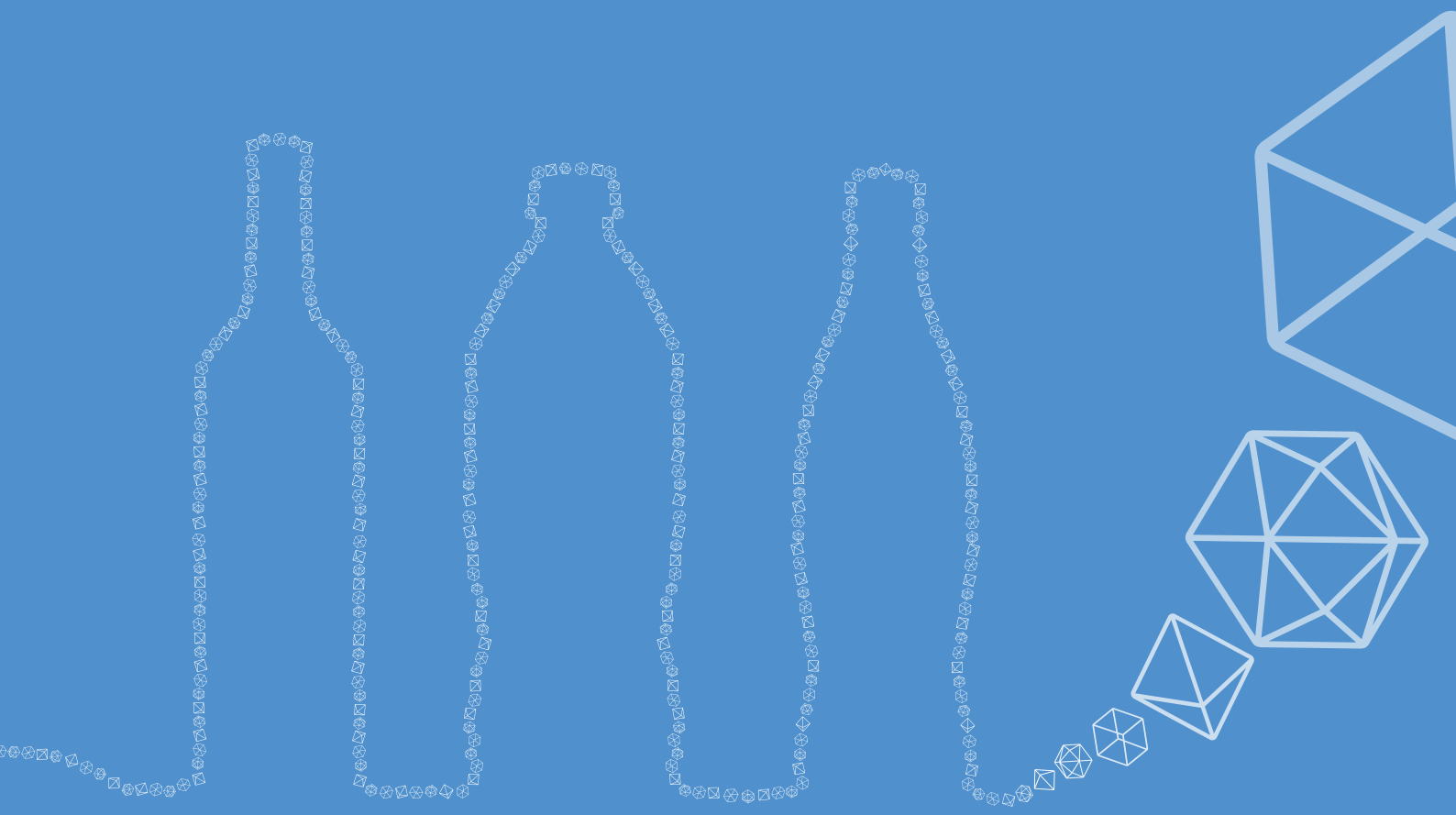
NESTA/The Work Foundation Working Paper: March 2010

NESTA Making Innovation Flourish

Demand and innovation

How customer preferences shape the innovation process



Executive summary

Customers' ideas and experiences are a vital source of innovation for companies. Some organisations already use customer demand to influence how they innovate. In this report, we detail how this is happening, and highlight how other organisations are missing out on opportunities to involve users early in the innovation process. By taking advantage of these opportunities, organisations can gain advanced insight from customers and maximise their competitive advantage.

This report presents the key findings from our research investigating how consumer demand is influencing innovation within organisations. Our research indicates that organisations are missing out on such opportunities to involve users early in the innovation process to gain advanced insight from customers and maximise their competitive advantage.

This report

This report presents findings and insights from a qualitative study examining how consumer needs and preferences influence innovation in five case study organisations. We explore a number of issues:

- When in an innovation cycle information about consumer preferences and needs is gathered or received.
- How the information is subsequently used.
- The part the information plays within the innovation process.

Our findings provide an in-depth insight into the processes within organisations that bring about innovation. We focus on sectors where we know the least about innovation, where innovation is 'hidden' from traditional metrics, but is economically important. This is a first step to a better understanding of the relationship between consumer preferences and innovation.

The report is divided into four sections. In the first, we look at the importance of innovation to the economy and business. In the second, we consider the evidence that consumers and users play an important role in innovation. In the third, we use case studies from five organisations to develop a framework for consumer engagement in innovation. Our final section draws some conclusions and makes three recommendations for policymakers, business, government and other organisations.

Section 1: Scene setting

Innovation is important to the growth of an economy, and successful innovation requires a balance between demand and supply. In today's knowledge economy, intangible assets such as skills and knowledge are increasingly important. Innovation is no longer seen purely as a product of scientific research and development. Instead, it can come from changes in processes or procedures that can be driven by consumers in their quest for more personalised products and services

Until the recent economic downturn, there was an assumption that demand for innovation would grow automatically. Now, politicians are becoming more aware of the need to engage consumers and users to stimulate innovation. For this to be effective, particularly

in recovering from the recession, we need a better understanding of (i) how consumer needs and preferences influence innovation in organisations, and (ii) the demand-side levers that government can use to drive growth.

Section 2: The connection between demand and innovation is fundamental

Innovation refers to the 'successful exploitation of new ideas'.[1] Demand in this context refers to the desire or preference to purchase an affordable good or service. Demand can be from mass consumers to business, business to business, government to business or citizen to government.

Innovation is central to government's policy efforts to close the productivity gap. There is also agreement across the OECD countries that innovation is essential to ensuring our competitiveness in a global economy.

The recognition by policymakers of the role of demand in innovation is reflected in attempts to include appropriate demand-side measures in European innovation metrics. Aggregate measures of innovation now include marketing spend as a proxy indicator for demand. But these measures give limited insight into consumer involvement in the innovation process. There is both an absence of good data and a lack of understanding of what organisations do with information about consumer needs and preferences. But it is also difficult to gather such data because it is not easy to measure.

Yet we need to know more about how organisations address consumer preferences and engage users in innovation. Focusing policy interventions on the demand side, as well as the supply side, is necessary for successful innovation. Previous research has suggested that the interactions between suppliers and users can happen in three ways:

- **Market-mediated** through consumer and business markets, which rewards innovative activities by firms.
- **Co-ordinated** and articulated through the political (governmental) or non-profit arenas.
- **Directly** through user modification and engagement – a growing trend that has been described as 'democratic innovation'[2] or user-led innovation.

Section 3: Framework

Our framework sets out the influence of consumer needs and preferences on organisations' ability and willingness to innovate. We focus on both (ability and willingness to innovate) as the two are inextricably linked. The ability to innovate does not presuppose a culture motivated to innovate, and willingness can exist without the means. Our framework is based on data we collected about 18 innovations, including five failed innovations, within our five organisations.

We found five ways that interaction with consumers occurs: days on the shop floor; bespoke client interaction; customer feedback; market scanning; blue-sky thinking. (See Figure 1)

But the innovations we found were not direct from the consumers. They all came from employees, although they often considered market conditions and the consumer. At the time of interview, none of our sample of organisations sourced ideas from lead users. However, since then, at least one organisation has identified possible early adopters with whom to test and develop ideas. Most ideas were tested on users late in the development process, though one organisation is now testing and developing ideas with users much earlier in the innovation process.

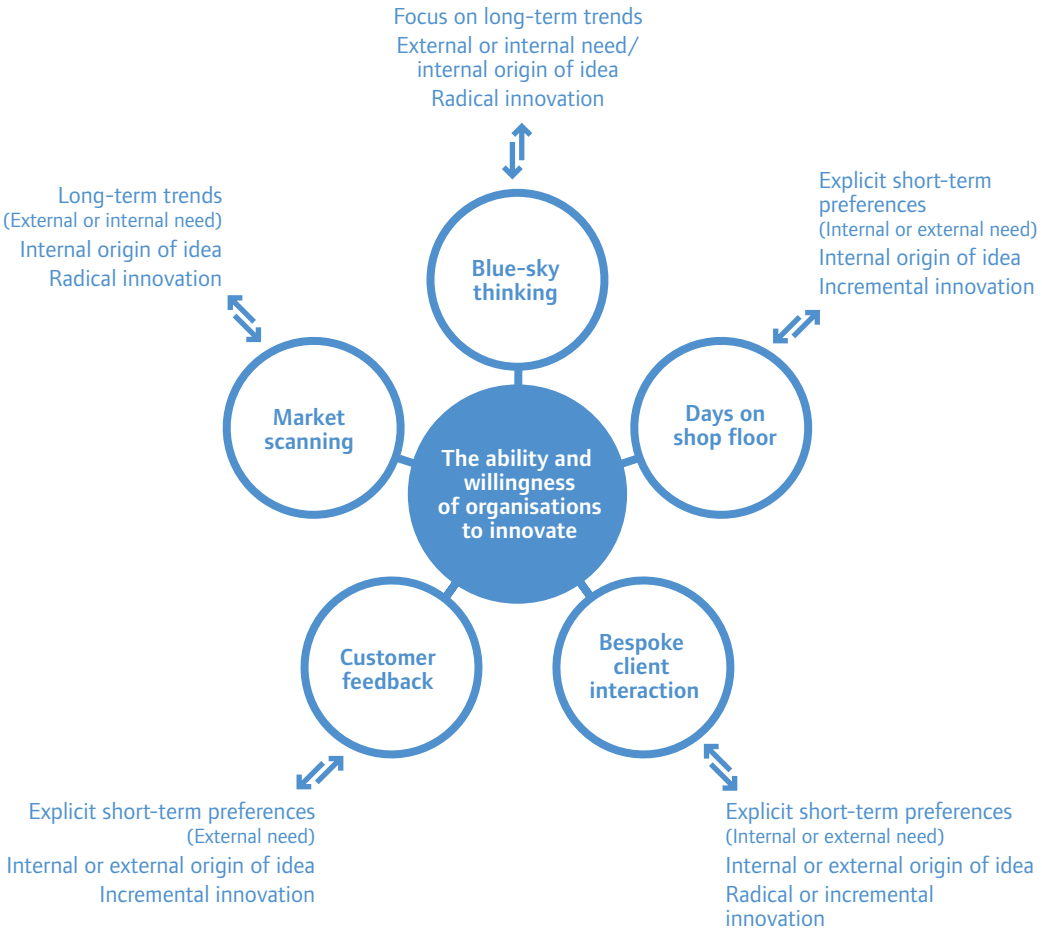
Our case studies revealed that consumer needs and preferences influenced innovations in two main ways:

- **Incremental innovations** responding directly to consumer needs as a result of explicit consumer preferences fed into the organisation after days on the shop floor, through discussions with clients or customer feedback.
- **Radical innovations** responding directly to consumer needs and preferences occur as a result of a focus on longer-term consumer trends and hidden preferences that feed into the organisation through market scanning (either of the consumer or competitors), blue-sky thinking or discussions with clients.

Terminology may be a barrier to a better understanding of how these interactions come about. Two organisations did not use the term 'innovation'. This is a challenge in accurately collecting data on innovation within organisations.

1. Former Department of Trade and Industry.
2. Von Hippel, E. (2005) 'Democratizing Innovation.' Cambridge: MA; Leadbeater, C. (2006) 'The User Innovation Revolution: How business can unlock the value of customers' ideas.' London: National Consumer Council.

Figure 1: Framework for understanding how customers' needs and preferences feed into innovation within organisations



Section 4: Conclusions and recommendations

A precondition for innovation is 'the serendipity of interaction': employees need to have opportunities to discuss ideas openly with others, particularly consumers, and to learn from them. This interaction and its outcomes need to be embedded into the innovation process.

There are a variety of triggers for innovation. Employees need time to experiment and fail. Creativity cannot be forced but favourable conditions can be created. Organisations need to be more systematic about creating such opportunities. Firms that don't engage fully with consumers are missing out on opportunities to maximise their competitive advantage. Von Hippel's work reveals that users have the greatest impact on firm-level innovation when they propose ideas or products, or even when they create prototypes. However, we found that most new ideas were coming from employees.

We also argue that more flexible relationships should be encouraged between consumers and organisations, particularly where government is buying goods and services on behalf of citizens. If innovation is to be maximised then organisations should be more self-conscious and deliberate about creating the circumstances for unplanned dialogue, and in particular, engagement, with users. Consequently, we make three key recommendations for public policymakers and organisations.

Recommendation one: Allow more opportunity for innovation within the procurement process, by establishing and proactively managing relationships, and through better education of purchasers and suppliers of the potential for user-driven innovation.
It is not enough when discussing demand-side policies to argue that organisations and governments need to be alert to the consequences of their procurement decisions on innovation. That awareness has to be translated into a readiness to engage in an open relationship. Purchasers should build long-term relationships with suppliers, professional bodies and others to discuss potential innovations. Detailed specification should be kept to a minimum in initial procurement commissions but should emerge from such dialogue, with agreed rules for sensitive information. Policymakers should educate organisations on how to use consumer relationships to encourage innovation in their procurement.

Recommendation two: Organisations should do more to uncover consumers' hidden preferences and ideas to stimulate innovative responses.
The innovation process needs a kick-start from the market. Most consumer feedback reflects existing preferences. Organisations must construct conduits through which positive, and negative, feedback can be fed into the innovation process, without mediation or structure. Public policy and civil society can supplement this by the role of the Consumers Association, *Which?* and the Citizens Advice Bureaux – organisations which could play a more proactive role in innovation. Consumers need to be able to suggest, complain and offer blue-sky ideas, quickly and easily. Organisations should understand the importance of the users and maximise ways to reflect their own needs and preferences.

Recommendation three: Embed opportunities for interaction with consumers into our business culture so that it feeds the innovation process.
Systematically creating opportunities for a variety of interactions with customers and other parts of the supply-chain should be part of our business and organisational culture. The earlier such contributions can be fed into the innovation process, the more successful an innovation is likely to be. Innovation champions can ensure employees see early consumer input as essential to successful innovation. Innovation could be a part of companies' annual reporting requirement alongside financial reporting, though it may be difficult to construct this without damaging competitive advantage. Investors should examine innovation processes as part of their assessments of firms. NESTA should consider stimulating such disclosure by publishing an annual survey of innovation processes.

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Demand and innovation
How customer preferences shape the innovation process

NESTA is the National Endowment for Science, Technology and the Arts.

Our aim is to transform the UK's capacity for innovation. We invest in early-stage companies, inform innovation policy and encourage a culture that helps innovation to flourish.

Section I: Scene setting

Recent economic changes make understanding demand crucial

Innovation has long been regarded as crucial to economic growth. Its success has also been seen as dependent on the right balance between demand and supply factors. However, recent structural economic changes and a growing political awareness of the fundamental importance of demand, make this an opportune moment to develop a deeper understanding of the nature of demand in the innovation process.

Changing consumer demand is one possible driver of the economic shift to a knowledge-based economy

The economy is increasingly based on the exploitation of knowledge, with a focus on services rather than manufacturing and products.[3] As politicians across Europe have hailed the knowledge economy, they have also recognised that innovation is one of the primary keys to unlocking our economic potential. Understanding the drivers behind this 'knowledge economy' helps to identify areas where more innovation is likely to promote future growth. And one such driver is likely to be an increasingly sophisticated and demanding consumer.

The lines between manufacturing and services are increasingly blurred, with a growth in intangible assets. Businesses increasingly recognise that software and human capital are as valuable as hardware and physical assets, though it is hard to decide whether these changes are in response to demand – or are driving that demand. Whoever is in the driving seat, the needs and preferences of consumers are certainly part of the mix driving our changing economy. Consumer services are becoming more personalised as people seek an ever improving quality of life and sense of experience. Particularly in these challenging economic times, we need to understand how these trends are playing out and their likely impact on (i) innovation within organisations, and (ii) the government's plan to use innovation as a key driver of growth.

Politicians are increasingly aware of the importance of demand

The increasing political awareness of the importance of consumer demand makes this report timely. Several European Union nations have recently commissioned research to understand better the nature of demand-oriented policies in a bid to maximise innovation.[4] Much of this research, led by Prof. Jakob Edler, shows that the understanding and systematic use of demand-oriented policies in most countries lags far behind their use of supply-side interventions.[5] However, Finland and the UK stand out for *"including the demand dimension explicitly and prominently in their innovation strategies"*.[6]

> Edler also notes that *"a range of initiatives are popping up across Europe (e.g. latest attempts for Lead Markets in eco-technologies in Germany). More ambitiously even, the potential of Lead Markets for the innovativeness and competitiveness of Europe is being tested (European Council 2006; EU COM 2007) and currently the OECD Working Party on Innovation and Technology Policy is considering a sub-*

3. As Will Hutton argues, our so-called knowledge economy may represent a 'soft discontinuity' rather than a sharp break with the past. Hutton, W. *et al.* (2007) 'Staying Ahead.' London: The Work Foundation.
4. See Kok, W. *et al.* (2004) 'Facing the Challenge: The Lisbon Strategy for growth and employment.' Report from a High Level Group. November 2004, Luxembourg; Aho, E. *et al.* (2006) 'Creating an Innovative Europe.' Report of the independent expert group on R&D and innovation appointed following the Hampton Court Summit; Wilkinson, R., Georghiou, L. (Rapporteur), Cave, J. (Rapporteur), Bosch, C., Caloghirou, Y., Corvers, S., Dalpé, R., Edler, J., Hornbanger, K., Mabile, M., Montejo, M.J., Nilsson, H., O'Leary, R., Piga, G., Tronslin, P. and Ward, E. (2005) 'Public Procurement for Research and Innovation.' Report of an expert group, commissioned by the European Commission. Brussels: European Commission; Edler, J., Hommen, L., Papadokou, M., Rigby, D., Rolfstam, M., Tsipouri, L. and Ruhland, S. (2005) 'Innovation and Public Procurement: Review of issues at stake.' Study for the European Commission, Final Report. Brussels: European Commission; Edler, J. (2006) 'Demand and Innovation Policy.' Presentation at ProACT conference, Finland; Edler, J. (2009) 'Demand Policies for Innovation in EU CEE Countries.' Paper presented at the workshop Innovation for Competitiveness INCOM Prague/ 22.1-23.1 2009.
5. See Edler, J. (2009) 'Demand Policies for Innovation in EU CEE Countries.' Paper presented at the workshop Innovation for Competitiveness INCOM Prague/ 22.-23.1 2009.
6. For Finland see: http://www.tem.fi/?l=en&s=2853. In the UK, see: Georghiou, L. (2007) 'Demanding Innovation: Lead Markets, Public Procurement and Innovation.' London: NESTA.

group on the issue. Although still in its infancy, the discourse on the merits and downsides of demand-based innovation policy is gaining momentum."[7]

Policymakers across Europe increasingly recognise that attempting to stimulate the growth of innovation through supply-side measures alone will, at best, minimise their impact; at worst, it could ensure their failure.

'Demand' is a slippery analytical construct, particularly when understood as a dynamic force – propelling cultural, social and technical innovations. In this project we delve into organisations to understand better the relationship between demand and innovations within them. We organise our insights into a framework that should provide policymakers and organisations with a consistent way to ensure the growth of innovation – and the success of innovation policies – by understanding:

1. How information about consumer preferences feeds into innovations within organisations.

2. The resulting likely impact of demand-oriented policies.

3. Any lessons from missed opportunities.

7. Ibid.

Section 2: The connection between demand and innovation is fundamental

Overview

Demand – defined as 'consumer preferences and needs' – is a key driver of innovation, but we know too little about what organisations actually do with what they know about consumer preferences.

In this section, we consider why innovation and a deeper understanding of consumer influence on the innovation process are important.

We also discuss the purpose of demand-oriented policies and what we still need to know about what happens within organisations to maximise the effectiveness of consumer-responsive policies in stimulating innovation.

Part 1: Context

Innovation is at the centre of UK policy to close the productivity gap

Innovation is the 'successful exploitation of new ideas'.[8] To ensure ideas are successful, a proposition must be viable. That requires a careful balance of both demand- and supply-side factors. Thus we cannot achieve successful innovation without the right market conditions, labour skills, costs, and availability of materials – or without the consumer's willingness to purchase or use a new product or service.

Innovation is at the heart of UK policy to close the productivity gap with our European counterparts.[9] The Government's White Paper on innovation set out that: *"Innovation is essential to the UK's future economic prosperity and quality of life. To raise productivity, foster competitive businesses, meet the challenges of globalisation and to live within our environmental and demographic limits, the UK must excel at all types of innovation"*.[10] There is agreement across developed countries that innovation is an essential part of ensuring we remain competitive in the global economy. *"Globalisation has increased the pressure on OECD countries to move up the value chain and engage in a continuous process of adjustment and innovation. By strengthening innovation, countries, regions, cities and firms can become more competitive and thus better prepared to face the challenges of globalisation"*.[11]

Structural changes in the economy now make it crucial to understand the influence of demand-side drivers on innovation

As knowledge – and the ability to use, analyse and share it – has become one of the key drivers of economic growth, some commentators have suggested that the knowledge economy is distinct from previous

8. Former Department of Transport and Industry.
9. Brinkley, I. (2008) 'The Knowledge Economy: How knowledge is reshaping the economic life of nations.' London: The Work Foundation.
10. DIUS (2008) 'Innovation Nation.' White Paper. London: DIUS.
11. OECD (2008) 'Reviews of Regional Innovation: North of England, UK.' Paris: OECD.

Box 1: What is innovation?

Innovation is a term used widely in everyday language. We assume that everyone knows what it means, yet it is difficult to define. Minor changes in processes or practices, for example, can be overstated as innovations. However, there is some consensus among academic specialists about what constitutes an innovation.

Innovation is the first attempt to put an idea into practice.[12] This is distinct from invention, which is the first occurrence of an idea. The former Department for Trade and Industry defined innovation as the 'successful exploitation of new ideas'. EIPR's[13] definition encompasses some of the wider typologies:

> *"Innovation is about change and the ability to manage change over time. Innovation can be about the successful exploitation of new ideas in the form of a new or improved product or service but it can also be about the way in which a product or service is delivered. Equally, innovation can be about creatively positioning (or marketing) an existing product, or about changing the business model (a new 'paradigm', such as low-cost airlines)."*

Criteria for success can include market share, number of sales, profit made, diffusion rate, beating competitors, or changes in user behaviour.

There are various typologies of innovation, but in general they cover three categories:[14]

- Product innovation (new goods and services).
- Process innovation (new technologies and techniques to adjust production or delivery).
- Organisational innovation (new ways to organise work practices and business models).

Within each type of innovation there are three levels of innovation:

- Incremental – small continuous improvements that cause relatively little disruption, e.g. a new invoicing system.
- Radical – new to the market or firm, often disruptive to the industry, discontinuous, e.g. a new product for sale or a new business model such as home delivery for a retailer.
- Transformational – new to the world, rare but big innovations that cut across all industries, e.g. the World Wide Web.

12. Fagerberg, J. (2005) Innovation: A guide to the literature. In Fagerberg, J., Mowery, D.C. and Nelson, R.R. (2005) 'The Oxford Handbook of Innovation.' New York: Oxford University Press.
13. EIPR (2006) 'European Innovation Progress Report 2006.' Luxembourg: Office for Official Publications of the European Communities.
14. For a more detailed discussion of different types of innovation, see OECD (1997) 'Oslo Manual.' 2nd Ed. Paris: OECD; Fagerberg, J. (2005) Innovation: A guide to the literature. In Fagerberg, J., Mowery, D.C. and Nelson, R.R. (2005) 'The Oxford Handbook of Innovation.' New York: Oxford University Press; Tidd, J., Bessant, J. and Pavitt, K. (2005) 'Managing Innovation: Integrating technological, market and organizational change.' Third Edition. Chichester: Wiley; EIPR (2006) 'European Innovation Progress Report 2006.' Luxembourg: Office for Official Publications of the European Communities.
15. OECD and EU are the Organisation for Economic Co-operation and Development and the European Union.
16. Brinkley, I. (2007) 'Trade in Ideas and Knowledge.' London: The Work Foundation.
17. Based on Brinkley, I. (2007) 'Trade in Ideas and Knowledge.' London: The Work Foundation; and Tien, J.M. (2007) Services Innovation: Decision attributes, innovation enablers, and innovation drivers. In Hsu, C. (Ed.) (2007) 'Service Enterprise Integration: An enterprise engineering perspective.' New York: Troy.

economic models. The shift to an economy based on the exploitation of knowledge is by no means confined to the technology and knowledge-based industries, as defined by the OECD and EU,[15] but can be found across all sectors of the economy. However, all economies have always been partly based on the exploitation of knowledge, so *"the phrase 'knowledge economy' may more aptly describe a 'soft discontinuity' rather than a sharp break from the past"*.[16] Even so, there are four closely related developments that make the current transformation unique:[17]

1. The evolution of mass consumer markets of increasing sophistication and diversity, including an increased consumption of services and reduced life cycle of products, together with close collaboration between suppliers and consumers (see Box 3 overleaf for a summary of changing trends in consumer behaviour).
2. The introduction of very powerful and cheap general-purpose information and communication technologies (ICT), enabling the adaptation of products and services using real-time data, automation and reorganisation, and integration systems or processes – such as supply chains and use of data warehouses.
3. The spread of higher education beyond a small elite, providing an unprecedented increase in well-qualified labour and well-educated consumers.

Box 2: What is demand?

We use the term 'demand' here to refer to what businesses often call 'consumer voice': consumer wants, needs and preferences for goods and services. Demand refers to the desire or preference to purchase an affordable product or service (as opposed to unconstrained preferences or desires). Preferences may be obvious or hidden; demand can be private or public, and can come from consumers, other businesses or government. Government demand to business can be either for its own use, or for collective consumption through public services such as education and healthcare.

A useful common proxy for demand is what is consumed or paid for. However, whilst it is easier to measure consumption than preference, the data is limited in the extent to which it helps predict future demand. An alternative proxy is willingness to pay for goods or services, though again there are limitations in accurately translating intentions to likely behaviour.

Demand from users can influence innovation through three main mechanisms:

- Market-mediated – through consumer and business markets, which rewards innovative activities by firms.
- Co-ordinated – and expressed through the political (governmental) or non-profit arenas.
- Directly – through user modification and engagement – a growing trend that has been described as 'democratic innovation'[18] or user-led innovation.

We also suggest that the role of demand in innovation is likely to differ depending on whether the relationship between on the proximity between the consumer and producer.

18. Von Hippel, E. (2005) 'Democratizing Innovation.' Cambridge, MA: MIT Press; Leadbeater, C. (2006) 'The User Innovation Revolution: How business can unlock the value of customers' ideas.' London: National Consumer Council.
19. NESTA (2007) 'Hidden Innovation.' London: NESTA.

4. The opening up of global markets, supported by new technologies, leading to the development of global brands and fragmented production systems.

Just as the exploitation of knowledge is not in itself new, the importance of the consumer in the innovation process is not new either. Our four drivers of the knowledge economy highlight the importance of the consumer in its changing nature. A better understanding of the exact nature of consumer influence on organisational activities would allow policymakers to use their levers to best advantage. Perhaps more importantly, it will ensure that any innovation policy recognises and supports both the demand and supply sides of innovation to achieve maximum effect.

However, manipulating innovation levels requires a good understanding of current levels to target better policy interventions. This is also fundamental in learning how to stimulate innovation. To this end, it is worth noting that lots of innovation is hidden from traditional metrics focusing on high-tech manufacturing, and most measures neglect demand-side factors.

Measures of innovation omit many forms of innovation and neglect demand-side stimulants

In order to understand how much innovation is taking place and whether innovation policies are having an effect, we need effective ways to measure innovation. Most aggregate, publicly available data focus on traditional innovation: they measure the more tangible aspects of high-tech innovations, such as patents and investment in R&D. However, this hides much innovation that is neither developed in the traditional way nor producing a tangible product – including process and service innovations.[19] Moreover, current measures of innovation capability focus on supply-side inputs and neglect aspects of demand that might stimulate or enable innovation. This deficiency provides an incomplete and potentially misleading picture of innovation and innovation potential.

Box 3: Changing consumer trends and relevant underlying drivers

Below is a summary of the findings from our interim review of the evidence and literature on changing consumer trends and relevant underlying drivers.[20]

Changing consumer trends
The data reveal increased spending on services by all customers, whether individuals, businesses or government, and an increased trade in knowledge services.

- There has been a visible change in consumer spending over the last few decades, largely due to changes in the real costs of goods and services, with an increased share of spending on services. Changing consumer preferences account for the increased spending on communication services and entertainment goods, and reduced spending on tobacco and alcohol.
- Patterns of the 'elite's' spending (before the recent downturn) give some insight into the direction of future mass consumption. The elite spent much more than average on eating out, holidays, property, private healthcare, and pensions.
- Government expenditure on health and education services – substantial elements of the knowledge economy –increased as a share of GDP and as a share of total spending on public services over the last the 20 years, and is projected to rise further over the next 20 years (although levels of growth may be tighter in the next few years). Citizens as consumers are expecting government to provide more tailored and personalised public services.
- High business demand for knowledge-based services has reinforced the growth of knowledge-intensive businesses, globalisation and technology (though the direction of the causal relationship is not clear).

Changes in drivers of demand
A model to account for underlying trends in consumer preferences must incorporate social and macroeconomic activity as well as individual factors. Levels of disposable income, attitudes to money, education, demographics, labour market trends, and social and personal values have all been changing in recent decades:

- The last few decades have seen rising levels of affluence, including access to credit and education levels.
- Our population is ageing and more women are joining the labour market, both of which are contributing to substantially different social demands.
- Polarisation of consumer markets is being seen, with increased spending at both the high and bargain ends of market.
- Research has highlighted a shift in values in developed countries – including the UK – over the last 30 years, suggesting that people are looking for self-expression and quality of life. In many areas this may be reflected in consumption patterns and increased spend on leisure services.

20. See the interim report of this project for a fuller discussion of these points: Mahdon, M., Visser, F. and Brinkley, I. (2008) 'Demand and Innovation.' Interim Report. London: NESTA.

Demand is a necessary condition for successful innovation

Demand is essential for the successful exploitation of ideas. Without consumer uptake innovations would not be viable. For back-office process innovations, consumer needs may be less directly relevant, but ultimately even they can indirectly make goods and services more attractive, by reducing costs or response times. It is too easy to assume that consumer demand grows automatically, even if at times of economic growth this assumption goes unchallenged. Indeed in difficult economic times aggregate demand reduces in most sectors. Innovations may reduce because of this drop in demand, making it even more important to understand the role that the consumer plays in stimulating organisations to innovate.

A focus on demand has improved our understanding of the innovation process

In a 1979 seminar paper, Mowery and Rosenberg evaluated prevalent thinking on the influence of demand on innovation. They reported that previous studies had struggled to identify an automatic relationship between invention and innovation.[21] The concept of demand was often confused, as only observed market demand was examined, excluding 'expected demand' or concepts based on consumer needs. Even supply-side approaches would struggle to explain why products would be invented without attention to needs or likely future demand, they argued. They also highlighted the extent to which 'technological opportunity' and the growth of scientific knowledge determined the bounds of the possible. For example, the demand for cures for serious diseases is strong, but a solution had not yet been found for many illnesses. However, Mowery and Rosenberg found that the focus on demand was important because:

- It highlighted that there are both radical and incremental innovations that may show different patterns of causation.
- It emphasised the need to study user needs, for example the innovative role of 'lead users' and 'user-producer interaction'.
- It drove researchers to move from 'linear' models of innovation to more complex interactions of different determinants.
- It highlighted the process of 'market creation', and the importance of networks and standards among buyers as well as suppliers.
- There was a need to study innovation at the aggregate level, as well as individual innovations.

Our report does not question the need for consumers to want products, nor do we argue that demand is more important than supply for the success of innovations. We are interested in the specific influence of consumer needs and preferences on innovation within organisations – the quality of demand – rather than simply quantifying consumer purchases, or observed demand.

21. Mowery, D. and Rosenberg, N. (1979) The Influence of Market Demand upon Innovation: A critical review of some recent empirical studies. 'Research Policy.' Vol. 8, pp.102-153.
22. Tidd, J. (2006) 'A Review of Innovation Models.' Discussion Paper 1. London: Tanaka Business School.
23. For a summary of the pitfalls of regarding innovation as stemming only from one source, see Tidd, J., Bessant, J. and Pavitt, K. (2005) 'Managing Innovation: Integrating technological, market and organizational change.' Third Edition. Chichester: Wiley.
24. FORA (2008) 'User-driven Innovation. Context and cases in the Nordic region.' Oslo: Norden – Nordisk Innovation Centre. FORA is a research and analysis division of the Danish Authority for Enterprise and Construction.

Part 2: The innovation process and consumer influence

In this section, we briefly summarise what is already known about how innovation happens. We then explore the role of the consumer in the innovation process. The process of innovating is complex. Factors such as collaboration, connectivity, networking, cost, globalisation and technology can facilitate innovation – while formal systems, such as R&D teams, can help to capture innovations. Our discussion of innovation may oversimplify the process of innovation, but it is useful to break that process down into its basic elements before starting to rebuild its complexity. Any attempt to increase innovation and predict whether an idea can be successfully implemented must look beyond an individual organisation or industry to take account of the complex interaction of demand and supply factors. It must consider factors such as the spread or diffusion of a new product and its adoption.[22]

The innovation process

Innovation does not happen in a vacuum. It occurs as part of a wider system and is often more radical as a result of the accumulation of incremental innovations. Innovations within organisations take place as part of industrial and national systems and structures. Thus, ideas and innovations do not come simply from one source.[23] Before turning to the influence of consumers on ideas and innovation, it is worth briefly looking at the innovation process and gaps in our existing knowledge about it. We examine models that capture the stages of innovation from an initial idea to its successful exploitation.

The stages of innovation

There are many different types of innovation, with plenty of models that seek to describe how the process works. A useful summary emerged from a literature review conducted by the Danish research institute, FORA, on innovation models used by businesses. Subsequent testing within organisations showed it could be used with different types of businesses.[24]

FORA's eight stages are divided into 'what' to innovate and 'how' to innovate as illustrated in Table 1.

Table 1: FORA's eight stages

What	How
1. Opportunity identification	5. Conceptualisation
2. Data collection	6. Prototype
3. Pattern recognition	7. Test
4. Concept idea	8. Implementation

FORA suggest that the innovation process can contain all eight elements in sequence, with opportunities for feedback into previous elements. But the process may also skip some steps: not all ideas are developed or implemented, after all. The literature on innovation suggests various 'gateways' are used to filter which ideas are developed and which ones are abandoned. Innovation is not a linear process, either – ideas can start at any stage, and information can flow both ways through the process. For example, a new idea might emerge during testing which could lead to a modification to the design of a product, or even spark the development of a different product. Some services could move from concept to implantation without testing, although such shortcuts may not always be cost effective in the long term. For a more detailed discussion of the innovation process and the evolution of innovation theory see Tidd.[25] However, the literature doesn't tell us enough about the origins of innovations: do they come from front line employees, senior management, lead users or elsewhere? Where in the process does information about consumer preferences feed in, and how does that influence idea generation, development, or the decision to continue through the innovation process?

25. Tidd, J. (2006) 'A Review of Innovation Models.' Discussion Paper 1. London: Tanaka Business School.

The role of demand in the innovation process

What role does demand play in that process? If an innovation is to make an impact, someone must use it. However, it is often difficult to determine the extent to which some influencing factors can be categorised as demand- or supply-driven. It is also hard to determine whether organisations respond to demand or create it. Companies would not consciously generate new products or services if they knew nobody would use them. On the other hand, they can't always wait for consumer signals: they must sometimes generate demand, particularly where new technologies cannot be fully understood by users or innovators at the outset of an innovation. Nevertheless, innovations with low levels of demand are unlikely to survive in the long run.

The assumption that demand grows automatically is increasingly being challenged by sociology and evolutionary economics literature, which look at the dynamic interplay between supply and demand including how demand shapes innovation. Demand can influence innovation through several routes (see also Box 4):

- Providing a market to sell goods (incentives).
- Traditional market research information and testing, in particular 'average' users' reactions to specific goods and services.
- Traditional market research information on user preferences in general (including data on current preferences from trends in sales) and potential preferences.
- Users and producers engaging with each other throughout the innovation process.
- Early-adopter users providing information to others who later adopt the product, thereby actively creating markets for new products or services.

Much has been written about how organisations interact with their consumers. Specifically, there is a large literature on how advertisers gather information about consumer preferences and attempt to shape them through marketing. One way of measuring aggregate consumer involvement in the innovation process is through calculating total marketing expenditure. To this end, the most recent edition of the *Oslo Manual*, the European manual for how to measure

Box 4: Channels through which demand influences innovation

The preferences and needs of the consumer can influence a product or service innovation at any stage of a product's development. The influence of demand in the process can be through traditional market research or more user-led routes. Interaction with users can vary in intensity from passive involvement by the consumer, where, for example, their shopping basket contents are recorded and analysed – through to full co-production or user-led innovation where the consumer actively helps to design or develop a product, such as a new App for an Apple iPod . In the more passive role, the information is fed back to supermarket employees who decide which information to use in developing a product or service: the supermarket might change what products they target at particular consumers or which ones to stock in different branches.

Traditional market research with the 'average user'

Market research is a traditional channel through which businesses can assess the needs and preferences of their target market and the viability of an existing or new service or product. Techniques are largely qualitative – including focus groups, ethnography, and futurology. Gathering information can be time-consuming and costly, though second-hand information about the customer from staff can provide useful feedback with little time or expense. Methods can be 'reactive', testing existing or newly developed products or services – or 'proactive', to uncover latent needs and preferences.

Sophisticated methods of monitoring and analysing sales data and shopping routes in stores can also provide insight into current consumer preferences. These data can be segmented to produce detailed insights into the preferences of different demographics of shoppers, though notably the data only provides insights on explicit current preferences for existing products.

User-led innovation

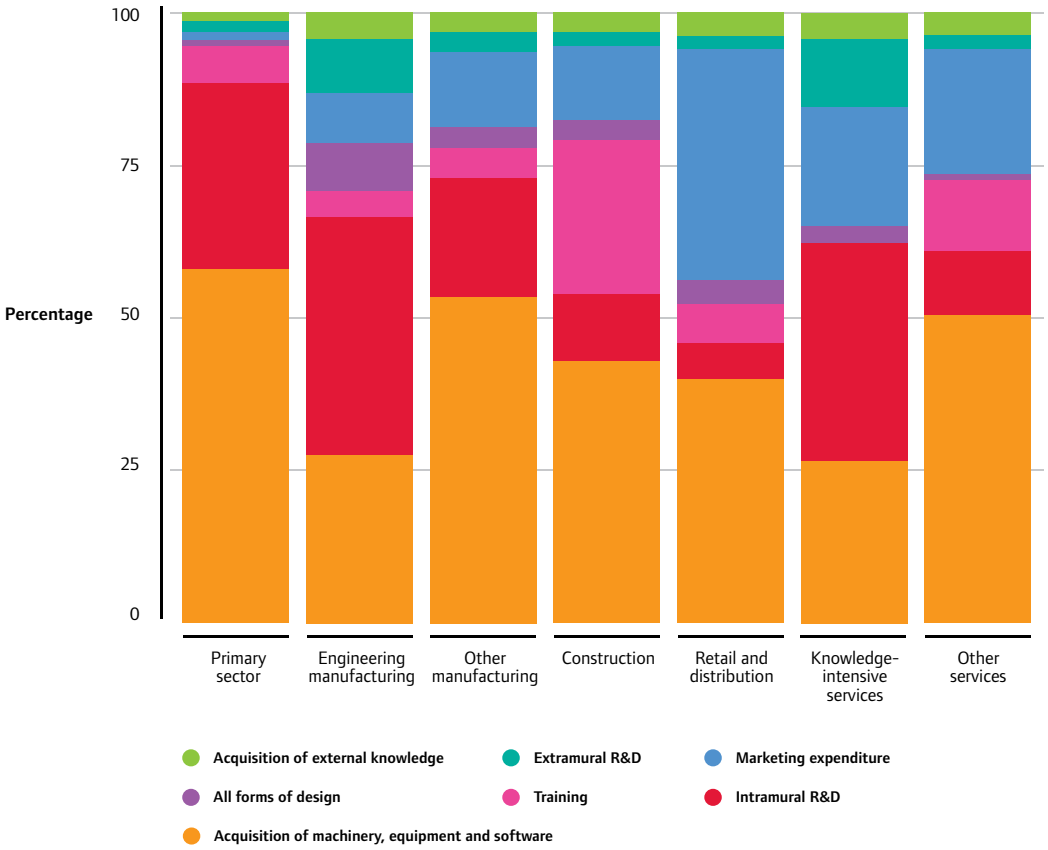
Largely driven by the unknown possibilities of technology, the role of the user in innovation processes has moved beyond market research. Many organisations now work directly with users not only to test prototypes, but also to exploit the users' own ideas for improvements. Von Hippel and colleagues[26] have studied extensively the role of lead users in innovations in research focused primarily on the US sports equipment and games software markets. Recent work in the UK has also highlighted the growing importance of user-led innovations.[27] The Internet has facilitated communities of users to work together to design and develop new products and services, and modify existing ones. Businesses using the user-led model to innovate have been shown to be commercially successful based on recent acquisition figures.[28] However, businesses must also note that excessive focus on current users, at the expense of potential users, may result in the business missing out on opportunities for other innovations.

Using traditional market research or a user-led model, businesses must select the users (or potential users) they choose to gather information from. Gruner and Homberg[29] identified four characteristics of users by which businesses segment their market: financial attractiveness; closeness of relationship; technical attractiveness; characteristic of lead user (is the user one of the first to adopt relevant new products or services?). Sanden *et al.*,[30] in a small survey of marketing managers in Swedish businesses, reported that some businesses conduct their selection process of users systematically, whereas others pay no attention to their sample at all. Moreover, they found that businesses selling to other businesses are more likely to engage users with special expertise and more closely in the whole development process than those that deal with individual consumers.

Understanding the target market better and working with consumers can reduce the time it takes to bring a product to market. Alam[31] lists other potential benefits of working with customers, including providing a superior product or service. A final hypothesised, but as yet unproven benefit, is a reduction in the number of ultimately unsuccessful ideas that progress too far in the development process too quickly – thus saving time and money.

26. See for example von Hippel, E. (2005) 'Democratizing Innovation.' Cambridge, MA: MIT Press.
27. NESTA (2008) 'The New Inventors: How users are changing the rules of innovation.' London: NESTA.
28. Ibid.
29. Gruner, K.E. and Homberg, C. (2000) Does Customer Interaction Enhance New Product Success? 'Journal of Business Research.' 49:1, pp.1-14.
30. Sanden, B., Gustafsson, A. and Wittell, L. (2006) The Role of the Customer in the Development Process. In Edvardsson, B. *et al.* (Eds) 'Involving Customers in New Services Development.' Series on Technology Management, 11. London: Imperial College Press.
31. Alam, I. (2002) An Exploratory Investigation of User Involvement in New Service Development. 'Journal of Academy of Marketing Service.' 30:3, pp.250-261.

Figure 2: Shares of innovation expenditure by sector taken from DTI (2006) based on CIS 4 data[35]



32. The Oslo Manual is the OECD handbook providing guidelines for the collection and use of data on innovation activities in industry.
33. DTI (2006) 'Innovation in the UK: Indicators and insights.' London: DTI.
34. Save for the construction sector, which just matches the knowledge-intensive sector at 13 per cent.
35. DTI (2006) 'Innovation in the UK: Indicators and insights.' DTI occasional paper No.6. London: DTI.
36. See for example Feldman, L.P. and Page, A.L. (1984) Principles Versus Practice in New Product Planning. 'Journal of Product Innovation Management.' January, pp.43-55.
37. Martin, C. and Horne, D.A. (1993) Service Innovation: Successful vs. unsuccessful firms. 'International Journal of Service Industry Management.' Vol. 4, No. 1, pp.49-65.
38. Von Hippel, E. (2005) 'Democratizing Innovation.' Cambridge, MA: MIT Press.
39. NESTA has a project underway to make a more accurate assessment of the amount of user-led activity and innovation in the UK.
40. Martin, C.R., Horner, D.A. and Schultz, A. (1999) The Business-to-Business Customer in the Service Innovation Process. 'European Journal of Innovation Management.' 2(2), pp.55-62.

innovation and relevant indices, now includes the concept of marketing innovation,[32] which it defines as marketing spend. A large share of spending on innovation goes on marketing and market preparation.[33] Figure 2 reveals that retail and distribution, knowledge-intensive services and other services spend most on marketing – money spent on understanding customers and targeting the market better.[34]

However, measuring marketing spend is not a very good proxy for consumer involvement in the innovation process. Spending money to advertise to consumers is not the same as spending money to learn about their needs and preferences. Moreover, learning about those preferences is one step removed from involving them in the innovation process.

So, measuring spend on marketing may be a step forward in tracking consumer involvement in innovation, but it still leaves us with a large gap in our knowledge. There is conflicting and incomplete evidence on when consumers are involved in the innovation process and the best time to engage them. Previous research has shown that consumers are predominantly involved in the testing and evaluation stages of developments.[36] Yet, successful product and service innovations depend on continual and in-depth involvement with the consumer throughout the development process.[37] While there is evidence of user-led innovation or co-production,[38] their extent is not clear.[39] Equally, the stages of innovation are less clear in service innovation. In this more repetitive or iterative process of development the consumer and producer roles are more blurred at the different stages, particularly in business-to-business relationships.[40]

Lack of understanding of how the information collected about consumer preferences influences innovation

The lack of research into consumer preferences and innovation processes within organisations raises important questions. Who requests

information about consumer preferences, and when in the process do they do so? Where are ideas generated? Do they come directly from the consumer, or from employees? At what point in the process are the needs and preferences of the consumer considered? Demand feeds into the organisation and innovation comes out at the end, and we don't really know enough about what happens in between.

Measuring the knowledge organisations and employees have of the consumer is challenging

One reason why we lack evidence is the difficulty of measuring demand, and unpacking the often intangible nature of knowledge about the consumer within organisations. Levels of demand are difficult to assess, particularly at a macro level.[41] Perhaps because it is too difficult to separate the influences of demand and supply factors, and because demand can be hard to track, policymakers and many businesses have traditionally seen demand as something that grows automatically. They have focused instead on supply-side drivers of innovation such as capital accumulation, production, and technical change.[42] The former Department for Trade and Industry argued that: *"A major reason for this relative emphasis is the difficulty of establishing demand characteristics for innovation in goods and services. Most collection of data on innovation, including the present [2005 CIS] survey, is from businesses and tends to be oriented to their production and distribution activities."*[43] The third edition of the *Oslo Manual* now recognises the importance of demand, but stresses the difficulty in articulating questions about the role of demand aimed at suppliers. However, even with aggregate measures of demand, it is not clear how information about demand is actually used within organisations during their innovation. A better understanding of this would enable policymakers and businesses to calculate more accurately the effect of using demand-oriented levers to stimulate innovation.

Demand-oriented policies are receiving more attention from policymakers

Governments have a wide variety of policy mechanisms available to leverage an increase in innovation. And demand-oriented measures – *"sets of measures to increase demand for innovations, to improve the conditions for the uptake of innovations or to improve the articulation of demand in order to spur innovations and the diffusion of innovation"*[44] – are now receiving more attention.

Such government interventions can be directed at three primary markets: individual or household consumers, businesses, and collective or government. However, it is perhaps more helpful to consider whether the user is private or public, as government policy can intervene differently in each case. Public policy interventions can either target the articulation of citizen preferences through procurement policies, or try to increase levels of private demand. A more detailed discussion of the issues and challenges associated with stimulating both public sector and private demand can be found in our interim report.[45]

The ways in which demand can be stimulated include:

- **Providing financial incentives or disincentives for consumers/users.**
- **Providing information and awareness raising** to redress information imbalances and reduce risks for private users, e.g. explaining the digital switchover of television, to ensure users are aware what the innovations mean and what they must do.
- **Competence building,** so private users can understand information that helps them choose between innovations and use them, e.g. free lessons in using the Internet.
- **Regulation/standard setting:**
  - **Safety and performance regulation** to set expectations among private users and by providing a trustworthy, widely available, short-cut to knowledge about the safety and performance of an innovation, thereby lowering the transaction costs of adoption, e.g. energy efficiency ratings.
  - **Usage regulations** to ensure users are safeguarded by legally standardised ways of operating, e.g. regulation of electronic signatures to allow safe internet business transactions.
  - **Alter market conditions** to redirect efforts in innovation.

41. Ashby, K. and Mahdon, M. (2009) 'Measuring the nature of demand in the UK: The challenges of an indicator approach.' London: NESTA. Assesses the available indicators of demand for innovation in the UK and highlights the paucity of data.
42. Witt, U. (2001) Economic Growth – What Happens on the Demand Side? Introduction. 'Journal of Evolutionary Economics.' 11, pp.1-5.
43. DTI Occasional Paper (2006) 'Innovation in the UK: Indicators and insights.' London: DTI.
44. Edler, J. (2008) 'Demand-based Innovation Policy.' MIoIR working paper. Manchester, UK: Manchester Institute of Innovation Research.
45. Mahdon, M., Visser, F. and Brinkley, I. (2008) 'Demand and Innovation.' Interim Report. London: NESTA.

- **Public procurement** where government as the consumer can act as a secure large or lead market, and stipulate criteria for innovation within its purchases.

These approaches can be used together to achieve the desired effect or they can stand alone. Equally, they can be used in combination with other policy interventions that are oriented towards other aspects of the innovation process – for example, through investment in research centres and higher education.

Most demand-oriented policies designed to increase innovation focus on influencing preferences for specific goods or services, such as tax discounts to promote greener cars, or solar energy panels. However, some such policies can influence preferences towards innovative products in general – for example, increasing consumer competencies in ICT, or standards for consumer protection. Equally, demand-oriented measures may also include public policymakers educating businesses and government, as users, to demand innovation from their suppliers or providers.

Using public procurement to increase innovation allows government to act as a demanding consumer. Government can purchase innovations either on its own or in conjunction with private consumers, thus stimulating innovation. But such public procurement is not without its pitfalls and needs to be used in conjunction with other measures to stimulate private demand.[46]

46. For a comprehensive review of public procurement as a demand-oriented mechanism, see Edler, J. (2008) 'Demand-Based Innovation Policy.' MIoIR working paper. Manchester, UK: Manchester Institute of Innovation Research.
47. See ibid. for a more detailed description and evaluation of these examples.

The difference between demand-oriented and supply-oriented policies is blurred

In some cases, the attribution of a policy to be demand-oriented or supply-oriented is somewhat arbitrary. For example, a policy to raise the awareness of businesses to a change in regulation or voluntary standard that might influence consumer preference could easily be categorised as both supply- and demand-oriented.

The former Department for Business, Enterprise and Regulatory Reform's recent review of regulation and innovation states that:

> *"Government is more likely to promote, or at best avoid hampering beneficial innovation if it clearly informs businesses of future changes in regulation well in advance. That would allow sufficient time to comply with new rules and requirements while being clear in specifying the desired outcomes which cannot always be achieved using existing technologies and business practices."*

This practice could be categorised as being either on the demand or supply side.

The creation of the Department for Innovation, Universities and Skills (DIUS) in 2005 was at the heart of the Government's strategy to promote and encourage innovation in the UK. Its functions were merged in 2009 within the new Department for Business, Innovation and Skills (BIS). One of the visions behind DIUS was to enable a more cohesive programme of policies to increase the numbers of STEM graduates, by merging responsibilities within government for higher education and skills. This goal illustrates the focus of innovation policy on supply-side factors.

The concentration of public policy on supply-side factors can be easily understood; government has less scope to leverage demand-side factors to the same direct effect on the ability of the UK to innovate as supply-side factors. Even so, the many demand-oriented policies already in place are rarely labelled as innovation policies – setting and regulating minimum safety standards can influence consumer choice of goods but few would define it as 'innovation'. One reason may be that such demand-side policies influence preferences for specific goods or services, such as 'greener' cars or paying online, rather than more generic increases in innovation levels.

Examples of demand-oriented policy interventions

There are plenty of other examples of such demand-side interventions from the UK and abroad. Here are a few of them:[47]

Germany

- The Ministry of Energy promoted a 'New Deal' to exploit the demand for eco-efficient technologies to contribute to goals of both sustainability and innovation.

- The Federal Ministry of Research and Education attempted to organise a large-scale articulation of 'Lead Visions' to

translate into research and development priorities. However, Edler's review[48] notes that the attempt *"served to be overly challenging and did not fully result in the translation into research priorities."*

Sweden

- Sweden provides an example of a large and 'fairly successful'[49] systematic demand-oriented initiative to boost energy-efficient technologies' uptake and improvement. Public procurement was used as a catalyst for private procurement with government agencies putting together large tender packages, some for private demand and others for public agencies. Alongside the tender process, a large marketing campaign raised awareness of the innovations, with support for users. More recently, user groups have been established to articulate their demands more effectively and communicate them to producers and state agencies. All this is part of the tender process, but there is also an opportunity for the winner of the tender to get funding to demonstrate and test innovations.

UK

- In 2003, the former Department of Trade and Industry (DTI) together with the Office of Government Commerce (OGC) sought to make public procurers 'intelligent consumers'.[50] The OGC helped to train decision-makers and procurers in the process. The cross-governmental initiative was intended to help all Whitehall departments articulate their future needs better.

- The former DTI also made demand an explicit part of innovation policy by aiming to direct 25 per cent of public procurement towards innovative activity. The idea was that improvements in public services would be achieved through public procurement of innovation.

- The UK government's goal of reducing greenhouse gas emissions by 80 per cent by 2050 can be classed as a demand-oriented policy. It is expected to stimulate the development and widespread adoption of new low-carbon technologies while government ambitions to achieve zero-carbon housing by 2016 likely to promote improved energy efficiency in design and construction of new homes.[51]

48. Ibid.
49. Ibid.
50. DTI/OGC (2003) 'Increasing Competition and Improving Long-Term Capacity Planning in the Government Market Place.' London: DTI.
51. BERR (2008) 'Regulation and Innovation: Evidence and policy implications.' Economics Paper No. 4. London: BERR.
52. Ibid.
53. Edler, J. (2008) 'Demand-Based Innovation Policy.' MIoIR Working Paper. Manchester, UK: Manchester Institute of Innovation Research.
54. Business Decisions Limited (2003) and Communities Innovation Survey.
55. See research by FORA (2008) for case study examples of good practice in including the consumer in the innovation process.

As with innovation policy in general, demand-oriented policies should not be seen as the sole property of the innovation department, but as part of the toolkit for all policymakers

While innovation policy often appears distinct, most areas of government policy can be used to influence innovation directly, or indirectly. However, when considering whether demand-oriented policies might stimulate innovation, policymakers should also consider the interactions between factors that could affect a firm's ability and willingness to innovate. The way policy influences innovation is complex.[52] It is difficult to isolate the impact that different policy interventions will have on organisations' motivation and ability to innovate, particularly because policy is clearly not the only driver of demand for innovation. Though our project focuses primarily on the demand side of innovation it is important neither to ignore this complexity nor the capacity of regulation, awareness raising and other policy measures to create a desire for innovation from consumers. Edler succinctly concludes that demand-oriented policies can often fail because *"high ambitions in activating large-scale demand for innovations are shattered by lack of vision, commitment, coordination and information."*[53]

The black box of organisations

Existing literature on consumer behaviour and attitudes ignores the impact of changing consumer preferences on organisations' innovations. Yet, lack of demand or a lack of understanding about consumer preferences can cause innovations to fail.[54] And there is little research into how knowledge of consumer preferences influences organisational decisions to innovate. Our project sought to fill that gap; the next section sets out our methodology.

Method rationale and overview

This project set out to highlight current, not best, practice as a way of raising awareness of what organisations are currently doing to innovate in response to consumer preferences or ideas, and to provide lessons for policymakers.[55] Our results can help to improve the effectiveness of their policies in stimulating demand-led innovation. The resulting framework should be seen as a way of increasing understanding and awareness of the

way consumer preferences are influencing how organisations in the service sector innovate.

Throughout this project the methods and results have been reviewed and altered by an advisory group of academics and policymakers with in-depth knowledge and experience of user-led innovation. Case study participants have also reviewed the findings to ensure that they accurately reflect the practice of those organisations.

Five qualitative case studies

In order to gain a deeper understanding of how consumer needs and preferences are used within organisations, we looked at innovations within five organisations, including:

- A large financial firm, financial services.
- ASDA, large commercial retailer, retail services.
- PwC, large professional services firm, business services.
- Taylor Woodrow, large construction firm, business services.
- John MacAlsan and Partners, small firm of architects, creative industry.

In selecting these organisations, we focused on sectors with 'hidden innovation'.[56] This is because, despite its economic importance, hidden innovation has received too little attention in previous research. Within each organisation we interviewed: (i) senior managers in charge of innovation across the organisation (where such a position existed), and/or (ii) employees involved in specific innovations, and (iii) where appropriate, those specifically involved in collecting information about consumer preferences.

We also explored several examples of innovations in each organisation – a total of 18 – to understand the role of consumer needs and preferences. Past research on innovation has primarily focused on successful innovation; we reviewed both successful and unsuccessful innovations. Our insights are therefore enriched by data collected about 'failed innovations' and the relative role of demand in failures as well as successes. Of the 18 examples of innovations, five were 'failed innovations'[57] (see Table 3.1 on page 36). Details of the case study methodology and why we chose a qualitative approach can be found in the technical appendix.

The research was designed to take an exploratory approach and the final model was therefore closely shaped by the data. Following data collection, 'thematic analysis' was used to make sense of the data. Thematic analysis is a way of analysing and reporting patterns within qualitative data, which clearly organises and describes data in rich detail.[58] We chose this approach as it can allow specific research questions to be addressed and asked of the data. It also allowed themes to be explored across the whole dataset, as well as within each case study organisation. This combination of exploratory case study and thematic analysis helped ensure that the final model resulted from the data collected, rather than constraints imposed by the researchers.

One of the characteristics of the exploratory case study is that it permits the researchers to focus on specific questions in-depth. In order to understand what influence demand-oriented policies might have on innovation within organisations, we focused on the following issues:

- When in an innovation cycle is information about consumer preferences and needs gathered or received?
- How is the information subsequently used?
- What part does the information play within the innovation process?

Various factors influence the general environment within which organisations operate. Some are generally considered to be demand-side factors, others supply-side and others fall somewhere in-between. All these factors can influence organisations' ability and willingness to innovate. Where these factors were revealed through the thematic analysis as important in the dynamics of consumer preferences and innovation we have presented them in the framework (see later in the report). However, it should be noted that the data are not suitable to test conclusively specific hypotheses with respect to the nature or direction of their influence.[59]

56. NESTA (2007) 'Hidden Innovation.' London: NESTA.
57. Innovations were classified as successful or failed based on each organisation's own criteria. Where it was deemed too early to make such a classification concretely the organisation provided an estimate.
58. See Clarke, V. and Braun, V. (2006) Using thematic analysis in psychology. 'Qualitative Research in Psychology.' 3, pp.77-101.
59. An illustrative, but not exhaustive, list of such factors includes: competition, supply chain dynamics, regulatory framework, availability of finance, absorptive capacity, availability and use of subsidies, ease of access to markets, procurement policies, location of markets, human capital, size and sector of the organisation, formality of processes for innovation and type of innovation. While we did not systematically explore the impact of each of these factors, some did emerge as important in the case studies and in these cases we have recorded them.

Section 3: Framework

Overview

In this section we present a framework derived from our qualitative research, which sets out the following activities of our case study organisations:

- When in the innovation process interaction with the consumer was sought.
- How they looked to understand consumer needs and preferences.
- Where this information was then used throughout the innovation process.

Our findings reveal that organisations are missing opportunities to interact with consumers early in the innovation process and thereby maximise their competitive advantage. We also consider overall findings about innovation and innovation culture within our case study organisations. One key finding is that the term 'innovation' was not used in all of our case study organisations. This highlights the complexity of investigating and measuring both innovation, and the idea of using consumer needs within organisations' innovations.

The framework

In this section, we present the framework that emerged from our analysis of the case study data. The framework uses our analysis to provide a way of modelling: when and how organisations seek to understand and engage different user views, and trends in consumer preferences and behaviours in their innovation processes. In looking at how demand-oriented policies might influence organisations' willingness and ability to innovate it is important to recognise the impact of public policy messages – and how organisations are likely to pick up on that information. For example, if government policy attempts to change consumer preferences or behaviour, what relative influence will that then have on organisations' innovations?

Our framework provides public policymakers with a way to assess the impact that influencing a user's needs and preferences is likely to have on innovation and what else might need to be done to supplement those policies to achieve the desired effect. Throughout the section, we use examples from the case studies to illustrate the themes that emerged from our analyses. To maintain confidentiality we are not able to specify the exact nature of the innovations we examined. However, the aim of the project was to identify the role of the consumer in the process of innovating and as such it is the themes that emerged, as opposed to the specific innovations, that are of interest. In this section we report the findings from our analysis of the data.

Table 2: Innovation examples analysed to develop framework

Company	Innovation example	Innovation level	Market sector	Innovation trigger	FIP*	Successful?
Large financial organisation	Product (service)	Incremental	Consumer	Suspected demand	y	Too early to tell
Large financial organisation	Product (service)	Radical/new to market	Consumer	Suspected demand	y	y
Large financial organisation	Product (service)	Radical/new to market	Consumer	Unknown	y	Too early to tell
Large financial organisation	Product (service)	Incremental	Consumer	Cost saving	y	n
Large financial organisation	Process (marketing)	Radical	Business	Unknown	y	y but early
TW	Process (internal)	Radical/new to business	Business	Cost saving	y	n
TW	Process (external)	Radical	Business	Internal	y	y but early
PwC	Process (external)	Incremental	Business	Unknown	n	y
PwC	Process (internal)	Incremental	Business	Unknown	n	y
PwC	Product (service)	Radical/new to market	Business	Suspected demand	n	n
JM+P	Product (good)	Radical	Government	Client demand	n	n
JM+P	Product (good)	Incremental	Government	Client demand	n	y
JM+P	Organisational	Incremental	Business	Internal	n	y but early
ASDA	Product (service)	Radical/new to business	Consumer	Revenue generation	y	y
ASDA	Process (marketing)	Radical/new to business	Consumer	Revenue generation	y	y but early
ASDA	Process (internal)	Radical/new to business	Consumer	Internal	y	y
ASDA	Product (good)	Radical/new to market	Consumer	Suspected demand	y	y but early
ASDA	Product (service)	Radical/new to business	Consumer	Suspected demand	y	n

*Formal innovation process

We examined businesses that have different relationships with their key consumers: business-to-business (B2B), business-to-government (B2G) and business-to-mass consumer (B2C) relationships. B2B and often B2G relationships tend to be closer and more bespoke, whereas B2C relationships tend to be more at arm's length. These differences are naturally reflected in the ways in which information about the preferences and needs of consumers is sought. Our framework highlights the different ways in which the consumer and knowledge of the consumer influences innovation. The overlap between mechanisms used in different types of relationship means mapping consumer involvement by mechanisms rather than by type of relationship provides a clearer typology. Our findings reveal that different mechanisms give rise to different levels of innovation as shown in Table 2 and drawn out in our discussion below. Our findings do not reveal differences in mechanisms of consumer influence on innovation by type of innovation, product (good or service) or process.

What 'need' are the ideas a solution to?

An idea or a solution (that is then developed into an innovation) might occur in response to (i) an internal organisational, or (ii) an employee or an external consumer need. Amongst our examples, some firms found it relatively straightforward to identify the

trigger for the innovation. Identified triggers of innovations from our case study examples (identified either by our researchers or the organisations themselves) include the following overlapping ideas. For simplicity we separate them into four main triggers, but these are not mutually exclusive:

- Belief that there was a need to be met, that consumers would be willing to purchase or use the idea (suspected demand).
- Desire to meet a consumer brief (client demand).
- Need to reduce organisational costs (internal cost savings).
- Need to expand the business, to generate more income for the organisation (revenue generation).

With other examples there was a complex and subtle mix of factors, or the drivers were unknown. In our framework we therefore classify needs that might require an innovative solution as originating from internal needs (organisational or employee) or the external needs of the consumer. External needs might be explicit and short term (or immediate) or longer term trends in consumer preferences. While some external needs might be seen as medium term, all our examples were either short or long term in nature.

Example of short term or immediate need
A recent response to a visible change in local demographics was the introduction of specialist food products in certain ASDA stores. The products were offered following monitoring of current, rather than predicted, demographics.

Example of long-term need
In the 1990s several colleagues within PwC believed it would become increasingly important for businesses to find a way to report 'intangible' factors of their business, such as investments in human capital – to investors and shareholders. They developed a mechanism for businesses to do so and over a decade later as more businesses are trading in knowledge there is increasing (though still relatively low) demand to report intangible factors.

Where do ideas for innovation come from?

In each of our case study organisations all the ideas that were subsequently developed into innovations had been suggested by employees. The findings were all based on employee recollection and so were subject to memory bias, but the mechanisms and timing for consumer involvement suggest it would be difficult for the ideas to have originated from consumers. When asked specifically about mechanisms in place to obtain ideas for innovations directly from the consumer or to work with consumers to generate ideas, none of the organisations had any such activities beyond a suggestion box for customers. Even in individual B2B situations, the firm's own employees were credited as the source of innovative ideas. However, since we collected our data one organisation has started to work closely with consumers to develop initial ideas immediately following idea generation from employees, sometimes doing so within hours. They have also started to select early adopters and get them to use potential products and learn from their usage and suggestions.

"We don't use consumers as a source of ideas. I guess they could filter in from comments customers make in store, but then they usually highlight something that they would like changing rather than saying what they want. Most ideas for changes in store come from our colleagues. We do ask customers for suggestions for some areas of the business to improve what we are offering."

"You have to be honest about what you're trying to achieve with market research. We look to our customers when things are going badly wrong to try to find out why. You can interview customers all you want, but ultimately when things are going well all you need to know comes from sales and market share data."

"Most of our big ideas come from our Marketing Director and they are about how to advertise. He's a great ideas person."

"We gather information from employees across the business about what innovations we could be doing. Innovation isn't embedded, but there are pockets of it. "

ASDA

In ASDA there are several processes for different types of innovation, though there is no formal innovation team. For large-scale changes that would affect most parts of the supermarket chain, the change team is constantly looking for new ideas to try. Several ideas are selected for implementation at the start of each yearly cycle. The selection is made by members of the executive team. Large-scale change management procedures are then put in place. To generate these ideas the executive team has a meeting to which external experts may be invited to help them identify gaps in the market, upcoming trends, or where they are falling behind competitors and need to catch up. Teams will then be sent away to develop these ideas. Business cases are compiled for each change, which are reviewed by the change group. The changes are about internal systems, procedures or business models. As such, little, if any, information directly from consumers about preferences is included in the business cases. Where relevant to the business case, data may be gathered about long-term consumer trends. Other processes for innovation within ASDA include a yearly internal 'Dragons' Den' where any ASDA staff member can present an idea. There is also a 'just do it' scheme where any ASDA staff member can bring technical equipment ideas to a panel that meets approximately once a quarter. It is mainly head office staff who participate in this latter process. Staff must build a rough business case for permission to trial the idea on a small scale initially. Initial trials are granted for one store on a five-week trial. They must then bring results from the trial back to the panel for approval to continue the trial to the next level – rolling out the innovation to several stores and a longer period of time. Again, once results have been collected they must be taken back to the panel for further approval before subsequent roll-out. Where relevant, indications of customer sales may be required for the business case or subsequent results to prove the viability of the innovation. As this process is for technical equipment, consumer preferences are not taken into account. For changes such as store design, consumer feedback is again only sought after an initial trial of the changes and is usually in the form of product sales. For smaller innovations, or those that only affect one part of the business, such as finance or home delivery, similar panels exist to assess the feasibility of ideas before they are developed in more detail. To generate ideas for all sizes of innovations, but predominately incremental innovations, all senior staff at head office must spend at least one day a year working in-store with the aim of identifying at least one potential improvement.

A large financial organisation

In this organisation there was a three-tier system for generating and filtering innovations. To generate small innovations, each member of staff was required to suggest an inexpensive change. Every person in each team was given one day a year to implement a small change. On this day, they could take their immediate colleagues off-site if required to brainstorm ideas or they could simply put in place a change that they could see was required. For mid-size changes that required funding or would affect an entire division or business unit, suggestions were gathered from a variety of sources throughout the organisation. Each geographical location, and most divisions, had an innovation team, which was required to encourage and promote idea-generation. The suggestions would go before a panel, which met regularly. Selected ideas would go before the Innovation Board (an executive team). To generate larger, more radical innovations, leaders, including senior executives were taken off-site for various periods of time in a 'hothouse'. As part of this training, each group was required to generate at least one radical idea and develop it over the week. Three ideas were selected by the leaders on the courses each year; each was given funding and dedicated staff-time for further development. The ideas were assessed for feasibility by the Innovation Board at regular intervals. Innovation teams do not have revenue or targets as the firm believes it is crucial that innovation is not seen as something done at the centre of the business, but as something that is diffused or embedded in the culture.

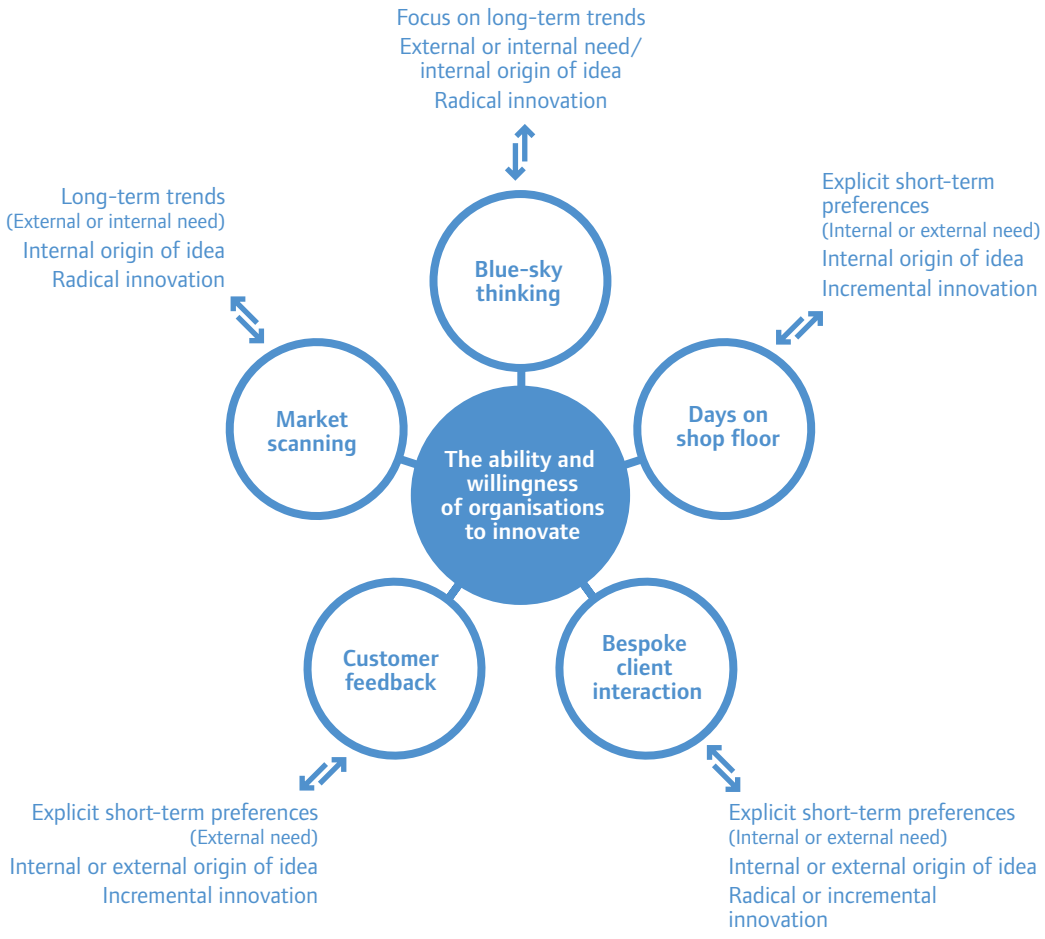
However, even though solutions might come from employees, as ever with change, some ideas met with internal resistance to the idea of change or innovation.

How do organisations identify needs and source solutions/ideas?

In two organisations, we found a systematic process for communicating ideas and deciding which ones to act upon. In a third organisation, processes were being used to test rather than generate ideas. The other two organisations strived continually for innovation, but it was a more random occurrence. Here, filtering mechanisms for deciding whether to take the innovation forward were more informal between colleagues.

Our case study organisations were limited in mechanisms for systematically passing on knowledge about the consumer in order to generate ideas or decide early on if ideas should be developed. (See market scanning section below for additional discussion of how the scanning of consumer trends, purchases and preferences influences innovations).
One organisation was starting to develop a systematic structured process for ensuring innovations happened across the organisation. This included a profile of different consumer types and a way of capturing latent consumer needs. This system has since been completed so that data about the top consumer needs and preferences feeds directly into those generating ideas for products. Another was developing a way of ensuring all ideas were tested very early with consumers. When we were interviewing staff, this approach had not been embedded and some ideas were not tested with consumers. Since then, the process has been more widely accepted across the organisation and most ideas are tested and developed with consumers.

Figure 3: Framework for understanding how customers' needs and preferences feed into innovation within organisations



How to read the framework model

The centre of the framework model (Figure 3) shows an organisation's ability and willingness to innovate. We focus on both attributes as the two are inextricably linked. The ability to innovate does not presuppose a culture motivated to innovate, and willingness can exist without the means. The framework represents processes within the organisation to interact with and capture consumer needs and preferences in their innovations.

The second set of circles represents the mechanisms by which organisations choose to engage with consumers (be that individual consumers in the mass market, businesses or government).

The five outer rectangles reveal four pieces of information:

- The nature of the consumer preferences that each mechanism was designed to obtain.
- Where the 'need' was.
- Where solutions to needs and preferences identified in this way tended to originate.
- What level of innovation each mechanism was associated with.

As an example, 'light bulb-moments' involved employees in considering long-term trends of consumer needs and preferences. The need was therefore a future consumer need, but responses originated with employees. This mechanism was associated with examples of radical innovation.

The model reveals how organisations incorporate consumer preferences and needs into their innovations. As such, it does not show what the drivers of consumer trends are, rather how organisations might pick up on those trends. Each stage of the model is discussed in more detail below.

The influence of consumer needs and preferences

In our case study organisations, consumer preferences or needs influenced both the design of products and how the consumer and the organisation interacted. Interestingly, direct consumer input was only sought at the testing or development stage of an idea, and not to generate new ideas. In one organisation, those attempting to get employees to think about consumer preferences or demographics said they faced an uphill struggle. None of the organisations were aware of any innovations that had occurred as a result of lead-user innovation where the users generate ideas or do the initial development. When we collected our data, there were no examples of attempts to get the consumer to generate initial ideas or be heavily involved in idea generation. Users were involved in innovations only in later testing and development of ideas. As mentioned above, one organisation has since started to work closely with consumers to develop employees' ideas. They have also started to select potential early adopters and get them to use new products and learn from their usage and suggestions. The fact that all ideas for innovations came from employees is somewhat surprising, given the high proportion of businesses that have cited customers and clients as a key source of ideas in the *Communities Innovation Survey*. Our findings suggest that the aggregate data about the role of consumers in the innovation process may be misleading because of the phrasing of the questions.[60] It appears that consumers are asked to develop ideas that employees generate. Ideas rarely, if ever, occur in isolation but instead are as a result of stimulation from different sources, one of which may be consideration of the consumer. However, the employees are the source of initial idea generation that is then tested and developed with the consumer. This may, of course, be the most practical approach for many organisations as it provides material for consumers to react to and develop.

As Figure 3 illustrates, there were five ways in which consideration of the user fed into innovations in our case study organisations, which we have labelled as follows:

- Days on the shop floor.
- Bespoke client interaction.
- Customer feedback.
- Market scanning.
- Blue-sky thinking.

We now explore the five mechanisms that organisations used to incorporate consumer preferences and needs into innovations.

60. A forthcoming study by NESTA will measure user-led innovation in the UK.

Days on the shop floor

This is a conscious decision by management to spend time at the front line of the organisation where interactions occur with the consumers or users. They may be meeting customers or spending time in the back office or shop processes, but they are working in the environment most directly connected with the consumers. The idea is to encourage those in the position to influence and bring about change to see exactly what it is like working on the front line, and think of ways in which this could easily be improved.

> *"You might say that the high-tech 'sat navs' that we have bought for every van might seem a great idea when you're sitting in HQ, but when you're on the road you can see that a small tweak, like a different device to hold them in the van, can make it so much easier and better so that drivers can get to their customers quicker. People using them know what they need to do their job better so this is a great opportunity to get that information."*

> *"People who spend 30 hours a week on the shop floor can tell you all you want about how things work; they have a good idea about whether things are going well or not."*

Ideas can also be filtered upwards by employees who spot things that could be improved (see above section for examples of the structured innovation processes). Some of these suggestions might be continuous improvements; others might be, or lead to, larger innovations.

Bespoke client interaction

This occurred in the organisations that had closer individual relationships with a smaller number of clients, rather than mass consumers. Here, direct conversations with clients or briefs from them helped the employees to get a detailed understanding of user needs. This was a mechanism for feeding consumer needs into goods or services, though it did not always result in innovation.

Two organisations pointed to numerous difficulties in achieving innovation in this type of relationship. First, briefs were often constructed in a way that made innovation difficult, if not impossible. For example, time to respond was often too short to allow new solutions to be designed. In addition, briefs or specifications sometimes contained conflicting elements. On one occasion, conflicting briefs had led to a large innovation, but it was considered an accident of the brief, not a result of it.

> *"Government specifications for secondary schools are contained in the 'Building Bulletin 98'. There are also supplementary ones, for example for acoustics, fire, etc. This is an example of us producing an unintended innovation. We had two 'Building Bulletins' that contradicted each other. They were developed separately, one on acoustics and one on natural ventilation. So, we spent a lot of time (and presumably other architects have too) in producing a bespoke design that fulfilled both bulletins. As a result we have produced something that fills a gap in the market to meet this need…the rest of the building was over-specified for its final use, but it has lots of flexible room for potential changes of use in the future. The schools are presented as 'bespoke' because they involve a lot of radical work, but the amount of consultation that takes place really depends on how enlightened the sponsor is."*

One organisation felt that there were no clear sectoral differences in priorities between business and government as procurers. Individual clients may emphasise design over timescales or delivery issues, but there was no difference by general type of client. One organisation felt that public sector bespoke work provided more opportunity for creativity than commercial clients as the letter usually tightened and narrowed the specification of the brief sooner with little if any consultation with the supplier.

> *"With public sector briefs there is more opportunity to be creative as there is more opportunity to do more with the specification up front. With commercial sector clients the briefs are already tightly set."*

The ability to scope projects in more detail therefore has the potential to create opportunities for innovation:

> *"A spin-off from another school contract was where we decided to do lots of additional research into the type of learning that would be taking place in the schools to help us design a solution to meet the brief and found we were drawn into discussions*

about furniture. We found a gap in the market for a new furniture range."

However, more ability to scope the specification carries with it additional risks. For one organisation it meant that the end design, whilst using more innovative methods and materials, and closely matching user needs, exceeded the client's budget and was therefore not commissioned in the end.

One organisation identified a lack of understanding of the true needs of the client as one of the factors that contributes to projects not being commissioned, not completed within budget, or not meeting their needs in the final product. Adding to the complexity can be the competing values of the organisations and the client. For example, the organisation might *"prioritise quality, then cost, then time whereas the client might prioritise cost, then time, then quality."* Across our case study organisations with examples of B2B innovations, the competence of the client and the client demanding innovation were important factors in innovations occurring.

"The competence of the client is therefore crucial as the briefs are often constructed in such a way that the input of the expert is limited in terms of time because of cost. For innovation to be embedded in the process, a culture change is needed throughout the chain. Rarely does innovation go right back to the client need…In the UK innovation is seen as risky from the client's point of view."

"Often when designing in areas where there are a lot of historic buildings, there are lots of groups (both community interest and public sector, such as planning) that feel new, innovative design threatens the current building language."

Three of our examples of innovations occurred from close relationships with businesses. In two cases, our case study organisations were providers, and in one they were the client. In all three cases, the innovations came as a result of the provider pushing the client to think in new ways, to be open to innovations and encouraging them to ask other providers for innovations. In these situations the businesses were pushing the users or consumers to experiment with innovative solutions. The organisations' clients, and in one case the case study organisation as the client, only felt able to engage in these innovations because of the trust that they had built up with the other party. In one case, the relationship with the client was a long-standing one of over 15 years.

"Some of our customers aren't mature enough to demand innovation. So we don't deliver innovation to all our clients equally. We want to get to the state where we provide the same levels of innovation whether clients ask for it or not, but that requires a lot of internal drive. It's difficult to persuade clients to want things done differently. It's also difficult to get others in the supply chain to change. We can only try to persuade them to adopt new systems or products; we can't require them to. With one of our clients who is very keen on keeping costs to a minimum, we've had a long relationship with them for about 15 years. And it has only been in the last eight that we've been able to encourage them to accept that we can help them design their spec so that things can be done differently. It saves them money too in direct costs and time. Now they require all suppliers to be innovative, but it took us a long time to coach them into doing it."

"One of our innovations came from a suggestion by one of our regular suppliers. They suggested a new way of procuring services, and because we trusted them, and the quality of what they do, we tried it. Since then we've adopted that model with our other suppliers."

Where the relationship with the client or consumer was closer (B2B and B2G) user feedback was sometimes sought earlier – during the initial development and testing of new ideas. This was specifically the case where the client was not the user or there were several users in addition to the client. For example, John McAslan and Partners look to test their ideas for new school buildings on students, teachers and parents, as well as with the local authority commissioning the work. Using the traditional government procurement process, the client is not involved in the design or build process after the contractor has been appointed. Instead, key stakeholders are consulted in the process to assess user needs. However, identifying the needs of the main users can be difficult because the main representative of users may be the current headteacher, but the users will be the teachers and pupils – and often a new headteacher. As such, the bespoke interaction with the client to develop the scope then goes beyond that direct relationship with a main user representative. John McAslan and Partners

also attempt to incorporate consumer feedback from the ultimate users into the development and testing of the idea too by talking to pupils, parents and teachers.

Customer feedback

Direct customer feedback about improvements occurred in two ways. First, an open invitation was issued to all customers to provide suggestions to the organisations about improvements or changes that they would like; the commonly known suggestion box (though the exact format may no longer be a physical box). Two organisations said that the suggestion box might influence smaller changes, but it rarely happened.

The second route was 'testing' a developed idea with the consumer. The latter input of customer feedback was mostly formally structured using traditional market research principles with either old or new methods. For example, one organisation used consumer focus groups with five to eight people physically in a room together to discuss the packaging of a new product. In another organisation, an online panel was gathered in a virtual environment to trial new packages that could be altered 'live' in session. In one organisation, testing with the consumer occurred relatively late on in the development process of the idea. In the other, it occurred at different stages of development, sometimes within hours of idea generation.

One organisation noted that a potential benefit of consumer feedback was that it helped to strengthen the business case and 'sell' ideas internally within the organisation.

> *"I use the customers to sell ideas internally to the executives. It has taken a while to persuade them that incorporating consumer feedback is more than just an 'experiment', but it is really valuable."*

Two organisations felt that consumers could be useful for developing ideas that employees had started – if they were offered different options, for example. These two organisations were developing new ways of working with their consumers to gain feedback and test ideas. These mechanisms were to be used primarily to gather information about preferences, or test new possibilities for offerings with consumers. Developing capacity for incorporating consumer involvement in development of innovations is an important step, but it still omits involving consumers in initial idea generation and either complete co-production or user-led innovation.

> *"The scope for involving customers is when you want to develop ideas. Once we have a product or an idea we can get feedback on how we can make it better. You still have to be careful with market research; it's difficult for customers to imagine things so they don't really know if they'll like it until they see it. Equally, even if they say they like an advert, for example, you don't really know whether it will change their perceptions and ultimately their buying behaviour until you launch it."*

> *"We tend to go to them [customers] with different options and see which they prefer or get their suggestions on changes. For products it's often with packaging etc. We'll show them several alternatives and get their feedback."*

> *"With some services we might ask them [customers] what else they might like within a service offering."*

Market scanning

All the organisations were involved in some form of market scanning (identifying trends). In two organisations this was a relatively formal part of the innovation process.

In another, some people in different parts of the business were given time to scan for trends in competitor products to see what products their own organisation should pursue, whilst others scanned for consumer trends (preferences or demographics). The process of filtering knowledge about consumer preferences across the company was not considered efficient, nor was it spread throughout the firms. Some information about the competition was generated solely for individual departments and was only shared if the information led to a large innovation that was new to the business. Where trends were spotted and market opportunity identified, further research to assess the viability of the idea would be conducted, which might include examining existing relevant data on consumer behaviour. Occasionally, primary market research might be conducted to assess consumer opinion on different potential innovations. In the department where

employees worked directly to study consumer trends, findings about consumer behaviour and preferences were not disseminated across the organisation or fed directly into wider innovation plans. Instead, the information about consumer preferences, needs and buying patterns was used to inform advertising of existing goods and services. Plans were starting to feed the information about consumers to other parts of the organisation in case it was useful, but there was little appetite for this to happen. Different parts of the business might occasionally commission research to understand consumer preferences, but it was usually to test an idea, not to provide input to stimulate ideas.

> *"The consumer insight team feed into the marketing team. We get a lot of ideas in the marketing team on how to advertise and reach or connect with our customers differently."*

In another firm, the leaders generally kept an eye on what was happening within consumer trends, the competition and regulation. As such, they would feed their ideas into systematic planning sessions. However, their scanning of the markets tended to amount to keeping up-to-date with current affairs and other relevant discussions, as opposed to the organisation having a programme of research on consumer trends. Market scanning in both these ways fed into examples of radical innovations that were new to the businesses and in one case new to market. In ASDA, outside experts were also brought in once a year to help identify trends in both consumer and competitor activity.

In B2B or B2G organisations, market scanning was done by looking for tenders and watching competitors. However, one organisation was trying to devise a new way of scanning for upcoming business trends by conducting research within businesses, rather than using aggregate market information on trends.

> *"We are starting to work on a way of capturing latent consumer needs. It would be similar to ethnography, but for the business market. We'd also look to collaborate more with our competitors at the same time."*

Blue-sky thinking

Innovations that resulted from blue-sky – or open-minded – thinking by employees were a result of their considering what might help the consumer. The examples of innovations generated this way were one-off radical ideas. In our large financial organisation case study, these occurrences were systematically generated by ensuring that the top leaders spent a week away each year on leadership training. Each set of leaders was expected to generate a proposition for one completely new idea. The ideas were developed over the course of the week and the three best ones (considered most viable by the other leaders) were given a sum of money to enable them to be developed further. While consumers were not used to test the ideas until they were further developed, the best ideas in recent years were considered to have originated from the leaders considering unmet or future consumer needs. However, some specific blue-sky thinking examples that we saw subsequently failed, either during testing or after launch, due to a lack of detailed understanding of consumer preferences.

Failed innovations: What is the role of demand in innovations failing?

We explored several examples of 'failed innovations'. An important theme consistent to several of the failures – and to some successful innovations that might have been more successful, or succeeded sooner – was a proper understanding of consumers. This is perhaps unsurprising given the need for consumers to buy products and services to make them viable. However, while the case study organisations knew their solutions needed to meet consumer needs and preferences, they had to choose between spending time understanding consumers properly before innovating and just trialling an idea. For the firms dealing with the mass consumer, ideas that had ultimately failed – despite testing them with the consumer – did so because of the gap between attitudes and behaviour: the research couldn't track whether consumers would act on their preferences. For the B2B and B2G examples, failure reflected both a lack of understanding in the market about the need for the innovation, and the organisation's failure to realise that the client would only accept the innovation if the price was right. This finding supports previous research that uncertainty of demand is a strong factor in innovations not being successful.[61] Other reasons for innovations failing included a lack of available funds from the client, lack of technology or flawed designs.

61. DTI (2006) 'Innovation in the UK: Indicators and insights.' DTI Occasional Paper No.6. London: DTI.

ASDA
"We don't use the word 'innovation'. We just always want to do things better; that's a given. We have a programme of large change and we make small changes, but I've never thought that we innovate. Now we're talking about it I think we can say that we do innovate. What we do matches what you're describing, but it's not a term we use here…"

PwC
"We don't have procedures for innovation. We are always looking for ways that we can do things better. All our employees are constantly striving to improve things for their clients. It's just a given. We never talk about innovation."

But do organisations talk about demand and innovation?

'Innovation' is a word that is heard so often that we all assume we know what it means. Its common use can risk it becoming relatively meaningless. What is sometimes referred to as innovation is just continuous business improvement rather than a distinct, if small, departure from the status quo. Moreover, it is easy to assume that all businesses aim to innovate or at the very least talk about innovation. What was particularly interesting in two of our firms was that they had plenty of examples of innovative activity, but they did not use the term 'innovation'. Indeed, in one organisation our interviews helped them recognise that they were innovating at all, despite some very radical innovation. This point highlights one of the difficulties not only in researching and assessing levels of innovative activity, but also in using the language that businesses will relate to when trying to influence levels of innovation.

The finding was more pronounced with the term 'demand'. None of the firms used the term nor did they understand what it might mean to their work. Terms they used included: consumer voice, consumer preferences, consumer insight, sales, consumer behaviour, client needs, and client briefs.

This difference between economic and policymaking terminology and the language used in businesses casts a shadow over existing research into innovation within organisations. This is not to question the validity of existing research – it is simply to point out the difficulties in accurately measuring innovation processes and interactions between demand and innovation. Moreover, our findings emphasise the complexities of interpreting quantitative data, particularly survey data collected from organisational self-reports on innovation activity, and perceptions of demand in that process. The disconnect in terminology needs to be recognised when devising and marketing new policies if they are to achieve maximum effect.

Summary of findings

This framework reveals that consumer needs and preferences feed into organisations' innovations through a variety of mechanisms. In summary our thematic analysis revealed the following patterns:

- Incremental innovations responding directly to consumer needs and preferences occur as a result of explicit short-term consumer preferences fed into the organisation through days on the shop floor, bespoke client interaction or customer feedback.

- Larger or radical innovations responding directly to consumer needs and preferences occur as a result of a focus on longer-term consumer trends that feed into the organisation through market scanning (either of the consumer or competitors), blue-sky thinking or bespoke client interaction.

The innovations we reported were a mix of changes to products (goods and services) and process. There were, predictably, fewer large-scale innovations than smaller ones. Larger-scale innovations had more checks and balances to try, test, launch and reassess the changes.

These five areas captured the ways in which these firms incorporated the needs and preferences of the consumer into their innovations. Organisations pick up signals

about purchase patterns and consumer preferences in different ways. Not every organisation used each mechanism we have discussed. In some firms, their use was formal and systematic; in others, their use was more random or coincidental.

The case studies revealed that organisations appear to be missing out on opportunities to maximise their competitive advantage by neglecting systematically to scan consumer trends or involve users earlier in the innovation process. Equally, government and business users were engaging in transactional relationships with their suppliers, rather than adopting more open relationships, thus making innovations more difficult to achieve within specified briefs. Aggregate data has pointed to a growing trend of organisations understanding the importance of consumer preferences to successful innovation. However, this may be too simplistic. Our case studies showed how difficult it is to tap accurately into the relationship between organisations, consumers and innovation. While we cannot generalise from our findings, our results suggest that the picture sometimes painted by commentators of high levels of consumer or user involvement in idea generation and 'push' for innovation may be too optimistic.

Tidd[62] succinctly captured the pitfalls of seeing innovation as stemming from only one source. He argued that associating innovation with key individuals could lead to a *"failure to utilise the creativity of the remainder of employees, and to secure their inputs and perspectives to improve innovation."* It could equally be argued that users may be less inclined to contribute to developing an innovation if employees get all the credit. Tidd argued that internally generated ideas run the risk of *"the 'not invented here' effect"*, where good ideas from outside are resisted or rejected. Equally, where ideas are only generated externally *"innovation becomes simply a matter of filing a shopping list of needs from outside and there is little internal learning or development of technological competence."*

Can we generalise?

There are always exceptions to rules or patterns. We expect this to be the same with our framework. We have presented a way of organising our findings from the way innovations happened within our case studies and the details of the specific innovations analysed. The framework is based on in-depth insights from how consumer preferences really influence innovation in organisations. As noted at the outset, the findings are not intended to offer any generalisations, but to capture the detailed nature of how consumer needs and preferences can influence the ability and willingness of organisations to innovate.

Some factors, including the origins of the demand (consumer, business, or government), size and sector of an organisation, formality of processes for innovation and type of innovation, emerged from the case studies as potentially differentiating factors in the way in which consumer needs and preference influence innovation in organisations. It should be noted that due to the nature of the methodology no firm conclusions can be made about the nature or direction of their influence. These factors have been presented in the discussion of the framework above, but the data are not suitable to test conclusively specific hypotheses about their influence.

Where next?

Our framework is based on research in sectors likely to have both 'hidden innovation' and, arguably, less user-led innovation (in contrast to high-tech industries). Capturing intangible concepts such as innovation is always challenging, but the framework provides a consistent way to begin to understand the processes involved. Community Innovation Survey data suggests that businesses know the importance of the consumer: 32 per cent say that they use consumers as a major source of information for their innovations, and 22 per cent regard them as a 'medium' source.[63] However, the survey does not detail what this means in practice. Our research highlights a potential gap between knowing and stating that consumers are important, and using information collected about their preferences to generate new ideas.

Our framework is based on in-depth qualitative work within organisations that provides an understanding that would not have been possible from large-scale quantitative work. Our work is based on five firms that were willing to take part in the research. While it is likely that the patterns we identified can be found in other organisations, any interpretation should bear in mind the limitations of qualitative research. A next step would be to explore how the findings might apply across all

62. Tidd, J. (2006) 'A Review of Innovation Models.' Discussion Paper 1. London: Tanaka Business School.
63. CIS data (2007). Available at: http://www.dius.gov.uk/science/science_and_innovation_analysis/cis

sectors and all organisations. Further research could build on the framework to test some of the findings in different settings, in particular in high-tech industries.

Section 4: The serendipity of interaction: Conclusions and recommendations

Overview

This section reviews insights from our framework, and provides a summary of the key lessons for policymakers and organisations from our research:

1. Organisations are missing out on opportunities for advanced insight to maximise their competitive advantage.

2. There is a need to educate consumers and government about how to demand innovation and improve the lines for communication.

Consequently, we present three main recommendations for policymakers and organisations :

1. Establish and proactively manage relational interaction.

2. Quest for unrevealed, latent preferences and consumer ideas.

3. Embed demand into the innovation process.

There is no universally accepted theory of innovation – any more than there is a universally accepted economic theory of asset price bubbles. Causes are contested. But we believe that a precondition for innovation is what we call the 'serendipity of interaction' – the chance coming together of ideas and people to advance a new idea. It is this that sparks bright ideas while the testing and debating of those ideas, with organisations and their markets helps turn them into useable shape. If innovation is to be maximised, whatever the chosen mix of supply-side policies, we have to be more self-conscious and deliberate about creating the circumstances for spontaneous interaction – and in particular, interaction with users. It is important to recognise that innovation is not an end in itself; rather it is to enlarge the possibilities and capabilities of users. In this section, we review our findings and set out three main recommendations for public policymakers and organisations.

Reviewing the changing economy: What insights does our framework provide?

We are limited in the extent to which we can generalise and draw firm conclusions from our findings. However, our framework may be able to help us to understand the shift to our knowledge-based economy, with the rise of intangible assets and changing consumer demand.

All the advanced OECD economies have seen a major shift towards more knowledge-

intensive industries, more knowledge-based work, high-tech manufacturing, and high value-added knowledge services. Investment in knowledge based assets or 'intangibles' is now equal to or exceeds investment in traditional products in economies as diverse as the UK, the US, Finland and the Netherlands. However, despite the widespread deployment of new technologies with highly educated workforces and the free flow of ideas, best practice and people, economic and productivity growth has been modest. One reason could be poor measurement and understanding of the link between intangibles and productivity growth. However, this limited growth may also reflect the failure of many firms to use consumers as a source of innovation. Research into the knowledge economy by The Work Foundation suggests that a key driver has been the growth of more demanding, well-educated consumers. However, our evidence suggests that such consumers have not yet been converted into drivers of innovation, at least in firms that are not primarily driven by technology.

We noted in our introduction a shift and blurring of the boundaries between manufacturing and services. Manufacturing may be closer to the consumer by integrating high value-added services with high value-added manufacturing. A recent report on manufacturing and the knowledge economy[64] shows how manufacturing companies are increasingly trying to respond to consumer preferences and tastes as a way of differentiating their product. In some cases, the links are complicated. For example, Rolls-Royce has had to innovate constantly in response to demands from consumers for improved fuel efficiency in its aero-engines – as a result, it has developed a world-class service consultancy arm to solve power supply problems on the back of that expertise. However, if manufacturing in general is following the conventional service sector model revealed by our research, then the links between product and service innovation within the manufacturing sector will likely be no better than in the rest of the economy. Thus, any resulting growth is also likely to continue to be modest. In other words, a manufacturing sector more directly responsive to consumer markets may be no more innovative than it was when its innovations were supply-driven.

64. Brinkley, I. (2009) 'Manufacturing and the Knowledge Economy.' London: The Work Foundation.
65. Von Hippel, E. (1982) Appropriability of Innovation Benefit as a Predictor of the Source of Innovation. 'Research Policy.' 11, pp.95-115.
66. Ashby and Mahdon also note that spending is a weak proxy for demand at the macro level and recommend collecting data on willingness to buy new products and services as a better proxy for demand. Ashby, K. and Mahdon, M. (2009) 'Measuring the Nature of Demand in the UK: The challenges of an indicator approach.' London: NESTA.
67. Georgihou, L. (2007) 'Demanding Innovation: Lead markets, public procurement and innovation.' London: NESTA.

Organisations are missing out on opportunities for advanced insight to maximise their competitive advantage

Our key finding contradicts the interpretations placed on the aggregate data about business interactions with consumers, which suggest that: (i) organisations understand the importance of consumers in successful innovations, and (ii) are increasingly reliant on their consumers for information and for user producer-led innovations. Instead, we found that organisations continue to be either passive in their interactions with consumers or leading such interactions rather than being driven by consumers. Von Hippel's[65] research suggested that users contribute most either when they propose ideas for new products or create prototypes. Our findings indicate some organisations might be failing to maximise their competitive advantage by not fully incorporating the user in their innovation process.

Education is needed on how organisations and government should demand innovation and use non-market lines of communication

Organisations and policymakers need to move beyond looking at patterns of buying behaviour to inform knowledge of trends in consumer demand.[66] The signals from spending pattern data miss out on latent consumer preferences. Where information is collected by marketing experts – a well-developed field of expertise – this information needs to be fed back into the innovation process from the start. Our case studies show limited evidence of this happening.

It is important to remember that the user is not just the mass consumer, but also includes businesses and government. Raising their competence as demanding consumers and encouraging them to suggest innovations in their bespoke client interactions could stimulate innovation. One of our examples arose from the supplier pushing our case study organisation as the user to be more innovative in its use of the service. Indeed this supports Georghiou[67] who advocated not only educating consumers to demand innovation, but raising their skills to do so.

The firms we studied benefited from a close and long-term relationship with their users (in one case as a user). Here the businesses could

educate and raise the competence of their clients in how to create briefs and be open to the opportunities for specialist innovations. Where government wishes to raise the levels of innovation generally, helping organisations to know how to be open to innovations and how to get their own users to be open to them, might stimulate levels of innovation in bespoke client interactions. Our framework reveals that this could lead to radical, as well as incremental, innovations. The former are more likely to be adopted more widely, again helping improve general productivity.

Public procurement processes need to include learning from suppliers

Our findings also reveal that organisations and government need to improve the effectiveness of their communication with innovators. The key is to establish strong two-way communication so that businesses not only 'hear' signals about what innovation is demanded, but more importantly are able to get their messages about what innovations are possible through to the commissioning organisation as part of a collaborative exercise.

Our data pointed to several limitations in the signals that public procurement can give to businesses about the innovative solutions needed. As discussed, this can include conflicting briefs and limited time to develop new solutions. Bespoke client interactions offer a way to engage with clients to develop specific detailed briefs and define user preferences. However, the public servants commissioning government briefs are not always the users, nor do they always hold enough information about user preferences. Edler also notes that *"more interaction with suppliers is called for, to define the tender text."*[68] Yet, there are legal limits to avoid giving competitive advantage to any one player. Different mechanisms are required to meet user needs in public procurement. Specialists, including industry bodies, could help in the development of appropriate briefs that would allow for innovations. This could avoid any accusations of favouritism that might arise from an involvement between an individual firm and the purchaser in advance of the contract being awarded.

68. Edler, J. (2008) 'Demand-Based Innovation Policy.' MIoIR working paper. Manchester, UK: Manchester Institute of Innovation Research.

Policymakers need to raise organisations' awareness of policies aimed at changing individual behaviour

Policies aimed at influencing individual consumer preferences and behaviour can have both immediate and longer term effects. The impact depends not least on the type of policy (for example, taxation, or awareness raising) and the targeted change (for example, reducing fuel emissions, or increasing uptake of health screening). Our interest is in the impact that policies aimed at changing individual preferences and behaviour are likely to have on innovation. The exact impact will naturally depend on the innovation in question, as well as the organisation and wider market conditions.

Our framework reveals that long-term trends in consumer preferences and behaviour influence innovations within organisations primarily through market scanning and blue-sky thinking. Companies that engage with lead users may be able to predict future trends through their input, though our case study organisations did not interact with lead users, nor did they employ many people to do market scanning. Only within one of our organisations was market scanning directed specifically at consumer behaviour. In the others, it was directed at the competition. Organisations may have been aware of general news on policy changes, but this was not seen as part of their innovation processes. However, innovations do not happen in isolation, so any such information is likely to influence people's thinking. Government needs to factor this into how it communicates policy changes that demand innovative new products or services from firms.

Our findings suggest that changing consumer behaviour would first impact those organisations that intend to be market leaders rather than followers. However, even then, the process of filtering that knowledge back into the organisation is neither efficient nor organisation-wide. Some organisations will clearly be better at this process than others, but our findings suggest there is room for improvement. Moreover, policymakers relying on changes in individual behaviour to stimulate innovations, particularly where changes may take a long time to come into effect, are unlikely to find this to be the most effective mechanism. Instead, stressing the intention and the potential new market to organisations may be more productive. Highlighting the potential new market and the government's support in

creating this new market are likely to feed into organisations' blue-sky thinking.

Our case study organisations provided examples of innovations that had occurred through blue-sky thinking, particularly where employees were taken offsite to generate ideas for innovations. In one firm, executives were given structured time to generate and elaborate on these ideas. In others it was more opportunistic, but the ideas were filtered into more formal processes for deciding whether to proceed with an idea.

A timely example is the digital television switchover. Providing consumers with information about the switchover includes the timing, what happens, their choices, and what they can do. But informing consumers alone would not be sufficient to ensure a successful switchover. Consumers take time to reveal their preferences through behaviour. If the government were to rely on organisations picking up on the trend through consumer purchases alone this would likely delay the supply of set-top boxes and digital TVs. Employees of companies making and selling such equipment are also consumers themselves and so will be aware of information targeted at mass consumers. However, for a successful switchover, it cannot assume that people will translate their own experiences into ideas for their organisation. Working with organisations to ensure they are aware of the timescales and the choices consumers are being informed about should help ensure the government meets its objectives. With the digital change, working with the industry has meant lots of clear advice by broadcasters, electrical stores and advertising, a phasing out of analogue televisions and the availability of inexpensive boxes to enable simple conversions to digital TV. That approach is one that should inform a wide range of government campaigns to change behaviour.

Recommendations: What should policymakers and organisations focus on?

Recommendation one: Establish and proactively manage relationship interaction to allow more opportunity for innovation within the procurement process, and through better education of purchasers and suppliers of the potential for user-driven innovation.
Interactivity and co-produced innovations require dialogue, exchange, deliberation, and argument. This in turn presumes a relationship. It is not enough when discussing demand policies to argue that organisations and governments need to be alert to the innovation consequences of their procurement decisions. Such alertness has to be translated into a readiness to engage in an open relationship rather than a market transactional one. For example, it is not enough to specify innovation consequences in the specification for a purchase that otherwise will be based on price. The purchaser must also build a long-term relationship with the supplier, professional bodies and others, in which all parties commit to discussing potential innovations through two-way information flows, challenges and debates. Detailed specification should be kept to a minimum in initial procurement commissions but should emerge from such dialogue. There should be agreed rules for innovation-sensitive interaction and processes. Public and private organisations should therefore examine the way they interact with and gain ideas from their consumers and suppliers. Policymakers should educate organisations on how to use relationships to encourage innovation in their procurement and support the sharing of best practice.

Recommendation two: Organisations should do more to uncover hidden customer preferences and ideas to stimulate innovative responses.
Innovative solutions exist – they just have to be found. Revealed preferences for existing goods and services – the focus of most consumer research by companies and organisations – are important and interesting. However, the innovation process needs a kick-start from the market. Most consumer feedback reflects existing preferences. Organisations must construct conduits through which positive and negative feedback can be fed into the innovation process as without mediation or structure. Public policy can supplement this by making the consumer association, *Which?* and the Citizens Advice Bureaux much more proactive. Consumers need to be able to suggest, complain and offer blue-sky ideas quickly and easily. Organisations should understand the importance of the users and maximise ways to reflect their own needs and preferences. Our research reveals that organisations do not fully appreciate the creative potential of the consumer, often only obtaining consumer feedback to test products at late stages of development. We have identified the principal mechanisms that organisations are using and what type and sizes of innovations they have led to. Further

research is needed to identify which conduits for interaction lead to the most successful innovations. More research is required to identify whether our results are more generally applicable, but they do suggest some gaps that concern us.

Recommendation three: Embed opportunities for interaction with consumers into our business culture so that it feeds the innovation process

Systematically creating opportunities for serendipitous interaction, in particular with consumers' needs, to become institutionally embedded as a key part of our business and organisational culture. The earlier such contributions can be fed into the innovation process, the more successful an innovation is likely to be. Creating the interactions with consumers and understanding hidden preferences is not enough. Businesses and other organisations must embed the search for this interaction and information within their processes and culture. Innovation champions must work to ensure employees see early consumer input as an essential and good part of the criteria for successful innovation. Opportunities for interaction with consumers must be systematically created, and their insights passed to all those involved in all stages of the innovation process. One way for public policymakers to facilitate this change is to encourage organisations to develop and articulate their innovation process, and for this to be part of their market offer. It could be a part of companies' annual reporting requirement – alongside financial reporting – though it may be difficult to construct this without damaging competitive advantage. Investors should examine innovation processes as part of their assessments of firms. NESTA should consider stimulating such disclosure by publishing an annual survey of innovation processes (even if initially anonymising the firms), encouraging more publication of intangible assets, spotting trends and disseminating best practice. Of course, measuring such processes and the degree to which an acknowledgement of demand is truly embedded in the innovation process is challenging. But the potential rewards are great.

Technical appendix: Method for qualitative case studies

Design

We undertook in-depth qualitative research to understand more about how information about consumers' needs and preferences affects organisations' ability and willingness to innovate.

Quantitative and qualitative approaches have strengths and weaknesses that make them suitable for answering different research questions. While quantitative methods, done well, can provide speedy generalised results, the data is susceptible to inaccuracies and bias. Surveys, for example, can be a useful way to collect data on attitudes, behaviours, and perceptions. But their reliability depends on using previous research to know what to measure.

In this project, there were two reasons why we believed that data from a large-scale survey would fall prey to these weaknesses. First, we didn't know enough about the impact of consumer preferences on innovation to frame the right questions. Second, it was not possible before we started our research to identify any single post holder generic to many organisations to whom we could send a survey and who could provide us with an accurate picture of all the innovations and consumer responsiveness of their organisation. Their potentially superficial insights would not be sufficient. This is why we opted for a qualitative approach, enabling us to identify through discussion the most suitable people to interview within each organisation. Such a qualitative approach enabled us to delve in considerable depth and to redesign the research during data collection where we needed to do so.

Within selected organisations we interviewed:

- Senior members of staff responsible for innovation or change – to identify significant innovations, based on an organisations' own criteria of success or failure, that had taken place relatively recently within the organisation (preferably within the last 5–10 years).

- Members of staff, where possible, involved with particular innovations selected or with innovation processes.

We conducted 5–10 interviews per organisation, which lasted an average of 1.5 hours each. On some occasions, interviews had two people from the participating organisation present. The number of people and number of times each were interviewed differed across organisations depending on the time interviewees had available and the relevant knowledge they had. We also collected written material from organisations, where available, as additional supporting evidence in our analyses of the innovation process or the particular innovation under consideration.

The interviews were semi-structured and followed the discussion guides below. In order to extract the best data from each interviewee, the exact questions asked varied across interviewees. Therefore the questions below should be read as a guide, not as an interview script. Definitions of size, type, and success of innovations were determined by interviewees during data collection, and later checked by our research team to ensure alignment with Community Innovation Survey categorisations as a standard external typology.

The first stage of interviews covered the following areas, allowing us insight into the overall situation of the organisation and the context within which innovation is taking place:

Pressures on organisation

1. What are the organisational objectives for the foreseeable future?
2. Could you tell me about the biggest pressures facing your organisation?
3. What are you doing to address these pressures?

[Purpose: to see whether demand is of concern relative to other factors.]

Innovation process

1. How do innovations occur in your organisation? Are there formal processes to encourage innovation in your organisation?

[Probe for supporting documentation.]

2. What are the key motivations for innovating in your organisation?
3. What are the biggest barriers to innovating within the organisation?
4. Check diagram of drivers – which have greatest impact on innovation; what's missing?
5. At what stage, if at all, does external customer demand play a part in the innovations? Expand on role of demand in innovation.
6. Which of the policy areas noted in the diagram, if any, affect your abilities and your willingness to innovate? How? Probe further.
7. What, if any, changes in government policies would increase your ability or willingness to innovate? How? Probe further.

Specific innovations

Explain purpose of case studies again.

1. Could you give some examples of (radical) innovations that have occurred (relatively recently) in this organisation? Were they typical for the organisation in the way that they arose?
2. What were the outcomes/measures of success? Probe.
3. How did the particular innovation come about?
4. Can we speak to those involved? (If necessary The Work Foundation will select the appropriate innovation to follow up.)

The second stage of interviews probed specific innovations in more detail to understand how the innovations happened, the relative role that demand-side factors played in the origin of the idea, and the development and success or failure of the innovation. Again, the interviews were semi-structured so the following questions should be seen as a guide, not an interview script.

Specific innovation

We've been told about X [innovation] and that you were all involved in this coming about in one way or another. We'd like to find out more about: how you think this idea/process came about, when you first became aware of the idea or thought up the idea, and how that developed.

1. **So, could you start by telling me when you first became aware of the idea, or thought up the idea?**
   Prompts: Who? When? Where? How? Why? *[Exploration of whether idea was externally or internally influenced.]*

   - What influenced the generation of the idea?
   - What was the purpose of the idea?
   - What was hoped would be achieved through this idea?
   - Who would benefit?

2. **How did you decide to spend time on developing this idea as opposed to another? Or as opposed to doing other tasks?**
   Prompts: Who? When? Where? How?

   - What, if any, criteria were used to decide whether it was 'worthwhile'?
   - Was this decision regularly reviewed?

3. **How did it develop from an initial idea to xxx?**
   Prompts: Who drove it? Who inputted?

   - Were there any incentives to encourage its development?
   - What key tests/major milestones were there? When? How? Resources?

   [Ask about documentation to back up process.]

4. **What have been the outcomes of the idea?** [E.g. increased efficiency, better work environment, increased sales, better customer relations…]
   Prompts: Did it achieve its intended outcome? Who has benefited from it? Who has lost out because of it? Have the outcomes been formally monitored and identified? What happens to the information about outcome?

   - Did it spark further innovations?

5. **What, if anything, could have been done differently?**
   Prompts: Did anything make it tricky to achieve? If so, what? (Or what barriers had to be overcome?) What could have made it go more smoothly? What would the outcome have been if done differently?

6. **Is this way of developing new ideas and putting them into place the norm?**
   Prompts: If no, why was it different this time? If yes, is it ever done differently? How and why?

When 'demand' comes up as a topic (or if it does not, then use these questions at the end) probe the following issues:

General innovation

1. **Why do you come up with different ways of doing things or different products?**

   Some possible examples:

   - Management asks us for new ways of doing things.
   - Management asks us to find more efficient ways of doing things.
   - Management asks us to cut costs.
   - We need new ideas to stay competitive in the market.

2. **Who do you consider your customers to be?** *[Internal vs external]*

3. **How important is the external customer's needs or wants to what you're doing?**

   Some possible answers: day-to-day; underlying principle; when thinking up new ideas; when putting new ideas into practice.

4. **Who in your organisation assesses what the external customer wants?**

5. **Who in your organisation finds out what the external customer thinks about what the organisation is doing?**

6. **Do you get this information passed on to you?**
   Prompts: How? Do you have to ask for it? Do you get it automatically? Do you ask them what to go and find out? When? Where?

7. **If you ask for/get this info, when do you get it?**
   Prompts: Before, during, after new idea? Before, during, after implementation of new idea…? What do you use this information for?

Participating organisations

We engaged five organisations from different sectors:

- A large financial organisation (Financial).
- PricewaterhouseCoopers (Professional services).
- Taylor Woodrow (Construction).
- John McAslan + Partners (Creative – architect).
- ASDA (Retail).

The sectors and organisations were identified based on their fit with the following criteria:

Sector criteria:

- Policy relevance – there is policy interest in this sector and there are official and semi-official sectoral policy forums and institutions. Productivity rates in the sector have significant impact on the wider economy.
- Previous research – the sector has been intensively researched to provide us with good background knowledge of innovation within the sector (but demand has not been researched).
- Value-added – where a sector has been intensively researched, we demonstrate added value by specifically researching the role of demand.
- Innovation metrics – there is hidden innovation in the sector not captured by traditional innovation metrics.
- Practice relevance – we can make contact with the sector easily and we know of organisations likely to be willing to participate in research.

Organisation criteria:

- Previous research – the organisation has been intensively researched to provide us with a good background knowledge of innovation within the sector (but demand has not been researched).
- Value-added – where an organisation has been intensively researched, we demonstrate added value by specifically researching the role of demand.
- Demand relationship – the final selection of organisations would face different end-users: transactions with big business or government and/or small businesses or individual consumers, and whether the relationships are close and/or arm's length.
- Location – a desirable match would operate in a different governmental policy context to the UK. Multinationals would offer an opportunity to make comparisons between environments.
- Anecdotal reputation for innovativeness – the organisation has a reputation for being innovative or for an innovation that has made significant contribution to profit for their organisations, i.e. had significant market impact for them (it may be internal processes as well as external offerings that have made the difference).
- Competitive environment – the final selection of organisations would operate in differing competitive environments.

Organisations with a good fit to the above criteria were initially asked to participate. Engagement with the research was difficult. Whilst there is perhaps some element of response bias in that the organisations that did participate had an interest in the subject, we do not believe this had a large distorting effect on the findings.

Acknowledgements

The authors would first like to thank NESTA for sponsoring this work. We would also like to thank the members of our advisory group – Hasan Bakhshi, Mark Beatson, Jakob Edler, Tim Hogan, Paul Johnson, Chris Voss, Fernando Galindo-Rueda and Paul Webley – for their guidance on this project, which has proved invaluable. We would also like to thank Nick von Tunzelmann for the time and advice he has given to this project. Finally to acknowledge employees at The Work Foundation who have contributed to our thinking on this project and the practical aspects, in particular: Will Hutton, Fiona Visser, Sezis Okut, Kat Ashby, Neil Lee, Alexandra Jones and Naomi Clayton.

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NESTA/The Work Foundation Working Paper: March 2010