPE experts are fundamental. In terms of innovation, this includes the development of new products and services, innovation in delivering in more sustainable ways to service customers, and innovation in internal management and organisational structures which emphasise diversity and sustainability.

"SOMETIMES, THERE IS NO NATURAL WAY OF BRINGING TOGETHER [THE SOCIETAL NEEDS] AND A CORPORATE OBJECTIVE. EVENTUALLY IT MIGHT BE AN IDEA THAT WE SAY: 'OH, WE DID THIS BECAUSE OUR CUSTOMERS WERE ASKING FOR IT', BUT THE REALITY IS WE WOULD NEVER DO IT IF OUR CUSTOMERS WERE NOT ASKING FOR IT. SO I THINK THE WAY THE SOCIETY OPERATES HAS A HUGE IMPACT ON SOME OF THE INNOVATIONS WE HAVE."

TESCO

EXAMPLE: CREATIVE DIVERSITY

The concept of **creative diversity** was raised in our interview with the BBC. This is linked to its public mission which entails ensuring that the content the BBC creates is representative of wider UK society. The BBC has committed, alongside other targets, £100m of its commissioning spend over three years to creatively diverse outputs.[34]

A key input to progressing creative diversity is the BBC's understanding of what the British public looks like, and what creative diversity means in practice. The BBC draws on a number of resources to inform this, including internal research and expertise, external partnerships and resources, and public data. The BBC also supports its own academic research, including a review by Birmingham City University on the use of

[34] https://www.bbc.co.uk/creativediversity/

the term "BAME".[35] The report was developed by a group of academics with expertise in media, culture, publishing and English and an interest in the topic of cultural representation and diversity.

Another theme was the **broader role that SHAPE can play in supporting business organisations** as a form of innovation. This can range from managerial sciences informing how best to structure innovation across the organisation to using design thinking in developing innovative ideas. For example, one business we spoke with mentioned collaborating with a business school to understand the cultural blockers and enablers to innovation to get more people on board with it.

Economics was recognised explicitly by a couple of interviewers who mentioned the role economic expertise plays in helping to sense check the rationale behind innovative ideas and more robustly size the potential opportunities at stake. This is an important input to optimising investments in innovation, reflected in businesses often having in-house economists or hiring external economic advisers. One interviewee also mentioned how, in their view, economics has long been established as an important input into the process of innovation – ahead of other sciences like psychology, which have gained recognition only more recently.

EXAMPLE: TESCO BANK'S CLUBCARD PAY+

In early 2022, Tesco Bank launched a prepaid debit card called Clubcard Pay+.[36] The origin of this product is grounded in Tesco's desire to innovate by bringing together payments and Clubcard, leveraging the synergies between its bank and retail businesses. With that in mind, it launched an **innovation sprint** across the Tesco group, bringing together people from the bank, retail business, Clubcard, finance as well as a couple of external agencies providing insights from SHAPE disciplines – including experts in **concept and design thinking** and **economists.**

The external agencies helped Tesco with in-depth understanding of customer behaviours, which was an important input to designing the proposition. This relied on psychological and ethnographic insights, and involved studying the payment and shopping behaviours of 36 customers including, for example, what was in their wallet, how they paid, how they behaved when they came home, etc. Tesco Bank also used the support of economists to better articulate and test the business case for the innovation, setting out the needed behavioural changes for the investment to be worthwhile and assessing whether the change was believable. This was important to help Tesco make the decision to go ahead with this investment. More on this innovation and how SHAPE insight supported it can be found in Annex C.

Geography was recognised as an important input into location planning, an activity around optimising the physical estate commonly undertaken by large retailers. We describe Tesco's location planning in more detail in Annex C. Geographers play a particularly important role in Tesco's team, bringing expertise on spatial and demographic analysis to help forecast future profitability. They apply a catchment lens to the analysis, thinking about where customers are coming from when they shop based on proximity to the store. They then work with colleagues with maths skills who build the forecasting models. The blend of different skills and backgrounds is important to successful operation of the team. The location planning team tends to be involved in most pilots of the innovative solutions that Tesco runs in stores, helping to find the most suitable locations for the pilots.

[35] https://bcuassets.blob.core.windows.net/docs/csu2021325-lhc-report-bbchighres231121-1-132828299798280213.pdf

[36] See https://www.tesco.com/zones/clubcard-pay-plus

"HISTORICALLY, WE HAVE GENERALLY TAKEN GEOGRAPHY GRADUATES WITHIN THE LOCATION PLANNING TEAM, PRIMARILY BECAUSE OF THE OVERLAP ON PEOPLE AND PLACES. GEOGRAPHERS TEND TO THINK ABOUT THINGS SPATIALLY, AND THAT THEN APPLIES TO HOW WE MAKE DECISIONS ON OPENING NEW STORES AND OPTIMISING OUR ESTATE FOR THE FUTURE."

TESCO

AS WELL AS NOTING THE ADDED VALUE OF INCLUDING SHAPE INSIGHTS, THE BUSINESSES EMPHASISED THE DANGERS ASSOCIATED WITH EXCLUDING THEM

Alongside the real benefits of drawing on SHAPE insights in innovation, some interviewees raised the distinct issues that may arise from their exclusion, particularly in the context of social impacts around technology innovation. An example where such risks can exist was the ethics surrounding innovations in AI, with algorithmic changes potentially impacting factors such as the dynamics of disinformation spread. One interviewee emphasised the view that technology itself is not "neutral", having been designed by humans for human use, and that technology which does not have grounding in the SHAPE disciplines could be "potentially devastating for the world". We heard about specific work being done by MIT in developing courses and resources on the social and ethical responsibilities of computing.[37]

"...THERE'S A VERY STRONG SENSE HERE THAT TECHNOLOGY AND TECHNOLOGY INNOVATION CANNOT SIT IN ISOLATION – AND THAT TECHNICAL CHOICES HAVE INCREASING SOCIAL IMPACTS."

ACCENTURE

A good example of how SHAPE insight can help assess the implications of technology for wider society is the new framework for market analysis developed by the Human Sciences Studio at Accenture. The studio is a team of people who "research and apply expertise in **social science, arts and humanities** to equip clients for shifting relationships between business, tech and society"[38] (more detail on the studio and its work can

[37] https://computing.mit.edu/cross-cutting/social-and-ethical-responsibilities-of-computing/

[38] https://www.accenture.com/il-en/services/about/innovation-hub-the-dock

be found in Annex E. The framework is an enhancement of the PESTLE management tool,[39] an analysis framework which looks at political, economic, technological, legal and environmental angles of impact from a new product. The studio enhanced this with a "scan of societal forces" which meant extending its scope into areas of impact like societal acceptance or pressure, and the wider economic gains or losses to societies. This is now routinely used at Accenture in areas such as pharmaceuticals, life sciences, criminal justice and public safety. The framework acts as a tool for Accenture's clients to check that they are thinking ethically and responsibly; it enables them to "spot trouble, ethical implications, minimise the likelihood of public harm" from the technology they roll out.

"WHAT ARE THE PARAMETERS WITHIN WHICH INNOVATION COULD OCCUR? WILL THERE BE PUBLIC BACKLASH? WILL THERE BE PUBLIC ACCEPTANCE? WILL THERE BE CULTURAL PRESSURE ON LEGISLATORS TO DO SOMETHING AROUND THIS NEW USE CASE? WHAT ARE THE SOCIOECONOMIC GAINS AND LOSSES TO SOCIETIES AS AND WHEN A NEW TECHNOLOGY OR A NEW USE CASE GAINS SCALE? WE WOULD ROUTINELY EXPLORE THOSE QUESTIONS AND THAT WOULD REQUIRE SOCIOLOGY AND POLITICAL SCIENCE AND ETHICAL UNDERSTANDING."

ACCENTURE

One interviewee mentioned that the challenges and the opportunities facing humanity require using STEM and SHAPE disciplines alongside each other.

"SOME OF THE CHALLENGES FACING US, FROM CLIMATE CHANGE TO GROWING POLITICAL POLARIZATION, AND SOME OF THE OPPORTUNITIES, SUCH AS AI, ARE TOO COMPLEX AND TOO IMPORTANT FOR US NOT TO USE ALL OF THE TOOLS WE HAVE AVAILABLE. IF WE HOPE TO HAVE IMPACT AT A SOCIAL SCALE, THEN WE HAVE TO UNDERSTAND HOW SOCIETY WORKS – AND THAT MEANS BOTH USING TECHNOLOGY TO BETTER MODEL SOCIAL PHENOMENA, AND LEARNINGS FROM THE SOCIAL SCIENCES TO GUIDE OUR CHOICES AND OUR INVESTMENTS."

BT

[39] https://pestleanalysis.com/what-is-pestle-analysis/

BUSINESSES DRAW SHAPE INSIGHTS FROM A VARIETY OF SOURCES

As with innovative ideas in general, businesses also access SHAPE-related insights from a variety of sources, both internal and external. Sometimes these are accessed in house, through individual experts or dedicated teams, and in this case hiring experts with the relevant education and professional experience is fundamental. For example, ReAssure (which is part of the Phoenix Group) has a behavioural sciences team, and Accenture has its dedicated Human Sciences Studio which employs a wide range of social scientists. Some organisations may acquire specialists agencies to bring external expertise in house. An example of this is Accenture's acquisition of Fjord, a design agency.

At other times SHAPE insights are accessed externally, as highlighted above in the use of external agencies and consulting firms as part of the innovation process and innovation-related investments. Some businesses access SHAPE expertise by working with academics in more or less formal ways or by connecting their employees with the academic community, for example through attending relevant conferences.

There is clear evidence that businesses actively seek out SHAPE expertise, either from external partners or by bringing this type of expertise in house. The scale and the variety of investments into SHAPE insight that we heard of demonstrate its importance in making innovation more successful for the businesses we spoke with.

3.5 BARRIERS TO INNOVATION

DESPITE THE RECOGNISED IMPORTANCE OF INNOVATION, BUSINESSES DO FACE BARRIERS IN INNOVATING, SOME OF WHICH ARE INTERNAL

All the businesses we spoke to face a number of barriers when it comes to innovation, and some consistent themes emerged from our interviews.

One key internal barrier is **constraints in budgets** and the process of getting people from across the business on board with spending money on innovative ideas – particularly when these are large investments that come with **risky and uncertain** returns. Often, this is linked to bureaucratic processes which can create barriers in pushing forward innovations at pace, as does the challenge of simply coordinating the multiple functions that have to input into innovation.

Another internal barrier is **time constraints**, accentuated by the fact that people often innovate alongside their day-to-day roles, which means that finding the time to proactively innovate can be difficult. One interviewee noted that it is not necessarily always clear whose role it is to be thinking about innovation, and to what extent. Another noted that pressing business priorities can often take precedence, even if people are motivated to innovate.

Competing or **conflicting internal objectives** or sensitivities related to different parts of the business are another potential internal barrier. One interviewee highlighted the fact that proposed changes can sometimes have different impacts on various parts of a business and their objectives, and it can be a challenge to align these. One business which operated internationally stressed the challenge of global alignment and ensuring that teams consider sensitivities and priorities outside of their jurisdiction, noting that *"sometimes the easiest route for one part of the business isn't necessarily the best for the rest"*.

Interviewees also noted a potential tension between **long-term and short-term objectives**. One interviewee suggested that there is sometimes a perception that innovation is often about longer-term objectives and

this makes it harder to get people on board, even if this perception is not always true. Another noted the challenge of incentivising and embedding a culture of "long-term thinking" within the business, instead of individuals focusing on shorter-term financial objectives and the next "quarterly report".

"[AN INTERNAL BARRIER] WOULD BE THE FIGHT BETWEEN INNOVATION AND THE HERE AND NOW, BECAUSE NOT ALL INNOVATION WILL SOLVE THE PROBLEM FOR NOW."

TESCO

EXTERNAL BARRIERS ARE ALSO INHIBITORS OF BUSINESS INNOVATION IN THE SERVICE SECTOR

There are barriers that businesses face when innovating that are external to the business. Some of the firms we engaged highlighted that **the presentation of external ideas that could support innovation was not always done in a way that made the business potential clear**. Multiple interviewees suggested that there could be a lack of translatability for businesses, and that ideas often arrive in the form of early concepts or technologies rather than in a form that the business could easily take forward and apply commercially. This was highlighted both in terms of the presentation of academic research and how innovations were presented by start-ups.

"MOST TIMES THE IDEA IS IN SOMEBODY'S HEAD. SO YOU SEE THEY [THE ACADEMIA] DON'T PUT THEMSELVES IN THE RIGHT PLACE BY TALKING TO CORPORATES WITH AN IDEA. IF YOU HAVE AN IDEA, THEN IT MUST HAVE SOME KIND OF A STRAW MODEL FOR SOMEBODY TO SEE IT, FOR IT TO TAKE FORWARD [...] AND I GET THE POINT THAT ACADEMIA AND THOSE WORKING IN THAT WORLD MAY NOT HAVE THE FUNDING TO BE ABLE TO DO SO, BUT IT DOESN'T TAKE VERY LONG FOR THEM TO CONVERT THAT IDEA ON A PIECE OF PAPER AND SAY, LOOK, THIS IS WHAT I'M TALKING ABOUT."

TESCO

"THE ONE THING I FIND WITH EXTERNAL PARTIES WHO ARE LOOKING TO PITCH INNOVATION IS TRANSLATION INTANGIBILITY. I THINK A LOT OF THE TIME, PEOPLE HAVE A

CONCEPT OR A SINGLE INNOVATION, BUT HAVE NO IDEA HOW TO TRANSLATE IT AT SCALE. NO IDEA HOW TO TRANSLATE IT INTO SOMETHING TANGIBLE WE COULD USE."

TESCO

Regarding access to academic SHAPE insights, more than one interviewee noted that, at present, **the dialogue between industry and SHAPE-focused academia is less advanced than that for STEM disciplines**. There was a perception that this leads to the focus of academic research not always being well aligned with business or industry need.

One interviewee also commented on the limited willingness of academics to look at quicker queries from the industry because of the "publish or perish" culture and incentives aligned to invest in longer running research that can turn into a paper.

"WHAT I THINK IS PROBABLY LACKING STILL IS THE RIGHT RANGE OF FORA FOR ACADEMICS AND INDUSTRIES TO OPENLY COME TOGETHER [...] WHEN IT COMES TO SECTORAL CHALLENGES, I THINK LOTS COULD BE DONE IN RELATIVELY OPEN FORA WHERE WE BRING ACADEMICS TOGETHER WITH PEOPLE IN THE INDUSTRY AND CONSULTANCIES AND THAT REQUIRES A BIT OF A CULTURE SHIFT ON BOTH SIDES, WITH THE WILLINGNESS TO QUICKLY LOOK AT SOMETHING FOR 1/2 DAY OR A DAY."

ACCENTURE

"I THINK LOTS COULD BE GAINED BY THE EXISTING KNOWLEDGE BASE OF ACADEMICS. [BUT] I DON'T THINK THERE ARE ANY GOOD TRANSMISSION MECHANISMS TO MAKE THAT HAPPEN "

ACCENTURE

Another interviewee highlighted the different experiences in other sectors – for example, they noted that they would expect any university working in the automotive space to have heavy links to industry, and that there is a constant push and pull of ideas, problems and solutions between industry, academia and consultancy. These relationships prove fruitful for the businesses and for the universities (in terms of finance). The interviewee felt it was not clear that the equivalent push-and-pull relationship existed in social sciences.

An additional set of barriers highlighted by a couple of the interviews were those relating to **regulation,** particularly in terms of commercial or legal risks that could slow down or inhibit innovation. One interviewee mentioned their frequent experience with in-house legal/risk teams slowing down or blocking innovation efforts, resulting in *"a tendency to default to old ways of doing things that are deemed safe"*. Similarly, another interviewee mentioned that written compliance was often *"anchored in what has happened in the past"* and could therefore curtail innovation.

This can be particularly acute in highly regulated sectors like financial services or pharmaceuticals. One interviewee referred to an example in the pharmaceutical industry where there is an opportunity to develop an intelligent "virtual assistant" to help people manage correct drug intake, with a potential to dramatically improve customer outcomes. However, there are a lot of conceptual hurdles to overcome, particularly around using existing approval frameworks which work well for scientifically informed controlled trials, but when *"an innovation for patients is technology to drive healthier behaviours or better adherence, the same frameworks don't exist"*.

Access to the right **talent** was another barrier mentioned by several interviewees. Where this was raised, the interviewees highlighted that both Brexit and Covid had exacerbated the issue. Even the large, prominent businesses we interviewed articulated current struggles in hiring the right people to support innovation, and implied that the problem was likely to be even more pronounced for smaller firms. Another interviewee mentioned particular challenges in finding people with diverse and mixed backgrounds, recognising the value for innovation in having a range of experiences, but feeling that the educational system tends to put people onto a STEM or SHAPE "pathway" without encouraging cross-over between them.

"A LOT OF GRADUATES SEEM TO HAVE BEEN FORCED TO CHOOSE BETWEEN ART AND SCIENCE. AND I WONDER IF THERE IS SOMETHING EDUCATION POLICY PERHAPS CAN DO TO NOT FORCE A CHOICE. BLEND TOGETHER OR ENCOURAGE SOMEONE WHO'S DOING A MORE SCIENTIFIC DEGREE TO ALSO DO SOMETHING MORE ARTISTIC, AND VICE VERSA. BECAUSE NOW THEY ARE TREATED AS THOUGH THEY ARE ALIEN CONCEPTS AND WE HAVE BOUGHT INTO THIS IDEA OF ONLY USING A PARTICULAR SIDE OF YOUR BRAIN, AS IF YOU CAN'T POSSIBLY USE YOUR WHOLE BRAIN. IT IS RIDICULOUS IF YOU THINK ABOUT SOME OF THE GREATEST ARTISTS LIKE DA VINCI WHO WAS ALSO A SCIENTIST."

ACCENTURE

Several interviewees mentioned the **cost associated with accessing external insight**, for example costly third-party data (as mentioned above) and commissioning external research. While the types of large multinationals we engaged with may be able to invest in these kinds of resources to some extent, the implication was that these barriers are even more pronounced for smaller firms with more limited financial resources.

One interviewee suggested that the structure of the **investment landscape in the UK** means that in certain cases it may be difficult to find the right partner to fund potential innovations. This is because the UK investment landscape is fragmented in the sense that it contains a number of small, relatively specialised venture capital (VC) firms. In their experience, this contrasts with the US landscape where there are fewer, larger VC firms which will invest in a variety of innovations, which makes it easier to navigate the landscape because it is more concentrated.

"LONDON IS FAR MORE FRAGMENTED, WITH BOUTIQUE VCS THAT CAN BE NICHE IN TERMS OF WHAT THEY INVEST IN. IT IS GREAT WHEN YOU FIND THE RIGHT ONE, BUT YOU MAY HAVE TO HAVE LOTS OF CONVERSATIONS TO DO THIS."

TESCO

3.6 THE ROLE OF POLICY

BUSINESSES DIFFER IN THEIR LEVEL OF INTERACTION WITH PUBLIC POLICY MAKERS ON THE TOPIC OF INNOVATION

Across the businesses we spoke to, there were different levels of interaction with policy. This was both in terms of their knowledge of the policies related to innovation and the extent to which they had relationships with institutions such as UK Research and Innovation (UKRI) and BEIS which lead on business innovation policy.

In terms of barriers to this type of engagement, one interviewee noted that a potential barrier was a lack of clarity over the current funding landscape, and where they might be placed to engage with this. Several interviewees also shared impressions that the governments' perceptions of innovation, both in the UK and overseas, can at times be limited or skewed to some extent. One interviewee shared an impression that the Irish government incentivises the "harder" sciences more than social sciences, and another interviewee shared an impression that the UK government thinks of innovation predominantly in STEM terms. Another noted that although they had never felt dismissed by policy makers, it was their impression that the government perception of how much innovation happens in retail compared with other sectors (such as pharmaceuticals) was limited, and this may be a barrier to engagement.

Another interviewee highlighted that while their business did engage with public policy and public affairs more broadly, this engagement was not particularly visible to them in their more innovation-focused role, suggesting that the internal connections between innovation and public affairs teams may influence the extent to which businesses engage with policy on innovation issues.

Many businesses noted that they are open to greater interaction with policy and policy makers and would be keen to understand how to foster relationships with policy makers. One interviewee mentioned that, while their business is keen to engage more with the government on the topic of innovation, there are some topics where the willingness to share insight may be higher and some where it may be lower if the insight is commercially sensitive.

We also heard about a perceived lack of clarity around the available innovation funding, with a perception of many different schemes being available, which can be difficult and time consuming to navigate.

BUSINESSES OFTEN DO CLAIM R&D TAX CREDITS, BUT THESE DO NOT NECESSARILY COVER THE FULL RANGE OF ACTIVITIES AND DO NOT NECESSARILY INFLUENCE WHERE INVESTMENTS ARE MADE

The businesses that we spoke with had a common perception that R&D tax credits do not necessarily cover the full range of innovation activities and investments that businesses are undertaking. For example, one interviewee felt that they would only really engage with R&D incentive policies where projects exceeded certain thresholds of size and scale.

Distinctions between teams in businesses responsible for finance and tax and those responsible for innovation were also apparent in our interviews. Those we engaged with were typically not close to the detail of the types of tax credits that were applied for, or the extent to which their business interacted with these policy incentives. The model we heard from one organisation was that innovation investments were picked up "after the fact" by finance teams to assess where tax credit applications could be made, rather than the credits themselves having a particular influence on the choice of specific innovation investments undertaken. While this point was not raised in other conversations, our interviewees who focused on innovation in their day-to-day roles tended to have a limited understanding of the financial side of things, including tax credits.

INDIVIDUAL BUSINESSES HAD DIFFERENT IDEAS OF WHERE POLICY COULD PLAY A ROLE IN FACILITATING INNOVATION

The individuals we spoke to had a number of ideas for areas where policy could play a role, or enhance its existing role, in facilitating and supporting innovation in the service sector. These often related to the barriers to innovation we identified above. Examples discussed during the interviews included the following:

- **Fuller understanding of innovation**: Several of our interviewees suggested that the government's understanding of innovation could be improved. This includes recognition of the level of innovation and types of innovation that happen within services. Specifically related to SHAPE, one interviewee noted that government policies explicitly focused on SHAPE may help to overcome "cultural inertia" in the recognition of the importance of these disciplines: *"some sort of policy that drew attention to the importance of the arts, humanities etc. would be great".*
- **Direct funding**: One interviewee noted that limited financial resources are a key barrier to innovation and therefore that increased external funding can ease this constraint.
- **Clarity over the funding landscape:** One interviewee suggested it would be useful to have a clearer understanding of the ways in which they could engage with current policy programmes, including the scope of the various funding initiatives that exist.
- **Regulation:** The theme of regulation came up in several of our interviews. While the important role of regulation was recognised, our interviewees felt that at times regulation could be improved in a way which facilitates more innovation. This could include streamlining the process of changing regulation in response to evolving technology.
- **Incentivising crucial investment**: One interviewee commented on how dated IT systems make effective innovation difficult, particularly when iterating digital propositions with customers. In some businesses, the smallest changes to customer outputs are incredibly slow to process and implement. Updating IT systems is a significant expense, and while many business have started moving to more agile systems, there may be a role for policy in incentivising this type of investment further and across more businesses: *"…most organisations […] find it very difficult to do anything differently with their computer systems and are also quite nervous of making any changes because something can go wrong,*

so that's an area where giving incentives to organisations to upgrade to more dynamic test capable systems would be potentially a really valuable thing to do".

- **Effectively linking industry and academia**: We heard several suggestions that there is a role for policy in facilitating more effective dialogue between industry and SHAPE-related research, which is perceived to be less developed than in STEM disciplines. Policy could facilitate better fora for academics to exchange ideas with businesses, including consulting companies. Related to this, there was a perception that academics could play a bigger role in addressing some real-life problems from the industry, but this requires the right policy to create incentives. The current "publish or perish" culture means academics often are not accurately incentivised to pursue short-term problems from industry if they are unlikely to result in an academic publication. We also heard that ideas from academia are not being presented to businesses in an appropriate way, lacking translation of how businesses can actually use the idea. A better dialogue between industries and academia could help with the current disconnect.
- **Education**: Given views on how business innovation actually occurs, one interviewee highlighted the value of bringing science and arts closer together and bridging the "false dichotomy" they perceived between the two. Having education reforms which encourage people to experience more of a combination of arts and science education was felt to be potentially valuable, or at least removing the forced "choice" would be helpful in improving access to talent.
- **Data:** In a couple of interviews we heard a suggestion that increased availability and access to publicly available insights could potentially reduce the costs that businesses face or improve the quality of the evidence they could draw upon. One interviewee mentioned an example of costs in accessing British geographic data, which is already freely available in other jurisdictions such as Ireland.

4 CONCLUSIONS AND INSIGHTS FOR POLICY MAKERS

We interviewed more than 20 individuals with expertise in innovation from eight large, high-profile service sector organisations in four different industries. These expert views gave critical insights into the practicalities of commercial innovation in the service sector, by far the largest part of the UK economy, and the role of SHAPE disciplines in this process. Our key conclusions and insights are set out below.

INNOVATION IS HIGHLY IMPORTANT FOR SERVICE SECTOR BUSINESSES

Our conversations highlighted just how important innovation is for service sector businesses which rely on it to help them grow and weather significant industry changes. Innovation in services is centred on customers and solving customer needs. It is vital in a world where competition is fluid, cuts across sectors and is increasingly focused as much on competition for people's time and attention as on their spending. Consumer expectations of quality and experience now drive innovation and insights from one part of the service sector to another – one interviewee highlighted how people's experiences of user interfaces on streaming services or delivery apps then influence their expectations of how they will engage with their bank online. In this context, innovation is understood broadly, as ranging from small tweaks to how things are done through to "big bang" transformative changes.

The importance of innovation for service sector businesses is reinforced by quantitative findings drawn from key government data. Services account for an increasing share of UK private sector business R&D, up from 25% in 2009 to 35% in 2020. Firms in the 'knowledge-intensive services' sector are more likely to report being innovative on a range of definitions than firms in the (non-engineering) manufacturing sector. And two of the three largest sectors claiming R&D tax credits are largely service-oriented.

BUSINESSES VARY IN HOW THEY ORGANISE AND UNDERTAKE INNOVATION

How service businesses organise their innovation efforts varies. While most tend to adopt a formalised approach, placing innovation explicitly within the responsibilities of selected teams or individuals, the common view we heard over and over again was that innovation can, and should, happen at all levels of the organisation as part of a broad "culture" of innovation. To support this, businesses tend to source innovative ideas from a broad range of sources both inside and outside the organisation: internal research and data, formal structures and partnerships, internal or external competitions or portals to invite innovative thinking, academic research and the activity of other businesses.

BUSINESS INVESTMENT IN INNOVATION IS BROADER THAN FORMAL R&D

We also heard that formal R&D is only one part of the investments that service sector firms make in innovation – and sometimes quite a small part. The efforts put into innovation are much wider, particularly the investment of time and resource focused on internal innovation teams. These investments, however, often appear harder to measure and value than R&D. Quantitative evidence reinforces this, with on average only around 56% of business innovation investments being R&D.

A WIDE VARIETY OF SHAPE INSIGHTS ARE PERCEIVED AS IMPORTANT FOR INNOVATION

The businesses we interviewed perceive SHAPE insights, drawn from both internal and external sources, to be important for their business innovation. The focus on customer needs places human-focused SHAPE disciplines, such as psychology, behavioural science, sociology and ethnography, at the core of efforts to

understand where to innovate to add value to customers. This type of insight is also fundamental in helping to develop customer-friendly solutions.

We heard a wide range of other examples, beyond the more commonly acknowledged contribution of behavioural insights, of where SHAPE adds value. This includes the role of economists in optimising innovation investments, linguists and story-tellers in developing successful chat bots, geographers in optimising physical retail outlet locations, media and communication experts in developing engaging apps and educational videos, and media and culture experts in shaping culturally diverse content.

THERE ARE POTENTIAL DANGERS ASSOCIATED WITH EXCLUDING INSIGHTS FROM SHAPE DISCIPLINES IN BUSINESS INNOVATION

As well as noting the added value of including SHAPE insights, many businesses emphasised the dangers associated with excluding them. In a world where technology is ever more present, there is a real risk in excluding the SHAPE perspective on how technology can impact people and society, and how people engage with technology in reality.

A common perspective we heard was the need to integrate insights from SHAPE and STEM for effective innovation, rather than having them siloed. There is evidence that the "collision of perspectives" that such a combination brings is increasingly appreciated. This includes the establishment of the Human Sciences Studio at Accenture or the investment in developing courses and resources on the social and ethical responsibilities of computing by MIT.

Despite the recognised importance of innovation, businesses do face a mix of internal and external barriers to innovating. The external barriers we heard of include access to the right talent, regulatory burden and poor dialogue with academia about real-time industry challenges. Those we spoke with felt that this was a particular challenge within the SHAPE disciplines and an area where STEM research was ahead.

OUR INTERVIEWEES HAD A RANGE OF IDEAS ON HOW POLICY COULD HELP WITH THESE BARRIERS AND FACILITATE INNOVATION IN THE SERVICE SECTOR

Among those we interviewed, there was a common view that SHAPE insights matter for innovation. We also often heard that those involved with innovation in service sector firms felt that the focus of government innovation policy was on scientific R&D and that policy makers often fail to understand the realities of business innovation. **Improved dialogue** between government and service sector business to enhance understanding was therefore a key insight. Many large, service-oriented firms already have government affairs teams, but it seems clear that innovation is rarely a topic on the agenda for conversation with policy makers.

Another factor that could facilitate better collaboration in this space is **support in navigating the policy and funding environment for businesses**. Many noted that they were open to greater interaction with policy and policy makers, but they were keen to understand who to engage with specifically around innovation. And while there was some awareness that innovation funding for some sectors may be available, at least one of our interviewees noted that the landscape was very fragmented and difficult to navigate. This is particularly relevant as we heard that limited financial resources can be a barrier to innovation at the moment.

Among the large service sector firms we spoke with, there was not necessarily a strong desire for more specific direct public funding of innovation as a key policy ask (although this is not to say that other firms,

particularly smaller services firms facing barriers around access to finance for innovation, would not benefit from additional funding). However, we did hear about specific costs facing even large firms in support of innovation where **policy could be more supportive in reducing costs** – including making more data freely available (e.g. geographic data) or providing targeted support for innovation-enhancing investments such as IT systems that support testing of digital innovation.

For SHAPE in particular, we heard about a desire for **improved incentives for academic researchers to support innovation**. This included creating better fora for industry and academia to come together to discuss practical innovation-related issues in real time, communicating on how to better translate academic ideas into commercial solutions, and supporting businesses' ability to shape academic research agendas to better target real-world business needs. A view we heard was that this process had already been quite effective in STEM, but that SHAPE lagged behind.

We also heard that regulation can at times slow down innovation, particularly when regulation lags behind technological developments. There appears to be a key policy role in **developing supportive regulatory environments for innovation** to balance the need to protect consumers with the need to innovate for them. The challenge of adapting regulation to technological change needs to be top of mind for policy makers as the rate of technological change is ever increasing.

Last but not least, education policy has an important role to play in **developing the right talent** to support innovation in the services economy. We heard repeatedly of the importance of **combining SHAPE and STEM insights for effective innovation**, but there were some concerns that educational pathways in the UK often lead people to specialise early.

ANNEX A - ORGANISATIONS PARTICIPATING IN THIS RESEARCH

We are extremely grateful to all of the people from the following organisations who gave their time to be interviewed for this work.

TABLE 1 ORGANISATIONS ENGAGED FOR THIS STUDY

SCOPING INTERVIEWS	FULL CASE STUDIES
Tesco	*Tesco & Tesco Bank*
Tesco Bank	*Phoenix Group*
Amazon	*Accenture*
Amelia	*Netflix*
Phoenix Group	
BT	
Netflix	
BBC	
Phil Graves[40] *– consumer psychologist*	

Source: Frontier Economics

[40] Phil has worked with a range of large businesses, including several major UK and European broadcasters, high street banks, leading retailers and product manufacturers.

ANNEX B - SCOPING INTERVIEW TOPIC GUIDE

GENERAL BACKGROUND

- Please could you introduce yourself, and your role at the business.
- Could you tell us a little more about the company? [When began operating, key areas of activity, international or UK only]

HOW INNOVATION IS PERCEIVED AND ORGANISED WITHIN THE BUSINESS

1 What does innovation mean for your business? Do you have a definition of innovation that is used?

2 How is innovation organised within the business?

- a Are there any specific innovation teams? How are they led/organised?
- b Is innovation centralised or devolved? Does this vary by country/location or area of the business?
- c Is there an innovation strategy?

3 Do you have particular objectives from innovation? What are you trying to achieve?

4 In general, how important would you say innovation is for the business? Are there particular areas of the business where innovation is more important/adds more value?

THE INNOVATION PROCESS

5 How are innovative ideas identified? How often are you drawing on external ideas e.g. what competitors are doing? Do ideas ever come from academic research?

6 Is there a formalised or standardised process for taking forward innovative ideas? How do you judge success?

7 Do you use external partnerships and collaborations to support innovation? How is this organised? Where do academics fit within this?

8 Do you have any relationship with BEIS or UK Research and Innovation around your business innovation? Or equivalent departments or bodies overseas?

INVESTMENT IN INNOVATION

9 What types of investments do you make that you consider to support innovation? Do you do R&D/claim R&D tax credits in the UK or overseas? If not R&D, how do you define or measure your investment in innovation?

BARRIERS TO INNOVATION

10 What are the key challenges or barriers to innovation in your business?

11 Have you faced any specific barriers in using insights from academia and academic research to support innovation?

SHAPE AND INNOVATION

12 How important would you say research and insights from arts, Humanities and Social Sciences in particular is for your business and your businesses' innovation? Do you have any examples?

13 How do you draw insights from these disciplines? [Formal collaboration/partnership, consultancy or spending on expertise, hiring staff with expertise from these disciplines, internal research by staff]

14 Are there gaps in your understanding that you think arts, humanities and social science research could fill which would support your business's innovation? What issues would you like to see researchers tackle?

15 Are there other research disciplines or areas that are particularly important for your business and your innovation/R&D?

EXAMPLES OF SPECIFIC INNOVATIONS

16 Do you have any recent examples of successful innovation in recent years, in particular where arts, humanities or social science insights either played a role or could have played a role? Could you explain these a little?

ANNEX C - CASE STUDY NARRATIVE: TESCO GROUP

OVERVIEW

Tesco Plc. is a multinational retailer headquartered in the UK. Since being founded in 1919, it has grown to group sales of £54.8 billion in 2022 and employs around 345,000 people internationally in 4,752 stores. Most of these sales come from Tesco's in-store and online grocery business. However, Tesco also owns the following businesses:[41]

- **Tesco Bank:** a retail bank based in the UK;
- **Tesco Mobile:** a mobile network operator in the UK, Ireland, Slovakia and the Czech Republic;
- **Booker:** a food wholesale operator;
- **One Stop:** convenience stores across the UK; and
- **dunnhumby:** which specialises in customer data science.

The vast majority (£50 billion in 2022) of Tesco's sales are generated in the UK and Ireland, but it also has a presence in Central Europe.[42]

We spoke to individuals within Tesco who were able to give insight into how innovation happens in practice at Tesco, including the role of SHAPE, the role of policy in facilitating innovation at Tesco and specific examples of recent innovations influenced by SHAPE around location planning and Clubcard Pay+ as part of Tesco Bank.

PERCEPTIONS OF INNOVATION AT TESCO

Tesco does not have a formal definition of innovation that is used across the whole business, and the individuals we spoke to within Tesco recognised that there is a difficulty in defining innovation. However, a consistent theme in how interviewees thought about innovation was in terms of solving problems in a way that adds value to Tesco's customers. Interviewees also perceived innovation to cover a wide range of developments, from small incremental changes through to large disruptive ideas, which was reflected in the way innovation is structured (see below).

Innovation is highly important for Tesco and is key in enabling it to deliver value to its customers – both now and in the future. Actively innovating has been important historically in allowing Tesco to weather industry changes in a highly competitive sector. For example, in the grocery sector, the last few decades have seen the emergence of online delivery and, more recently, rapid e-commerce.

"WE TRY TO HAVE A CULTURE OF INNOVATION FOR EVERYBODY, AND THE DEFINITION OF INNOVATION IS AN INTERESTING ONE BECAUSE LOTS OF PEOPLE DEFINE INNOVATION DIFFERENTLY, BUT WHETHER THAT'S FROM CONTINUOUS IMPROVEMENT TO MORE

[41] All figures taken from: https://www.tescoplc.com/media/759057/tesco-annual-report-2022.pdf

[42] Specifically: Hungary, Slovakia and the Czech Republic.

"DISRUPTIVE INNOVATIONS, WE STRIVE FOR AN ABILITY FOR ANYONE IN ANY ROLE TO BE ABLE TO LOOK AT CHANGE."

TESCO

"GENUINELY, I CAN SAY – HAVING WORKED HERE FOR ALMOST 13/14 YEARS NOW – THAT CUSTOMERS DO FORM THE BASIS OF THE START POINT FOR EVERYTHING THAT WE ARE TRYING TO DO NOW."

TESCO

INNOVATION AT TESCO IN PRACTICE

How is innovation organised at Tesco?

Tesco aims to have a culture of innovation for everyone and encourages everyone to innovate regardless of their job title or the team that they sit in. There are certain teams across the business that focus more specifically on innovation. For example, each of the business units in Tesco will have individuals focusing on some element of business planning or strategy, which may include innovation, as well as product development and transformation teams.

Tesco also has a centralised **Group Innovation Team**. This is a stand-alone team that was set up with a clear objective of focusing on large-scale disruptive innovations. This team was established at the end of 2019 and consists of 5-10 people. As a central team with its entire focus on innovation, the Group Innovation Team is separated from day-to-day operations and is tasked with thinking about bigger disruptions. Tesco set up that team in recognition of the fact that it can be very hard to do disruptive innovation in your day job when your core role is operational and focuses on delivering for customers, colleagues and communities today. An example of the types of previous innovation that would be covered by Group Innovation today would be "frictionless" stores where customers can shop and pay without scanning a product or using a checkout'.

Tesco also has a unit called Tesco Labs, which is a research and development team sitting within technology. While the Group Innovation Team, has a broader focus, the two teams work together on opportunities which involve technology.

In terms of the process for testing and approving innovative ideas, there are broadly three ways forward within Tesco and they depend on the scale and nature of the innovation:

- **Incremental innovations:** For smaller-scale innovations that happen within business as usual and are more focused on continuous improvement, the cost is recognised in standard budgets. The approval processes for these innovations depend on the type of change and are covered by business-as-usual processes.

- **Transformational innovations:** Larger projects or innovations that are more transformational tend to go through an investment committee process. The business case is assessed, and Tesco looks to understand the potential impact on customers and the business. Generally, a business has to demonstrate "payback" over a set time horizon. Although these are larger-scale innovations, they are likely not to be completely speculative projects and tend to have already been "proven" to some degree.
- **Disruptive innovations:** For the large-scale disruptive innovations covered by the Group Innovation Team, there is an understanding of more uncertainty and a recognition that success rates will likely be lower. There is still an approval process which looks to understand the business case, but this is streamlined compared with the investment committee process. In this case, there is no set payback target but all innovations are still assessed thoroughly, including exploring the likely payback horizon if successful.

Where do innovative ideas come from?

Innovative ideas come from a range of sources for Tesco. Sometimes these ideas are a result of Tesco actively seeking out new innovations and at other times they are more spontaneous and occur organically.

Tesco's "Red Door" is an example of the business actively seeking out innovative ideas externally. "Red Door" is an online platform on Tesco's corporate website which allows anyone, anywhere in the world, to submit an idea to Tesco.[43] It was set up to address the potential problem of external innovators not knowing how to get in touch with the business. The ideas submitted are then triaged and are either kept within Group Innovation or passed onto other colleagues or business departments if relevant. The aim is to enact quick decisions in a way that supports innovators.

However, this is just one potential source of innovation, and Tesco also takes innovative ideas from a variety of other internal and external sources:

- Ideas generated by individuals within the business are an important source of innovation. These can occur spontaneously or as a result of a problem that needs to be solved or a target that needs to be met. Customer feedback can often act as a catalyst here.
- Tesco often looks for ideas externally. The big disruptive innovations considered by the Group Innovation Team often come from start-ups, and Tesco Bank has a partnership with FinTech Scotland to link up to the activity of FinTech. Tesco often partners up with external agencies to undertake research which supports the development of new customer propositions. Ideas can also be facilitated by academic cooperation. Tesco Bank worked together with the University of Edinburgh for several years, using its facilities to run innovation projects and upskill the staff.
- Last but not least, Tesco looks outwardly to what other players within the market or adjacent markets are doing, for example in respect to rapid e-commerce in the grocery sector or new payment developments.

What investments does Tesco make in innovation?

Tesco makes a number of investments in supporting innovation:

[43] https://www.tescoplc.com/innovation

- The time and resource of individuals and teams within the business is an important investment. This includes the time of the Group Innovation Team and all other individuals involved explicitly in innovation at Tesco (like Tesco Labs) as well as operational teams which think about change opportunities alongside their day-to-day responsibilities.
- Tesco invests in the collection and analysis of data that helps it to make better innovation decisions, for example analysing customer feedback or Clubcard insight.
- Tesco also invests in external partnerships and expertise, including working with specialist consultancies that bring external expertise in areas like economics, design thinking or consumer research. The examples we heard of were predominantly focused on SHAPE disciplines.
- Finally, in some cases Tesco also makes direct investments in companies working on relevant innovation ideas. An example of this is its investment in Trigo, a technology company which it partners with on the development of frictionless shopping.

What barriers does Tesco face in innovating?

We heard a number of examples of barriers to innovation that Tesco faces.

As with most other businesses, Tesco wants to focus its investment in innovation in the right way, and therefore needs to carefully choose which ideas to explore and take forward. While it has a process to support this decision-making, availability of resources may mean that some potentially good ideas are not taken forward or are deprioritised. We also heard about the need to balance long-term investments, which carry risks that are in some cases substantial, with short-term priorities.

"[AN INTERNAL BARRIER] WOULD BE THE FIGHT BETWEEN INNOVATION AND THE HERE AND NOW. BECAUSE NOT ALL INNOVATION WILL SOLVE THE PROBLEM FOR NOW."

TESCO

There is also a challenge in balancing the priorities of different parts of the business, especially when innovative ideas may have different impacts on business areas. One interviewee noted that there is a challenge in thinking about how to make decisions which optimise over the whole firm, not just for individual teams. There is also a challenge when an innovation may have a positive impact on one business area but a perceived negative impact for businesses in a different area.

At times it is also difficult for Tesco to access external ideas in a way that is applicable to the business. This happens both with start-ups and academic ideas, which can be presented in a way that does not make the business potential clear, with ideas often arriving in the form of early concepts or technologies rather than in a form that the business could easily take forward and apply commercially.

"A LOT OF ACADEMIA GET IN TOUCH WITH US WITH A PROTOTYPE THEY WOULD LIKE TO TALK TO US ABOUT. AND WHEN WE TALK TO THEM ACTUALLY THE PROTOTYPE IS ANOTHER PIECE OF PAPER AND IN SOME CASES IT'S IN SOMEBODY'S HEAD. SO YOU SEE THEY DON'T PUT THEMSELVES IN THE RIGHT PLACE BY TALKING TO CORPORATES WITH AN IDEA. IF YOU HAVE AN IDEA, THEN IT MUST HAVE SOME KIND OF A STRAW MODEL FOR SOMEBODY TO SEE IT, FOR IT TO TAKE FORWARD [...] AND I GET THE POINT THAT ACADEMIA AND THOSE WORKING IN THAT WORLD MAY NOT HAVE THE FUNDING TO BE ABLE TO DO SO, BUT IT DOESN'T TAKE VERY LONG FOR THEM TO CONVERT THAT IDEA ON A PIECE OF PAPER AND SAY, LOOK, THIS IS WHAT I'M TALKING ABOUT."

TESCO

"THE ONE THING I FIND WITH EXTERNAL PARTIES WHO ARE LOOKING TO PITCH INNOVATION IS TRANSLATION INTANGIBILITY. I THINK A LOT OF THE TIME, PEOPLE HAVE A CONCEPT OR A SINGLE INNOVATION, BUT HAVE NO IDEA HOW TO TRANSLATE IT AT SCALE. NO IDEA HOW TO TRANSLATE IT INTO SOMETHING TANGIBLE WE COULD USE."

TESCO

Tesco sometimes faces challenges in finding the right partners to invest in innovative ideas because of the structure of the investment landscape in the UK, which is fragmented in the sense that it contains a number of small, relatively specialised VC firms. Our interviewee felt that this contrasted with the US landscape where there are fewer, larger VC firms that invest in a variety of innovations, which makes it easier to navigate the landscape because it is more concentrated.

LONDON IS FAR MORE FRAGMENTED, WITH BOUTIQUE VCS THAT CAN BE NICHE IN TERMS OF WHAT THEY INVEST IN. IT IS GREAT WHEN YOU FIND THE RIGHT ONE, BUT YOU MAY HAVE TO HAVE LOTS OF CONVERSATIONS TO DO THIS."

TESCO

THE ROLE OF SHAPE IN TESCO'S INNOVATION

During our interviews, we explored the role that SHAPE insights play in innovation at Tesco. They were recognised as important across a wide range of aspects of Tesco's innovation process, particularly in the context of improving Tesco's understanding of its customers, their needs and expectations.

The strong message from our interviews was that Tesco wants to ensure that all the innovations it takes forward work for customers. Therefore, in the same way that significant investments may be made into new innovative technologies, significant investments will also go into understanding how customers will react to these innovations and the impact it may have on them. This was felt to be the area where SHAPE insights add particular value.

We also heard how SHAPE disciplines help Tesco to understand the importance of sustainability for its customers, including their needs and expectations in that space. In terms of innovation, this includes the development of new products and services, innovation in delivering in more sustainable ways to service customers, and innovation in internal management and organisational structures which emphasise diversity and sustainability.

> "THERE IS NO NATURAL WAY OF BRINGING TOGETHER [THE SOCIETAL NEEDS] AND A CORPORATE OBJECTIVE, WHICH IS TO MAKE PROFIT FOR SHAREHOLDERS. AND I THINK [SHAPE] INSIGHT IS THE ONE THAT BRINGS THE TWO TOGETHER IN SOME FORM. EVENTUALLY IT MIGHT BE AN IDEA THAT WE SAY: 'OH, WE DID THIS BECAUSE OUR CUSTOMERS WERE ASKING FOR IT', BUT THE REALITY IS WE WOULD NEVER DO IT IF OUR CUSTOMERS WERE NOT ASKING FOR IT. SO I THINK THE WAY THE SOCIETY OPERATES HAS A HUGE IMPACT ON SOME OF THE INNOVATIONS WE HAVE."
>
> TESCO

We also explored two specific examples of innovation at Tesco where the business perceived the role of SHAPE disciplines as very important. These are:

- The role of SHAPE insights in Tesco's **location planning** for its grocery business; and
- The role of SHAPE insights in the development of Tesco Bank's **Clubcard Pay+ strategy**.

INNOVATION EXAMPLE: THE USE OF GEOGRAPHY TO SUPPORT LOCATION PLANNING

Like all large retailers with physical stores, Tesco has a team which focuses on **location planning** activity. Location planning at Tesco is about informing the decisions on where to open new stores in the future. It also explores how to optimise the existing estate, taking account of customer, property and competitor information. It combines forward planning to grow Tesco's market share with risk mitigation to make sure Tesco opens profitable stores in the right locations and optimises the estate for the future to deliver profitable growth and future property value.

The team comprises between 10 and 20 people from a mixture of backgrounds, with **SHAPE scientists** playing a large role working alongside mathematicians and other scientists. **Geographers** play a particularly important role in the team, bringing expertise on spatial and demographic analysis. They apply the catchment lens to the analysis, thinking about where customers are coming from when they shop (for example, what is the available expenditure if we look at people within 5, 10 or 20 minutes' travel time from a store). They then work with colleagues with maths skills who build the forecasting models. The blend of different skills and backgrounds is important to successful operation of the team.

> *"Historically we have generally taken geography graduates within the location planning team, primarily because of the overlap on people and places. Geographers tend to think about things spatially, and that then applies to how we make decisions on opening new stores and optimising our estate for the future."*

Tesco has had a focused location planning team for more than 40 years. In recent years, the size of the team has shrunk owing to improvements both in technology and the quality of data to support analysis. Historically, there used to be a clearer split between social scientists and other scientists, but now the roles tend to be more hybrid. There is one lead data manager who makes data available and creates packages for catchment areas, while other team members (including the geographers) can use the input and relevant software more independently to do the analysis.

The location planning activity relies heavily on data, both internal to Tesco and from external sources. Internally, Tesco uses sources including aggregated customer data and financial and property information. This is combined with various sources of external data covering aspects like catchments, demographics, expenditure or mobility. Most of this data is bought from third parties. Some publicly available data is also used, but its availability varies across markets. For example, more helpful data on boundaries is provided by the public structures in Ireland free of charge than is the case in the UK.

The team works very closely with the Customer Insights team which looks at macro and regional trends in customer behaviours. The combination of macro customer insight with local catchment knowledge is a powerful decision-making tool for the business.

The team tends to be heavily involved in planning physical trials in stores (e.g. trialling GetGo, a checkout-free format of stores). It helps to determine what the trial set of stores should be based on their catchment knowledge and the property data. For example, catchment analysis supported by geographic expertise helps with considerations around the footfall and long-term trends of stores. This can then be combined with thinking about lease arrangements to avoid trials in stores where the lease might soon run out.

INNOVATION EXAMPLE: TESCO BANK'S CLUBCARD PAY+

In early 2022, Tesco Bank launched a new payment product called Clubcard Pay+.[44] It works as a prepaid debit card which allows customers to seamlessly earn Clubcard points (without swiping the loyalty card) on shopping at Tesco and outside. The app linked to the card has features to help customers manage their money better, including the option of rounding up spend to save money more easily, the ability to create various saving pots and the availability of spend analytics to keep a better view of the outgoings.

The origin of this product is grounded in Tesco's desire to innovate by bringing together payments and Clubcard, leveraging the synergies between its bank and retail businesses. With that in mind, it launched an **innovation sprint** across the Tesco group, bringing together people from the bank, retail business, Clubcard and finance as well as a couple of external agencies which bring insights from SHAPE disciplines, including experts in **concept and design thinking** and **economists.**

The external agencies helped Tesco with in-depth understanding of customer behaviours, which was an important input to designing the proposition. This relied on psychological and ethnographic insights, and involved studying the payment and shopping behaviours of 36 customers including, for example, what was in their wallet, how they paid, how they behaved when they came home, etc.

Input of economists was helpful in better articulating and testing the business case for the innovation, setting out the needed behavioural changes for the investment to be worthwhile and assessing whether the change was believable. This was important to help Tesco make the decision to go ahead with this investment.

The sprint produced several different ideas which were subsequently tested with customers, and the best performing subset of solutions was fine tuned into a new proposition which became the Clubcard Pay+ product. For example, the ethnographic study influenced the decision to add certain functionalities to the app such as the saving pots which might allow customers to budget money for different needs better.

Developing the proposition further heavily relied on internal and external psychology and proposition development input, particularly around using "the hook and the anchor" methodology to draw customers to the product and help them build a lasting habit of using it. For example, customers are given an introductory offer of three months when they can earn double Clubcard points, while the ability to earn Clubcard points everywhere (not just at Tesco) can work as a strong motivator to keep using the product.

The development of Clubcard Pay+ is ongoing, with plans to expand the list of functionalities and improve the various stages of the customer journey. The role of SHAPE insight, including from psychologists, economists and graphic and user experience designers, is an important ongoing input to this process, helping Tesco to develop a better product for its customers.

[44] See https://www.tesco.com/zones/clubcard-pay-plus

THE ROLE OF POLICY

In our interviews with Tesco, we explored several key aspects related to the role of policy: the extent to which Tesco uses R&D tax credits and how this affects its investment decisions, the current interactions Tesco has with public organisations operating in the policy space, and some examples of potential ways that policy may help facilitate innovation going forward for Tesco.

The view we heard was that the nature of R&D tax credits did not influence decisions over Tesco's specific innovation investment, but we were unable to explore in depth the impact of R&D tax credits on the overall investment budget at Tesco.

Tesco has had some conversations with public organisations operating in the innovation space, such as UKRI, but at the time of the interviews it had no strong ongoing relationships with any organisations. However, it was open to exploring the possibility of developing them.

> "...WE'RE STILL DEFINITELY FINDING OUR FEET. WHERE ARE THE RIGHT PLACES IN GOVERNMENT TO HAVE ONGOING RELATIONSHIPS? WHERE ARE THE RIGHT PLACES TO JUST TOUCH BASE WHEN THERE'S A PARTICULAR THING THAT THAT WE'RE WORKING ON? CERTAINLY WHEN WE DID SPEAK TO UKRI, THEY WERE JUST AT THE STAGE OF TALKING ABOUT HOW THEIR PROGRAMS WERE STARTING TO PIVOT."
>
> TESCO

We also discussed examples where policy could facilitate innovation in the future, with three specific examples raised:

- **Regulation:** One interviewee suggested that it would be useful to understand how they could change regulation to facilitate the development and trial of innovative ideas. They were also of the view that innovation currently moves at a pace that regulation finds it hard to keep up with. We heard: *"I believe regulation has an incredibly important part and innovation shouldn't just […] break that. But what's the innovative approach to being able to challenge some of the regulation? Because my sense is that following the standard governmental process for changing regulation is not quick and there clearly needs to be a process"*.
- **Data:** Increased availability and access to publicly available insights could reduce the costs that businesses face or improve the quality of the evidence they could draw upon. For example, the British government could make more geographic data available publicly for free, as is the case in Ireland. Another point raised related to the perceived risk that increased privacy policy may impact the availability of customer data, particularly at the granular level, which would ultimately lower the quality of insight available to businesses to help them to innovate better.
- **Effectively linking industry and academia**. We heard that ideas from academia are not being presented to businesses in an appropriate way, lacking translation into a specific thing the business

can do with the idea. A better dialogue between industries and academia could help with the current disconnect.

ANNEX D - CASE STUDY NARRATIVE: PHOENIX GROUP

OVERVIEW

Phoenix Group is a large financial services provider based in the UK, focused on long-term savings, retirement and insurance. In 2022, the group had around £310 billion of total assets under administration, employed around 8,000 staff and served approximately 13 million customers.[45]

The business has a number of brands across two customer divisions: the Open Business (including the Standard Life and SunLife brands), which provides and manages new and existing long-term savings and pensions products, and the Heritage Business (including the Phoenix Life, ReAssure, Phoenix Wealth and Phoenix Ireland brands), which manages products, including pensions and long-term savings, that are no longer available to new customers.

We spoke to individuals within Standard Life and ReAssure who were able to provide insight into innovation in practice at Phoenix Group, including the role of SHAPE, the role of policy in facilitating innovation at Phoenix, and a specific example of recent innovations influenced by SHAPE around digital literacy.

PERCEPTIONS OF INNOVATION AT PHOENIX

Phoenix Group does not have a formal definition of innovation which applies at the group level. However, when speaking about the definition of innovation with our interviewees, it was described as *"turning an idea into a solution that adds value to the customer"*. As with many other service businesses, the focus of Phoenix is on making things better for customers.

> **"WE WANT JOURNEYS TO WORK WELL FOR CUSTOMERS, SOLVE THEIR PROBLEMS AS SEAMLESSLY AS POSSIBLE."**
>
> PHEONIX GROUP

In our interviews we also explored whether there were any particular areas of the business where innovation added the most value, or at least had the potential to. Interviewees were of the view that it is not necessarily possible to know where innovation adds the most value or what innovations are going to work – it is not possible to tell in advance what will end up being a "big bang".

Our conversations with Phoenix Group focused on consumer behaviours and the importance of **behavioural science** in developing services in the space of longer-term savings. We heard that Phoenix faces *"the challenge of getting customers to do something which doesn't come naturally, thinking about the longer term"*

[45] https://www.thephoenixgroup.com/sites/phoenix-group/files/phoenix-group/investors/results-reports-presentations/reports-and-presentation/2021/Phoenix%20Group%20Full%20Year%20Results%202021.pdf

and that *"behavioural insights is a big part of addressing this. The detail of how it is executed for our customers is pivotal in the success of failure or relevant initiatives"*.

From that perspective, the importance of small innovative changes was highlighted. Our interviewees observed that people often have the idea that *"big problems need an idea or new problems need something that hasn't been tried before"*. But in behavioural science, the emphasis of nudge theory is about how small changes can have a large impact on decision-making and on behaviour. Another key insight is that behaviours are very context specific, making it very hard to predict in advance what will have a large impact. This leads to a lot of experimentation with small changes to see what has a bigger impact on human decisions.

> " ...YOU DON'T REALLY HAVE INNOVATION WITHOUT EXPERIMENTATION. "
>
> PHEONIX GROUP

INNOVATION AT PHOENIX IN PRACTICE

How is innovation organised at Phoenix?

A number of different teams and individuals across Phoenix Group focus on innovation to some degree, in some cases with innovation being an explicit part of the role. For example, Phoenix Group has an Innovation and Experience Design Team which focuses on making innovations work for customers and, among other things, thinks about the 12-month challenges and "guiding light" metrics it can measure itself against. The **lean start-up methodology**[46] is used for assessing top ideas and asking questions around the assumptions that are being made, which ideas can be tested in practice, and so on.

Phoenix Group also has a Behavioural Sciences team, which sits within its ReAssure business. The team is centralised and works in effect as a consultancy across the business on innovations where behavioural sciences may provide key insight.

One of our interviewees was involved in work encouraging a culture of innovation at Phoenix Group and establishing ways of working which support innovation across the organisation. Phoenix Group is exploring how to move faster at delivering things better for customers. Part of this is setting up teams in a more agile way, which builds on agile delivery by adding "agile discovery" to the process. The aim is not to achieve an efficient delivery of innovation which is not really helpful for customers; it is, instead, to build out the understanding of customers in an agile way, leading to more valuable outputs.

Phoenix Group also has designated space branded as an Innovation Lab, which was described to us as *"a working space that is using cutting-edge technology to enhance meetings and conferences"*. The space is intended for internal collaborations (e.g. brainstorming sessions), engaging with clients or prospective clients

[46] https://leanstartup.co/lean-startup-method/

(e.g. using virtual reality sets to demonstrate to customers better where their money is invested, for example in off-shore wind farms), collaboration with pension advisers, and interactions with the wider industry and stakeholders to reflect on the industry challenges.

Where do innovative ideas come from?

Phoenix Group used to have an internal hub for all employees to submit innovation ideas, but this was subsequently closed in its previous form as it proved too challenging to process and take forward the volume of ideas submitted.

Internal data and observing customer behaviours are often triggers for innovative ideas. One such example is the digital literacy pilot (see below) which was developed in response to various types of insights showing the varying levels of customers' "digital literacy" skills. A key metric was the amount of time advisers needed to spend on technical assistance for Phoenix's digital platform. Phoenix Group also regularly runs several large surveys to understand customer behaviours and perceptions, which can act as triggers for innovative ideas.

It was noted that large disruptions can sometimes be a catalyst for innovative ideas and the successful adoption of innovations. For example, although the technology already existed, during the COVID-19 pandemic the use of QR codes became more widespread across society. Phoenix Group has carried out some customer testing, with initial results showing that putting QR codes on letters that it sends to customers may uplift the response rate, reflecting this increased familiarity.

Phoenix Group has also recently launched an Innovation Forum[47] with FinTech Scotland and TCS COIN,[48] which is intended to be a platform for interaction with FinTech businesses. Phoenix Group invited FinTechs to "design, refine and present [their] innovative solutions" to a decision-making panel composed of senior leaders across the business. Phoenix Group is looking for ideas to help it meet its sustainability strategy, which is focused on three themes: "Investing in a Sustainable Future, Engaging People in Better Financial Futures and Building a Leading Responsible Business". The first round of challenges focuses specifically on ideas using gamification and customer curiosity to drive higher engagement.

What investments does Phoenix make in innovation?

Phoenix Group makes a number of investments to support innovation, including the time and resources of internal teams, training, data collection and external partnerships. There are two specific examples we covered as part of our interviews.

First, Phoenix Group provides basic behavioural insights training to a large number of its employees. The aim of this training is to instil the idea that "small aspects of product design and experience can make a large difference to customer outcomes, both positive and negative". For example, correspondence containing a large amount of text may be good for ensuring it meets written compliance requirements. However, this could mean that the customer may not respond in the way that would be most beneficial for them.

Second, Phoenix Group makes investments in customer research. It regularly runs three customer studies:

[47] https://www.fintechscotland.com/what-we-do/phoenix-group-innovation-forum/

[48] https://www.tcs.com/tcs-cointm#:~:text=TCS%20COIN%E2%84%A2%20brings%20together,for%20TCS'%20Fortune%201%2C000%20customers.

- A customer tracking programme, which tracks 3,000-4,000 customers every quarter;
- An annual survey of customer attitudes; and
- Regular brand tracking.

Alongside these regular studies, Phoenix Group undertakes research on an ad-hoc basis related to a particular topic of interest. For this, it can tap into a range of techniques and toolkits available in house, or it may work with a host of external agencies that provide different techniques of customer research. For example, it has an ongoing partnership with Cowry Consulting, a behavioural science consultancy, which provides Phoenix Group with "expertise and proven methodology using cognitive and behavioural psychology that really works". [49]

What barriers does Phoenix face in innovating?

As with other businesses, Phoenix Group can face a number of barriers along the innovation process.

Financial services are heavily regulated to protect customers and markets. Phoenix Group's view was that, while this can stimulate new ideas, it can also create challenges around innovation, and an understanding of the regulatory requirements in the innovation space is required to balance the regulatory relationship and innovation efforts.

Phoenix Group's innovation is also affected by cost considerations, where potential investments in innovation need to demonstrate a certain level of expected benefits relative to their cost. Many of the investments which have the potential to generate large benefits may also come with substantial costs. For example, an interviewee believed that embedding researchers within individual teams would be beneficial, but this was a potentially substantial cost for Phoenix to face.

It can also be tricky to balance innovations which may only see benefits some way in the future with short-term business needs, and finding time to focus on longer-term outcomes may be difficult within the constraints of day-to-day activities. This can be exacerbated by the fact that sometimes it is not clear whose job it is to think about innovation.

A structural disconnect between delivery and insight teams can create problems with efficient innovation as insights are not passed onto teams in the right way. Phoenix Group is looking at the best ways to bridge these siloes, thinking about "democratising" insight for individual teams, for example by rolling out a user testing platform with rapid overnight results within delivery teams and educating the teams on how to carry out effective testing.

Finally, while failure is an inherent part of innovation, communicating it can at times be challenging. Phoenix Group aims to ground decisions about the introduction of new ideas or innovations in evidence and research. Interviewees noted that it can be difficult to communicate a "bad news story", when the insights from the research or evidence do not align with the outcomes that people were hoping for.

THE ROLE OF SHAPE IN PHOENIX'S INNOVATION

We explored the role that SHAPE insights play in innovation at Phoenix Group and the importance of these insights was recognised by our interviewees.

[49] https://www.thephoenixgroup.com/newsroom/news/phoenix-group-partners-behavioural-science-experts-cowry-consulting

In general, interviewees noted the importance of behavioural science given the long-term nature of their work. Phoenix Group faces a challenge in trying to incentivise customers to think about the long term, which will not necessarily come naturally to them.

Behavioural insights allow Phoenix Group to get a better understanding of its customers and how they may react. One interviewee felt that it was important for people to understand that the detail of an innovative or new idea is not the only important aspect to consider, as how it is executed for the customer will *"make or break it"*. As noted above, Phoenix Group makes a number of investments into gaining insights from behavioural science given the importance of behavioural change to the service it provides.

The role that these insights can play was something that we focused on in detail. On the following page, we consider an example of how behavioural insights and other SHAPE disciplines have played into the digital literacy pilot[50] at Phoenix Group.

THE ROLE OF POLICY

Phoenix Group works closely with regulatory bodies, particularly the Financial Conduct Authority, on the issue of ethical use of behavioural science**.** As a financial service provider, Phoenix Group is obliged to think about customer outcomes and how its use of behavioural science might influence them.

It also has an ongoing exchange with the Behavioural Insights Team (BIT), a body previously embedded within the Cabinet Office but now wholly owned by the innovation charity Nesta. For example, Phoenix Group is using the EAST[51] and MINDSPACE[52] frameworks developed by the BIT, which support it in strengthening the understanding of behavioural science across the business and help behavioural practitioners at Phoenix to think about effective behavioural approaches.

[50] Initial outputs from the pilot can be found here: https://www.thephoenixgroup.com/digital-essentials

[51] https://www.bi.team/publications/east-four-simple-ways-to-apply-behavioural-insights/

[52] https://www.bi.team/publications/mindspace/

INNOVATION EXAMPLE: THE DIGITAL LITERACY PILOT AT PHOENIX GROUP

Phoenix Group can service its clients in two ways: via a call centre or via a digital platform. The digital platform is a significant investment on the company's part, with improvements added on a continuing basis. The use of this channel by customers creates ongoing efficiencies relative to the call centre. Phoenix has also observed positive outcomes for those customers who use the digital platform in terms of improved adequacy of investment in pension savings.

Phoenix started to become increasingly aware of the digital divide among its customers, and that a lot of its call centre advisers' time was spent on technical assistance with the digital platform.

Phoenix researched the availability of publicly available digital literacy resources and found a gap in the pension space specifically – one it subsequently decided to fill with a digital literacy pilot.

An important first step to this was thorough research of customers to understand the drivers of digital illiteracy. As with most other customer research, this relied heavily on SHAPE expertise. Phoenix worked with external research firms with SHAPE expertise, and internally a mix of SHAPE experts was involved, with a particular focus of behavioural scientists.

The first part of the research comprised working with a **customer research company which specialised in areas like usage and attitudes, ethnographic research and decision-making and behavioural biases**. It used a mix of research methods (including video focus groups and in-depth interviews) to identify the various typologies of people with low digital literacy and what barriers they face. At this stage, Phoenix was able to identify its target market for the pilot. The focus was put on a group labelled as "missed the boaters" who were the people with low digital confidence driven by the lack of early exposure to digital technology. The first part of the research highlighted how important the feeling of safety (or lack of it) was in overcoming the digital adoption barriers for this group in particular.

The second part of the research consisted of working with another external agency to test a variety of different options to help people advance digital literacy skills developed by Phoenix internally. This part of the study had a strong **ethnographic and anthropological focus** and fundamentally helped Phoenix to identify which solutions were unlikely to have much appeal to customers (and therefore prevented spending money on unsuccessful innovations).

The key conclusion of both reviews was that, in order to boost digital engagement, the pilot must help people to feel safer, which meant equipping them with the foundational knowledge, support and techniques required to understand and navigate the digital world with a greater sense of autonomy.

> *"So when it came to the delivery, one of the things that we found to make people feel a little bit safer was the use of metaphors. It is one of the techniques that we used that came out of the research."*
>
> *"How could we make people feel safe? And this came out from the research with the anthropologist, looking at what safety actually means. We found that if you want to feel safe online, you have to have some kind of understanding of the technology. So how to use it then is also a question about autonomy. What kind of different options do I have with digital? How can I use it? And then lastly, of course, where can I find support? So how can I get help if I need it?"*

The outputs so far are a set of videos and printed guides which explain the basics of digital literacy and highlight the aspect of security online. Based on psychological insight, the outputs draw heavily on metaphors in order to resonate more with customers.

In developing the outputs, a range of experts with SHAPE backgrounds were involved. The videos were created by an external video-making company, drawing on media and communication expertise. The printed guides were developed in house by behavioural scientists, graphic designers and copywriters. There was careful consideration of how to share these outputs with clients, given that accurate identification of people

with low literacy skills was difficult. To address this, the communication had to be carefully tailored so as not to offend digitally confident customers. To address that, the communications highlighted that these resources might be helpful to people whom the recipients knew, rather than the recipients specifically. Before sharing the outputs with a wider set of customers, a patch was sent to a smaller group whose feedback and behaviours were subsequently evaluated.

> *"That was drafted by the behavioural science team. So understanding the barriers that we might be facing, how it might be interpreted and overcoming those barriers. That's really how we were involved in the production of the material."*

Phoenix plans on building out the initial library of support outputs. Next in line is content which explains in more detail how customers can engage with the digital platform. It is also planning to work jointly on digital literacy with various charities and associations.

ANNEX E - CASE STUDY NARRATIVE: ACCENTURE

OVERVIEW

Accenture is a global professional services company which delivers capabilities across strategy and consulting, interactive, technology and operations. It operates in Europe, North America, Asia Pacific, Latin America, Africa and the Middle East. It currently employs over 700,000 people globally. Accenture reported global revenue of $50.5 billion in 2021.

We spoke to individuals within Accenture who were able to provide insight into innovation in practice at the company including the role of SHAPE, the role of policy in facilitating innovation at Accenture or for its clients more broadly, and a specific example of the Human Sciences Studio at Accenture and the work it does.

PERCEPTIONS OF INNOVATION AT ACCENTURE

Our interviewees noted that innovation is at the core of Accenture, which is reflected in Accenture's latest brand campaign: "Let There Be Change". Accenture aspires to help customers deal with change, and it wants to "make sure they are their own best case study to clients as well".

"Actively innovate" is also one of the flagship behaviours which Accenture expects from all its people, according to its annual report.[53]

> "EVEN IN TERMS OF THE MANDATE FOR INNOVATION [...] IT GOES TO THE CORE OF OUR BRAND – LET THERE BE CHANGE – SO WE EMBRACE CHANGE AND UNLEASH INNOVATION."
>
> ACCENTURE

Accenture has a formal definition of innovation which is "a new way of doing things that adds value". The focus of innovation at Accenture is about better servicing its clients.

> "...OUR OBJECTIVES ARE ALWAYS OUR CLIENT OBJECTIVES. IT IS SEEING AROUND THE CORNERS AND LOOKING AHEAD TO SEE HOW WE CAN BEST SERVE OUR CLIENTS, WHAT THEY NEED TO BE THINKING ABOUT NEXT AS WELL."

[53] https://www.accenture.com/_acnmedia/PDF-165/Accenture-Fiscal-2021-Annual-Report.pdf#zoom=50

ACCENTURE

While Accenture has a formal definition, it also understands that "…innovation is relative to the client, to where you are in your journey". This means that what constitutes innovation is understood quite broadly at Accenture, with a recognition that innovation can range from smaller, more incremental changes ("lower 'i' innovation") to bigger, transformative ideas ("capital 'I' innovation"). Accenture also thinks about innovation in terms of time horizons of when it can materialise: what can happen in 6 months, 6 to 12 months, 12 to 18 months, etc.

"WE LIKE TO TALK ABOUT THINGS AS CAPITAL 'I' BIG INNOVATION, THE THINGS WE'RE DOING THAT ARE TRANSFORMATIVE AND ENTIRELY NEW AND THEN THINGS AS LOWERCASE 'I' FOR WHERE WE'RE INNOVATING IN NEW WAYS FOR CLIENTS OR WE'RE DOING EVERYDAY THINGS."

ACCENTURE

INNOVATION AT ACCENTURE IN PRACTICE

How is innovation organised at Accenture?

While Accenture expects every employee to be innovative in their everyday roles, there is a group of around 5,000 employees who are tasked with thinking about innovation explicitly. They are considered to be the "innovation network" or the "core innovators" with a "distinct set of capabilities" and they sit in various parts of the business. This includes the employees at The Dock[54] in Dublin, Accenture's flagship R&D and global innovation centre. The Dock is home to various hubs, studios and incubation centres comprising experts from diverse backgrounds, including SHAPE: business, social sciences, design, engineering, AI and emerging technology.

The various teams tasked with innovation explicitly tend to be more focused on longer-term challenges, including technology developments such as quantum computing, blockchain and the metaverse, as well as horizon scanning issues such as the "future of industries".

Local market unit teams embedded in working with clients are more focused on the "the lower case 'i'" innovation, although some colleagues who work on the big, longer-term innovations (the "capital case 'I'") are also embedded into client accounts to "infuse" them with an innovation mentality and to trigger innovative thinking in everyday work. This is done to break down the siloes between innovation and everyday operations that might otherwise exist and put innovation at the heart of the client relationship.

[54] https://www.accenture.com/us-en/services/about/innovation-hub-the-dock

"WE WOULD LIKE TO THINK OF EVERY SINGLE EMPLOYEE AS INNOVATIVE IN SOME WAY."

ACCENTURE

Accenture often uses metrics in its approach to innovation. For example, this can guide objectives for big innovation investments, like how it wants every single employee to be trained up and have a high TQ (technology quotient) score (i.e. to have a good ability to use technology).

It also uses metrics around three categories of objectives: how is it inspiring, experimenting and scaling. In the inspiring category, it uses benchmarks around new pilots, for example working with clients in spaces like the metaverse and moonshot thinking.[55] In experimenting, it has metrics around how it experiments for itself and for its clients. In scaling, the metrics focus on new client engagement.

Where do innovative ideas come from?

Accenture uses "no single source" for innovation, with ideas coming from everywhere, both internally and externally: we heard about sources as diverse as competitors, academic research, fiction or "two people clashing in a stairway".

Innovation is often about solving a problem, and Accenture invests a lot of time in considering whether the problems it solves are the right ones. It uses a variety of tools and techniques to incubate innovative ideas, like design thinking.

Accenture regularly runs global internal hackathons in search for innovative ideas, and all the ideas are then kept in an internal global database. Although these are internal, they involve partners and clients where relevant. One recent example that came out of this was an idea on how to save the coral reefs, which turned into an actual project that it is working on with the Australian Institute of Marine Sciences.[56]

Accenture also participates in formal collaborations with academics at the global or national scale. This includes its ongoing cooperation with MIT, which "brings together Accenture's technology, strategy, and industry experts with some of the best minds from across MIT"[57] to "accelerate the adoption of new disruptive technologies, provide research insights to improve decision-making, and help industry and technology leaders better understand how they can maximize the power of convergence to re-imagine industries and create new opportunities".

The Human Sciences Studio (see below) has a number of smaller-scale collaborations with academia.

[55] "In technology, a moonshot is an ambitious, exploratory and ground-breaking project undertaken without the assurance of near-term profitability or benefit and, perhaps, without a full investigation of potential risks and benefits." Source: https://www.techtarget.com/whatis/definition/moonshot

[56] https://newsroom.accenture.com/news/australian-institute-of-marine-science-and-accenture-join-forces-to-advance-coral-reef-monitoring-and-conservation.htm

[57] https://convergence.mit.edu/

What investments does Accenture make in innovation?

Staff time and use of the company's resources towards innovation thinking and research are the key input and innovation investments for Accenture. This includes the time and resources directed towards academic partnerships and collaborations, as well as internal resources directed at research.

What barriers does Accenture face in innovating?

One of our interviewees noted that some areas need to be approached carefully when it comes to innovation, particularly around things such as algorithmic fairness, where unintended consequences are a real risk even when everyone is operating with good intentions. We heard from consultees that, at present, it is difficult to experiment safely in that space, with "sandboxes" not felt to be encouraged or embraced.

Another barrier mentioned as being seen amongst Accenture's clients relates to businesses being incentivised to prioritise short-term financial gains instead of longer-term opportunities, particularly if they are about the greater good and not shareholders' profits.

We also heard about challenges with finding people with diverse and mixed backgrounds. Our interviewee recognised the value for innovation in having a range of experiences but felt that the educational system tends to put people onto a STEM or SHAPE "pathway" without encouraging cross-over.

> "A LOT OF GRADUATES SEEM TO HAVE BEEN FORCED TO CHOOSE BETWEEN ART AND SCIENCE. AND I WONDER IF THERE IS SOMETHING EDUCATION POLICY PERHAPS CAN DO TO NOT FORCE A CHOICE. BLEND TOGETHER OR ENCOURAGE SOMEONE WHO'S DOING A MORE SCIENTIFIC DEGREE TO ALSO DO SOMETHING MORE ARTISTIC, AND VICE VERSA. BECAUSE NOW THEY ARE TREATED AS THOUGH THEY ARE ALIEN CONCEPTS AND WE HAVE BOUGHT INTO THIS IDEA OF ONLY USING A PARTICULAR SIDE OF YOUR BRAIN, AS IF YOU CAN'T POSSIBLY USE YOUR WHOLE BRAIN. IT IS RIDICULOUS IF YOU THINK ABOUT SOME OF THE GREATEST ARTISTS LIKE DA VINCI WHO WAS ALSO A SCIENTIST."
>
> ACCENTURE

One of our interviewees also mentioned underdeveloped dialogue between industries, consultancies and academia, particularly in the SHAPE space. It was perceived that there is a lack of good fora for these groups to come together to discuss issues in "real time" and poor incentives for some academics to quickly explore real-world problems if the research is unlikely to generate a publication (driven by the "publish or perish" culture in academia).

THE ROLE OF SHAPE IN ACCENTURE'S INNOVATION

Our interviewees strongly highlighted the importance of SHAPE disciplines in innovation.

"[SHAPE DISCIPLINES] OPEN UP A DIFFERENT APPROACH THAT CAN UNLOCK MORE INNOVATION AND VALUE FOR CLIENTS IN A WAY THAT YOU MISS OUT IF YOU COME AT IT FROM PURELY A VERY TECHNICAL OR COMMERCIAL PERSPECTIVE."

ACCENTURE

Accenture's recognition of the role of SHAPE in innovation can be seen in the development of the Human Sciences Studio, which is the focus of our specific example below. The studio brings a variety of experts in human sciences to think about innovation in a broad sense.

Alongside the real benefits of drawing on SHAPE insights in innovation, our interviewees from Accenture raised the distinct issues that can that arise from their exclusion.

"I DON'T BELIEVE THAT TECHNOLOGY IS NEUTRAL. IT HAS BEEN DESIGNED BY HUMANS. HUMANS ARE USING IT. IT'S ALL INTERLINKED AND THEREFORE NOT HAVING THE GROUNDING IN THE HUMAN SCIENCES AND RAISING IT UP ON A PAR WITH THE COMPUTER SCIENCES I THINK IS POTENTIALLY DEVASTATING FOR THE WORLD."

ACCENTURE

THE ROLE OF POLICY

Our interviewees mentioned several ways in which policy could address certain innovation challenges.

The first example related to the challenge around businesses not thinking enough about longer-term innovations, particularly when the innovations are about the impact on wider society and not just business bottom line. Those we consulted felt that policies *"around thinking through those broader set of stakeholders"* could unlock all sorts of innovation and understanding of how you innovate for society. Sustainability was mentioned as an example of an area that currently does not see enough innovation because of this issue, and our interviewee wondered whether there is a role for policy – for example through stronger regulation – to address that.

"[I'VE] SEEN ON A NUMBER OF OCCASIONS SOME REALLY POWERFUL IDEAS THAT COULD CREATE SOME OF THE SHIFTS THAT WE'D LOVE TO SEE, THAT ARE QUITE BOLD MOVES, BUT THEY OFTEN ARE CONSIDERED TO HAVE A SHORT-TERM COST AND THEREFORE QUITE QUICKLY DROP OFF A PLAN OF ACTION BECAUSE THERE IS SUCH AN INTENSE PRESSURE TO DELIVER QUARTERLY RETURNS AND DELIVER FOR SHAREHOLDERS."

ACCENTURE

Another example related to more effectively linking industry and academia. Our consultees felt that there is a role for policy in facilitating more effective dialogue between industry and research "in real time", particularly in SHAPE disciplines where the dialogue is perceived to be less developed than in STEM disciplines. Policy could facilitate better fora for academics to exchange ideas with businesses, including consulting companies. Related to this, there was a perception that academics could play a bigger role in addressing some real-life problems from the industry but this requires the right policy to create incentives for academics to participate in such activities. The current "publish or perish" culture means academics often are not accurately incentivised to pursue short-term problems from industry if they are unlikely to result in an academic publication.

The last example pointed out an opportunity for education policy to foster better innovation talent. Given the importance of combining arts and sciences in innovation, one interviewee highlighted the value of bringing science and arts closer together and bridging the "false dichotomy" they perceived between the two. Having education reforms which encourage people to experience more of a combination of SHAPE and STEM education was felt to be potentially valuable, or at least removing the forced "choice" in improving access to talent.

EXAMPLE: THE HUMAN SCIENCES STUDIO

The Human Sciences Studio is part of The Dock in Dublin, and forms part of the Accenture Innovation network. Accenture's website introduces the studio as a team who "research and apply expertise in **social science, arts and humanities** to equip clients for shifting relationships between business, tech and society".

The existence of the studio is a recognition of the fact that it is "absolutely critical to bring in thinking from the human sciences into these conversations about technology and innovation". The studio dates back to 2018 and consists of a team of around 20 individuals with very diverse backgrounds, including from **social and organisation psychology, sociology, philosophy, anthropology, behavioural science, cultural studies, design history, performing arts, data ethics, literature, digital policy and ICT**.

The breadth of disciplines they collate offers a "collision of perspectives" so they can show "different ways of looking at a particular problem". This is highly valued at Accenture and the team is very busy, with high demand for its services. Its work is a mix of tactical research to help solve Accenture's client issues and some independent, foundational research, which tends to focus on less developed areas (the metaverse was cited as one example).

One interviewee was of the view that the studio is instrumental in using SHAPE disciplines to support the understanding of the impact technology has on people. The likes of **political sciences or sociology**, for example, were cited as ways to explore impact through a range of lenses from "pico through to macro":

> *"When you do political science, you gain a much greater understanding of how the macro effects the pico and how the pico ultimately pays up to the macro. And I think with political science…you understand the context of institutionalism which includes regulations [and] regulatory regimes: how do you regulate your regimes in a way that will make them change? How do cultural conversations make regulatory regimes change? I think to have really good answers to those questions, a formal political science training definitely helps."*

The studio is well connected to the academic research community, with staff encouraged to keep informal links with academics in their networks, stay on top of the literature and attend conferences. It also engages in more formal academic collaborations, including:

- Working with a college in Canada on multidisciplinary programmes for students, combining STEM and SHAPE disciplines. This consists of collaborating, sharing ideas, supporting students, hosting them and organising debates to exchange ideas and approaches. This year they looked into climate migration and sustainability.
- A Fellowship with the Alan Turing Institute, based on joint research in the area of **AI ethics.**[58] The studio has also been cooperating with the Human+ programme at Trinity College Dublin, which is exploring "how to place the human at the centre of approaches to technology development to ensure better long-term outcomes for the individual and wider society".[59]
- The Studio team participated in a programme called Artists in Residency with Science Gallery Dublin which explored the arts perspective in innovation. It looked specifically at

[58] https://www.turing.ac.uk/partnering-turing/current-partnerships-and-collaborations/accenture

[59] https://www.tcd.ie/trinitylongroomhub/media/news/articles/2021-10-28-Human-plus-fellows.php

"exploring a systems perspective on addressing big societal challenges – one in which business, technology and society are interrelated as a problem-solving system".[60]

One example of an output prepared by the studio is the work around the Sustainability Mindsets for Change.[61] This project was a recognition of the fact that, while organisations need scientific-based sustainability targets, they also need to address the cultural side of sustainable change, with a focus on operational, logistical and human aspects. This research in particular looked to explore the human side of sustainable change and was based on Accenture's own staff. Accenture recognised it needs to be its "own best credential" when it comes to sustainability. The diagnosis involved experts within Accenture with multidisciplinary backgrounds: **systems designers, psychologists, design researchers, sociologists, philosophers, anthropologists, and an expert in cultural studies and identity**. The work undertaken by the studio developed a model of human attitudes and behaviours around sustainability which was *"designed to help [clients] understand [their] organisation's behaviours and attitudes towards sustainability, surface [their] biggest internal barriers and start thinking about the right kind of intervention areas to tackle them".*[62]

The model led to interesting conversations with businesses in a range of industries such as banks, insurance and retail. The model has also helped businesses to recognise that a lot of people do not need to believe or be passionate about the cause to exhibit "sustainable behaviours". Our interviewee noted that *"this insight came from research grounded in the human sciences, but when this is combined with all the other aspects of Accenture, like strategy and technology, it becomes a really powerful force to unlock".*

Other examples of work undertaken by the studio are:

- Exploration of new models of co-regulation, an ongoing workstream in its early stages, where the studio developed briefing notes to introduce and explore a newly emerging way of thinking about regulation. This taps into expertise in **political science and public policy** to think about the newly emerging co-regulation models seen in areas like banking or life sciences. We heard that this might explore, for example, *"a greater dialogue between the regulator and the regulated, or better understanding how to more effectively build regulatory spaces with citizens, consumers, stakeholders, civil society, trade unions".*
- The development of a new framework for market analysis which includes the enhancement of the PESTLE management tool,[63] an analysis framework which looks at political, economic, technological, legal and environmental angles of impact from a new product. The studio enhanced this with a "scan of societal forces", which meant extending its scope into areas of impact like societal acceptance or pressure, and the wider economic gains or losses to societies. This is now routinely used at Accenture in areas like pharmaceuticals, life science, criminal justice or public safety. The framework acts as a tool for clients to check that they are thinking ethically and responsibly; it enables them to "spot trouble, ethical implications, minimise the likelihood of public harm" from the technology they roll out.

"What are the parameters within which innovation could occur? Will there be public backlash? Will there be public acceptance? Will there be cultural pressure on legislators to do something around this new use case? What are the socioeconomic gains and losses to societies as and when a new technology or a new use case

[60] https://sciencegallery.org/opencall/systems-accenture-artist-residency

[61] https://sds.accenture.com/mindsets-for-change/

[62] https://sds.accenture.com/mindsets-for-change/

[63] https://pestleanalysis.com/what-is-pestle-analysis/

gains scale? We would routinely explore those questions and that would require sociology and political science and ethical understanding."

ANNEX F - CASE STUDY NARRATIVE: NETFLIX

OVERVIEW

Netflix is a global streaming entertainment service offering TV series, documentaries, feature films and mobile games in a variety of genres and languages. It was launched in 1997 and began offering online rentals of DVDs and physical media in 1999. Options to stream content were launched in 2007 in the USA and 2012 in the UK. Netflix currently has more than 200 million subscribers in over 190 countries and employs over 11,000 staff in over 60 countries.[64] Netflix made $29.7 billion of revenue in 2021.

We spoke to individuals within Netflix who were able to provide insight into innovation in practice (with a focus on production innovation specifically), including the role of SHAPE, and the role of policy in facilitating innovation at Netflix. We also discuss two specific examples, the first of which details how innovative virtual production techniques were used in the production of *The Midnight Sky* and the second describing a production hub currently being established to support innovation in content production. The focus of our discussions was largely around Netflix in the UK, but with relevant insights from overseas drawn in.

PERCEPTIONS OF INNOVATION AT NETFLIX

Innovation is massively important to Netflix and has its own section within Netflix's "culture memo".[65] This highlights that people working at Netflix are expected to:

- "…develop new ideas that prove impactful;
- …look for every opportunity to reduce complexity and keep things simple;
- …challenge prevailing assumptions, and suggest better approaches; and
- …[be] flexible and thrive in a constantly evolving organization."

Our interviewees noted the importance of innovation in Netflix's journey since its inception, which is also highlighted in Netflix's public statements:

> **"WE HAVE REDEFINED HOW PEOPLE WATCH VIDEO ENTERTAINMENT – FIRST THROUGH DVD-BY-MAIL, THEN STREAMING VIDEO, AND NOW AS ONE OF THE WORLD'S LEADING ENTERTAINMENT SERVICES."** [66]
>
> NETFLIX

The central role of innovation is also reflected in Netflix's strategy:

[64] https://s22.q4cdn.com/959853165/files/doc_financials/2021/q4/da27d24b-9358-4b5c-a424-6da061d91836.pdf

[65] https://jobs.netflix.com/culture

[66] https://s22.q4cdn.com/959853165/files/doc_financials/2021/ar/Netflix-Definitive-Proxy-Statement.pdf

> *"Our core strategy is to grow our streaming membership business globally within the parameters of our operating margin target. We are continuously improving our members' experience by expanding our content with a focus on a programming mix of content that delights our members and attracts new members. For example, in 2021 we added mobile games to our service. In addition, we are continuously enhancing our user interface and extending our streaming service to more internet-connected screens."*[67]

Our interviewees perceived innovation as part of the culture at Netflix and felt that all areas of innovation are as important as each other, for all parts of the business as they have to work together.

Published statements by Netflix reference the pace of change in the industry as a key driver of innovation: *"the market for entertainment video is intensely competitive and subject to rapid change"* and *"Netflix operates in a highly competitive industry and has been in a state of constant innovation since inception."*[68] Competition as a driver of innovation for Netflix reflects not just other streaming services, but a wider set of competitors for consumer time and attention, *"including linear TV, video games, and social media to name just a few – and that competition has only increased as this dynamic market continues to evolve and entertainment companies all around the world develop their own streaming offering".*

Those we interviewed had a particular interest in production innovation – supporting the generation of content for the Netflix service. In production innovation specifically, innovations are not necessarily about cost saving but instead tend to focus on empowering content creators to tell "bigger, better" stories. This is reflected in the formal definition of innovation used by the team:

"...[A WAY TO] IDENTIFY, EXPERIMENT, PROMOTE, AND EMPLOY NEW AND EMERGING TECHNOLOGIES THAT ENABLE CONTENT CREATORS TO TELL THEIR STORIES IN IMPACTFUL NEW WAYS."

NETFLIX

A good example of how technology can be used to support story-telling is the use of virtual production technology in the making of *The Midnight Sky* – a post-apocalyptic sci-fi drama which is directed by and features George Clooney. This is covered in more detail below.

[67] https://s22.q4cdn.com/959853165/files/doc_financials/2021/q4/da27d24b-9358-4b5c-a424-6da061d91836.pdf

[68] https://s22.q4cdn.com/959853165/files/doc_financials/2021/ar/Netflix-Definitive-Proxy-Statement.pdf

EXAMPLE: THE MIDNIGHT SKY AND ITS USE OF INNOVATIVE VIRTUAL PRODUCTION TECHNIQUES

The Midnight Sky is a science fiction film directed by George Clooney based on the 2016 novel *Good Morning, Midnight* by Lily Brooks-Dalton. The film, which launched on Netflix in 2020, follows the parallel stories of a lonely scientist in the Arctic (Augie) and an astronaut (Sully) trying to get back to earth. Much of the production was shot in the UK at Shepperton Studios and in Iceland. The film won multiple awards including the Visual Effects Society 2021 awards for Outstanding Visual Effects in a Photoreal Feature and Outstanding Model in a Photoreal or Animated Project.

A particular challenge facing the production was a lack of snow in Iceland, which meant that the production only managed to shoot half the number of shots needed. As a result, reality and illusion had to be seamlessly mixed. Shots captured in Iceland had to be intercut with shots done on stage in Shepperton.

The production team employed virtual production extensively throughout the film. To capture the interplanetary explorers, as well as the scientist's polar research station, nearby weather station, and surrounding terrain, more than 1,400 visual effects shots, many in camera, were produced by a number of UK-based companies. These shots combined computer-generated sequences with live-action footage to create impossible-to-film hostile environments using a range of technical skills including programming, modelling and lighting as well as SHAPE skills, e.g. photography, cinematography and editing.

For example, to show the views out of the observation laboratory windows, the production team relied heavily on a new concept in set design based on the use of LED panels, a physical set, and other digital elements to help create a realistic, immersive experience for the audience. This enabled the production team to capture realistic reflections of the light from inside the observation laboratory to influence the dark digital landscape outside. The Director of Photography was able to set the colour temperature and exposure of the outside environment exactly as needed for the shot, so that the production team could then compose its shot with control over both inside and outside set lighting. This would have not been possible with a greenscreen (which is more suitable for shots which are bright and well lit) or a bluescreen (which has lower luminosity and is better for less well-lit shots).[69]

The creative skills of the production team combined with access to the state of the art technology were central in helping the production team to deliver its ambitions for the production. Bringing interactive lighting into a set improved the look of the production, and the use of the LED screen enabled the actors to look out onto the panoramic landscape from the spaceship rather than having to imagine it from the set.

How is innovation organised at Netflix?

Innovation at Netflix is split into two areas: product innovation, which relates to the member experience when watching Netflix, and production innovation, which supports the content that it is creating. The two teams are "close cousins" to an extent, cross-functional in how they engage and work with each other. Much

[69] Greenscreen and bluescreen are backdrops which are placed in the background of shots. These allow for visual effects to be added later.

of the focus of those we engaged with is on the production innovation side. There are two types of innovation undertaken by the production innovation team:

- **Disruptive innovation:** ideas that revolutionise the way content is made; and
- **Sustaining innovation:** ideas that improve the efficiency of the way content is made.

Production innovation at Netflix is generally quite centrally organised. This is driven by an intention to capture all the learnings and experiences from across its global teams and understand what is working in different regions.

"...A LOT OF THE TECHNOLOGY GOING INTO RECENT FILM PRODUCTION...HAS GENERALLY COME FROM EUROPE IN TERMS OF WHERE IT'S BEEN DEVELOPED; WE'RE KEEN TO CAPTURE THOSE USE CASES AND MAKE SURE [THEY'RE] REPRESENTED IN OTHER REGIONS..."

NETFLIX

The central team wants to make sure it is capturing the best knowledge and innovation across the local teams, given that Netflix is very much about making local content alongside its global hits. The global effort is centrally collated, and there is a lot of "comparing notes" to make sure that teams are considering needs outside of the local environment.

Those we spoke with did not talk about a standardised innovation process at Netflix. Instead, a lot of innovative activity is happening all the time, and there is a *"constant stream of ideas and contacts"*.

Part of what the production innovation team does specifically is taking "blue sky" research (for example on new methods of filmmaking) and applying it to "pioneer titles" that Netflix is developing. This can often draw on research conducted some time ago – periods of two to five years were mentioned. A lot of work goes into providing the infrastructure and solutions to enable teams across the globe to make content, and the ultimate intention is to make it easier for people to make content in the different areas Netflix operates in and to support diffusion of skills throughout the industry and around the world.

"...WE CAN DEMOCRATISE THESE TECHNIQUES, THEY CAN BE ADOPTED WIDER...ONE OR TWO SHOWS NEED A HELPING HAND...THEN AS PEOPLE LEARN THE SKILLS, THEY BECOME MORE MAINSTREAM AND UTILISED THROUGH INDUSTRY FURTHER..."

NETFLIX

In the view of our interviewees, Netflix is a *"very open company in how they gather ideas and create feedback, and they are not afraid to fail and pivot".* Although there is no standardised way to judge whether something is a success, real-time feedback is a key factor.

Where do innovative ideas come from?

Netflix aspires to be an early adopter of innovation and new technologies. The production innovation team constantly looks around to identify trends and challenges, seeking to learn from past experience and pioneering work being done by other companies and gathering ideas from an open culture. It also works very closely with third parties across the creative and digital industries and maintains close links with several major hardware or software companies, helping to steer and guide them based on Netflix's production needs. These relationships tend to be led by outreach managers who work directly with the companies.

The size of Netflix and the larger scale of its productions puts it in a good position to have conversations around innovation and new ideas with those working in the creative and digital industries, with a particular focus on ideas that can work at different scales. There is a strong desire not to lock innovation behind intellectual property but rather to enable it to diffuse to content producers at different scales of production.

"...HOW DOES THIS TECHNOLOGY APPLY NOT JUST FOR THE $200 MILLION PRODUCTIONS...HOW CAN WE MAKE IT WORK FOR $20 MILLION PRODUCTIONS AS WELL? WHERE IS THE BIGGEST IMPACT? THE $200 MILLION PRODUCTIONS WILL MAKE IT WORK – THEY'VE GOT THE MONEY AND RESOURCE TO DO THAT. THE $20 MILLION PRODUCTION IS WHERE THESE TOOLS AND TECHNIQUES CAN MAKE SOMETHING GO FROM UNPRODUCEABLE TO PRODUCEABLE, OR REALLY ELEVATE THAT SCOPE..."

NETFLIX

"...THE TOOLING WE MAKE AVAILABLE FOR OUR SHOWS IS SOMETHING WE REALLY FOCUS ON...IT WILL BE OPEN SOURCED GLOBALLY... AND THIS HELPS TO DRIVE WIDESPREAD ADOPTION AS WELL AS PROMOTING INNOVATION AND KNOWLEDGE-SHARING... THIS IN TURN BRINGS BENEFITS TO OUR TITLES, OUR SHOWS AND PEOPLE WHO WANT TO WORK WITH NETFLIX IN THE LONGER TERM..."

NETFLIX

For example, Netflix recently made available to select industry partners its virtual production "Validation Framework" (a tool which identifies common issues through In Camera LED workflows and prompts the end user to accept fixes) and an "OpenVPCal" tool (which calibrates the LED screen response and colour matrices to best match a production's chosen camera package, keeping the image as filmic as possible).

Netflix also works closely with academia and has existing relationships with several universities, including for *"steering research, challenging the work they're doing or sponsoring them directly"*. One such example is the University of Bristol, which Netflix works with on new ways of encoding media (e.g., images and sounds). It is keen to explore ways to work with academia to ensure research can "be more impactful, sooner" rather than operating on current roadmaps of five to fifteen years. In addition, Netflix has various papers being published this year for Siggraph (an international organisation for computer graphics and interactive techniques) and has well-recognised experts in the field of computer graphics working at Netflix.

Netflix currently has plans to build further partnerships. For example, as announced in press releases issued by the Ministry of Trade, Industry and Energy and the Korea Trade-Investment Promotion Agency in South Korea, the Netflix subsidiary (Scanline VFX) will invest in special effects film production facilities using virtual reality production technology. The investment is expected to serve as a foundation for Korea to grow as an Asian hub for ICT-based content production.

What investments does Netflix make in innovation?

As with most other businesses, the key investment in innovation is the time and resources of Netflix staff.

Other types of investments we heard of are production innovation hubs, which Netflix is setting up in California and South Korea, with possible plans in the future to set up a similar establishment in the UK. The hub in California is the focus of our specific example below.

What barriers does Netflix face in innovating?

One of the difficulties Netflix faces in its production innovation are unexpected events that can come up in the production process which need solving and can derail the "organic innovation and experimentation process". In a similar spirit, the rapidly changing nature of content production means that Netflix constantly needs to react to new things, and this can make it challenging to think about longer-term innovation opportunities.

One of our interviewees also mentioned that time scarcity can be a barrier, particularly finding both time and safe spaces to work with busy creatives to ideate and explore technology outside the immediate content production demands.

One interviewee outlined Netflix's role working on standards with technical committee boards as a way to support innovation.

"CREATIVES DON'T NEED TO WORRY ABOUT THE COLOUR CALIBRATION OF THEIR SOFTWARE AND HOW THEY SYNC MULTIPLE CAMERAS...[IT DOESN'T] SOUND VERY

EXCITING BUT IF THEY DON'T HAVE TO RE-FIX PROBLEMS THAT HAVE PLAGUED EARLIER PRODUCTIONS THAT WILL SAVE TIME, IT WILL SAVE MONEY."

NETFLIX

The global nature and scale of Netflix's business can also act as a barrier, including trying to identify what the priorities are. There are various local sensitivities that need to be considered and taken into account in making technology or hardware choices, which makes it difficult to find global solutions that work for everyone.

"...SOMETIMES THE EASIEST ROUTE FOR ONE PART OF THE BUSINESS ISN'T NECESSARILY THE BEST ROUTE FORWARD FOR THE REST...THAT IS A KEY CHALLENGE."

NETFLIX

THE ROLE OF SHAPE IN NETFLIX'S INNOVATION

Creativity is at the core of what Netflix does, which puts SHAPE disciplines at the heart of production innovation at Netflix.

"TECHNOLOGY UNDERPINS FILM-MAKING, SIMPLY BECAUSE EVERYTHING COMES IN THROUGH A PIECE OF TECH AND GOES OUT THROUGH A PIECE OF TECH. TECHNOLOGY GENERATES CREATIVE OPPORTUNITIES, AND CREATIVE NECESSITIES ARE THE MOTHER OF INVENTION."

NETFLIX

The creatives – for example those working in highly skilled jobs in visual effects and post-production – are the ultimate users of new technology in their work, but they are also important contributors to the innovation production process.

"TAKE A DIRECTOR OF PHOTOGRAPHY ON A FILM SET, COMPOSITING. HE'S ALSO PROBABLY A COLOUR SCIENTIST, A MATHEMATICIAN, ENGINEERING IN HOW LIGHT MOVES AROUND AND COLOUR RESPONDS...WE THINK OF IT AS A BEAUTIFUL IMAGE BUT THERE'S AN AWFUL LOT OF SCIENCE GOING IN BEHIND THAT..."

NETFLIX

"AT THE END OF THE DAY, WE'RE TELLING A STORY, WE'RE PAINTING A PICTURE...BUT THERE'S AN AWFUL LOT OF TECHNOLOGY THAT SITS BEHIND THAT ON THAT FILM SET."

NETFLIX

Our interviewees also recognised the importance of people working at Netflix on new innovative ideas drawing on a range of disciplines and coming from a diverse set of educational and career backgrounds.

"...SOME OF THE PEOPLE THAT MAKE UP MY TEAM ARE DIGITAL IMAGING TECHNICIANS, THEY HAVE WRITTEN AND DEVISED PIPELINES AND SOFTWARE FOR CINEMATOGRAPHERS, DIRECTORS AND PERFORMERS..."

NETFLIX

One interviewee stressed that their own route into Netflix had been as an engineer, highlighting different backgrounds and pathways into a firm in the creative sector, and emphasised the lack of a "set path" into a business like Netflix. One interviewee noted the fact that there are employees working in visual effects (VFX) who have training in a mix of arts and sciences. Examples were given of an individual with a BSc in Computer Science and an MA in Multimedia Design, and another who was introduced to computer-generated art at art college and went on to study a BA in Media Production with Animation.

Our interviewees also stressed the role of a range of insights in helping to make decisions about which projects to green-light and the need to take holistic assessments.

THE ROLE OF POLICY

Netflix currently has no direct formal relationship with UKRI, BEIS or other government bodies in the UK specifically relating to innovation, but it is something that one of our interviewees emphasised they are keen to explore and develop. This is a sentiment that applies to all other regions Netflix operates in where these types of relationships are not as developed.

Our interviewee stated that there has been a longstanding policy debate, as highlighted by the work of Nesta[70] and others, about the definition of innovation, as much innovation within the creative industries falls out of the standard definition of R&D. Some encouraging signs of change in the UK that had resonated with those we spoke with included an emphasis on clusters of creative industries (including around production in the North West of England) and acknowledging the benefits of knowledge transfer activities. The focus on virtual production and the high-skill, high-growth potential was also recognised.

> "...TRADITIONALLY YOU HAD SCIENCE OVER HERE, AND YOU HAD THE CREATIVE INDUSTRIES OVER THERE, BUT ACTUALLY BY TAKING A BROADER VIEWPOINT THERE ARE BROADER BENEFITS AROUND KNOWLEDGE TRANSFER."
>
> NETFLIX

In California, Netflix has proposed the establishment of a production hub which will broaden its capacity for virtual production, gaming and visual effects. Netflix was awarded a CalCompetes Grant[71] with a commitment to re-invest funding towards innovation initiatives (more detail on this is provided in the hub example below).

Our interviewees were not aware of similar initiatives in the UK and reflected on a perceived lack of clarity around the various industrial strategy/innovation funding schemes in the UK and how they all fit together. They felt that there are a lot of different schemes which may or may not be related and that navigating that landscape has proven difficult and time consuming.

> "...I WAS TRYING TO DO A MIND MAP THE OTHER DAY OF WHERE FUNDING CAME FROM, OLD GRANTS THAT ARE WRAPPING UP, THE NEW STRENGTH IN PLACES GRANTS, WHAT WAS COMING FROM MORE PRIVATELY FUNDED RESEARCH WITH REGIONAL TIES...A CHALLENGE, IT'S A BIG CHALLENGE...THERE'S INTERESTING INFRASTRUCTURE

[70] For example: https://www.nesta.org.uk/blog/the-new-uk-rd-target-why-its-now-time-to-move-the-measurement-goalposts/

[71] https://business.ca.gov/california-competes-tax-credit/.

SPRINGING UP WITH INNOVATION IN ITS TITLE, BUT WE'RE NOT ALWAYS SURE WHAT IT'S TRYING TO SERVE. "

NETFLIX

Direct incentives, such as tax incentives for high-end TV and film production,[72] were important factors to consider of where Netflix production activity was located, but the landscape around innovation incentives including funding and R&D tax credits in the UK was thought to be quite confusing and not a particular driver of activity. Indeed, Netflix has not claimed R&D tax credits in the UK. Historically, Netflix has not carried out sufficient qualifying activities in the UK to make a claim worthwhile. While there may be a few pockets of activity which could qualify under the current R&D definition, in Netflix's view "the cost and effort of applying does not warrant the amount of money we would get back". Netflix is particularly limited as a large company as it cannot claim for sub-contracted R&D or capital expenditure (recognising that there are separate capital allowances available for this). Going forwards, however, it believes that it might see more generic R&D incurred by its central, non-production companies, which could qualify. However, the time and effort involved in collating the relevant information needed by the tax authorities may still not warrant a claim.

[72] Production of creative content can be undertaken in a range of different locations with the resulting products then distributed globally. In response to the internationalisation of creative output, the UK introduced a range of tax reliefs for the creative industries. The first relief, for film production, was introduced in 2007. Since then, additional reliefs have been introduced, including for animation (in 2013), and high-end TV (2013, extended to children's TV in 2015). Eligible firms are able to claim relief against their corporate tax liabilities. The maximum relief is 80% of the total value of qualifying expenditure, or 100% of the UK value. See https://www.gov.uk/guidance/corporation-tax-creative-industry-tax-reliefs for more information.

EXAMPLE: PRODUCTION INNOVATION HUB FOR CREATIVE STORY-TELLING

There is a well-recognised economic benefit to agglomeration and "hubs" of activity co-located in specific areas, particularly to support innovation and the transfer and spill over of knowledge and ideas. Netflix is seeking to develop a production innovation hub, based in California, to take advantage of some of these benefits. A focus of the Hub is fusing traditional **film-making practices** with technologies derived from "experiential" activities like gaming, with **SHAPE insights** supporting a goal to *"combine digital story-telling with the…latest and greatest in new technology"*. This requires scientific, engineering and **creative** expertise to come together. A hub model provides a learning environment to bring together different teams, with different backgrounds, perspectives and experiences, to take risks by using emerging technologies in new ways.

The choice of location is strongly influenced by:

- California's history as a technology hub for film and TV production, straddling both legacy production methods and as a place for innovation in new methods; and
- A critical mass of skilled workers in key sectors such as VFX, software engineering, technology development and animation, representing a range of related disciplines including the arts and creative industries.

"…IF THERE'S LOTS OF DIFFERENT AND VERY SPECIFIC CRITERIA, IT TAKES QUITE A LOT OF EFFORT TO DETERMINE ARE YOU ELIGIBLE, AREN'T YOU ELIGIBLE…"

NETFLIX

ANNEX G - DETAILS OF QUANTITATIVE ANALYSIS

This Annex provides a brief overview of the data sources used in our quantitative analysis. As noted in Section 2.2, we draw on the following three sources of data:

- ONS Business Enterprise Research and Development Survey (BERD);
- The UK Innovation Survey (UKIS); and
- HMRC Data on R&D Tax Credits.

Before providing an overview of these sources, we first give a short summary of the definition of R&D contained in the OECD's Frascati Manual.

NOTE ON FRASCATI MANUAL'S DEFINITION OF R&D

The OECD produces a manual for collecting and using statistics related to R&D called the Frascati Manual. This is recognised internationally by policy makers, academics and statistical agencies, including in the UK.

The latest release of the Frascati Manual is the 7th Edition, published in 2015. It defines innovation in the following way:

> *"R&D comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge."*[73]

It also requires that for an activity to be R&D it satisfies five criteria, i.e. that it is:

1. Novel
2. Creative
3. Uncertain
4. Systematic
5. Transferable and/or reproducible

Importantly, the latest edition of the Frascati Manual does recognise SHAPE-related R&D, noting that:

> *"R&D is found in the social sciences, humanities and the arts as well as in the natural sciences and engineering."*[74]

The Frascati Manual can be found here.

[73] OECD (2015, p. 28), Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, The Measurement of Scientific, Technological and Innovation Activities, OECD Publishing, Paris, https://doi.org/10.1787/9789264239012-en.

[74] OECD (2015, p. 44), Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, The Measurement of Scientific, Technological and Innovation Activities, OECD Publishing, Paris, https://doi.org/10.1787/9789264239012-en.

ONS BUSINESS ENTERPRISE RESEARCH AND DEVELOPMENT SURVEY (BERD)

The BERD is an annual survey of UK businesses carried out by the ONS which focuses on their R&D expenditure. It has been published annually since 1993. The BERD uses the definition of R&D that is contained in the OECD's Frascati Manual.

The data consists mainly of statistics related to the following three areas:

- expenditure on R&D carried out in house by UK businesses;
- the sources of funding for R&D carried out by UK businesses; and
- employment of individuals in R&D roles in UK businesses.

The latest release at time of writing was published in November 2021 and the data within it runs to 2020. This is the version that we use for our analysis. The next release is due to be published in November 2022.

The typical sample size for the BERD is approximately 5,500 businesses, taken from a reference list of all known R&D performers in Great Britain. The response rate is typically around 80%, although the 2020 response rate was lower (at 54%) due to the COVID-19 pandemic. Ratio estimation is used to estimate for non-sampled businesses.

More information on the methodology underpinning the BERD is available here.

DATA FROM THE UK INNOVATION SURVEY (UKIS)

The UKIS is a survey which captures information on UK businesses' R&D and other activities related to innovation. The survey is conducted by the ONS.

Examples of areas covered by the survey include:

- the adoption of innovation by businesses;
- the types of innovation undertaken by businesses; and
- the factors that drive innovation for businesses and the barriers they may face.

The latest release is the UKIS 2021 (released May 2022), which covers the period 2018-2020. We draw on the statistics contained in the UKIS 2021 Statistical Annex for our analysis. This release draws on data from 13,598 responses. Splits are available on a regional level and on a sectoral level.

As noted in Section 2.2, the UKIS defines innovative firms in relation to the following four activity types:

1) the introduction of a new or significantly improved product (good or service) or process;
2) engagement in innovation projects not yet complete, scaled back, or abandoned;
3) new and significantly improved forms of organisation, business structures or practices, and marketing concepts or strategies; and
4) investment activities in areas such as internal research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities.

Any firms engaged in activity types 1) to 3) are classified as "innovation active", with the term "broader innovator" used to define firms which engage in any of the activity types, including type 4).

In terms of R&D, respondents report on their expenditure according to the definition of R&D that is contained in the OECD's Frascati Manual**,** which is outlined above.

More information on the UKIS is available here.

HMRC DATA ON R&D TAX CREDITS

HMRC publishes data on the number of companies which are claiming research & development tax credits, the number of claims and the cost of these claims to the Exchequer. The latest release covers the period up to the year ending 2020. Splits are available on a regional level and on a sectoral level.

The total level of R&D expenditure estimated by this data does not align with that estimated as part of the BERD, with the BERD value consistently at a lower level. There are a number of potential explanations for this, including that:

- Overseas expenditure is not included in BERD but may still be eligible for tax credits;
- BERD is reported by calendar year and tax credit claims by financial year; and
- There are differences in sampling – the BERD sample draws from a list of businesses which have previously been identified as undertaking R&D and the HMRC data comes from businesses which report their R&D expenditure directly to HMRC.

More information on this data, including how it compares to BERD, is available here.

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