

LISTEN! ENGAGE! BE! OPEN FOR INNOVATION WITH INFORMATION TECHNOLOGY



report by
Carsten Sørensen, Rob Gear and David Elton



Enterprise

PA Consulting
Group

INTRODUCTION

PA Consulting is pleased to present its research on the role of ICT in business in the digital world. Mobility, web 2.0 and the concepts around social networking have exploded it seems almost overnight. Ignoring this new context is not an option. In our three reports *Listen!*, *Engage!*, and *Be!*, collected together in this volume, we explore the implications of this new technology and examine the opportunities it presents for organisational innovation.

We look first at the potential for organisations to become better at listening to their customers – an activity that can be both risky and rewarding. This underpins the potential to offer services that are more adaptive and in consequence, achieve higher levels of customer satisfaction.

In our second report, we develop the ideas around listening, extending them to include active IT enabled engagement with customers. This creates the potential for collaboration and personalised customer relationships on a large scale and great opportunities for innovation. It opens the possibility of intimacy with efficiency, breaking down barriers between customer and supplier, and creating exceptional customer service, tailored collaboratively, to deliver mutually adjusting services, at reasonable cost.

In our third report we explore the implications of IT enabled listening and engagement on the value potential for services and products. We highlight the risks of applying the new technologies, strategies for mitigating the risks and how these reshape the organisation and enable it to excel at what it does best – serving its customers.

These opportunities for ICT-led Innovation are changing the nature of what it means to be an organisation in the 21st Century. We look forward to seeing how the future that our research has pointed to unfolds.

David Elton

Member of PA's Management Group

TABLE OF CONTENTS

Listen!.....	1
Engage!.....	33
Be!	65

LISTEN!
OPEN FOR INNOVATION
WITH INFORMATION
TECHNOLOGY



“We are moving towards a society where somebody posting something about a product on Twitter expects this to be heard and reacted to. People become tired of waiting 20 minutes to speak to a customer representative and then for their conversation to be recorded in a giant database where they have no transparency as to what happens to the information they supplied. The behaviour is now changing to you posting on Twitter or on your blog in the expectation that within 24 hours, somebody from the company is going to come back to you.”

LARS PLOUGMAN,
SENIOR CONSULTANT AT HEADSHIFT,
THE ENTERPRISE SOCIAL COMPUTING CONSULTANCY

1. INTRODUCTION

This report explores how organisations need to reconsider how they listen to their customers, how being better at listening to customers requires reconsidering the role of information technology (IT), and how IT-enabled listening brings with it challenges and risks.

Companies must listen to their customers' desires and needs in order to be able to compete. The volume of advertising to customers and citizens confirming that their voice matters suggests that organisations are serious about this issue. We are, however, probably not alone in arguing that there is an increasing discrepancy between these marketing messages and the perceived reality.¹

The gap is typified where customers actively seek to have their voices heard. A customer waiting at the end of a telephone line to speak to a contact centre representative will frequently have the accompanying music interrupted by a soothing voice reassuring them that their call is of the utmost importance to the organisation.

2. THE SERVICE SOCIETY – CHANGING CUSTOMER EXPECTATIONS

The evolution from the large manufacturing sector of the 20th Century, with standardised and automated mass-production of goods, towards the current situation in the 21st Century, with around three-quarters of those employed in developed economies working in the services sector, has been characterised since the 1960s by terms such as the knowledge-, service-, network-, post-industrial- and information-society. ²

This shift has seen customers engage in more complex and individualised services relationships with organisations, creating a growing problem for many organisations that previously would not recognise customers as individuals, but rather as members of ever complex customer segments.³ For traditional product-orientated organisations, services have generally provided a means of maintaining growth in the core product rather than something they specialise in.⁴

3. VARIETY OF SERVICE TYPES – REMIX WITH IT!

What constitutes good service? This may of course depend on individual opinions and on different situations. However, Dr Ted Johns from the Customer Services Association suggests that companies known for world class customer service basically do things in similar ways:

“To be world class means that you are easy to do business with and that involves four things: You deliver the promise; you go the extra mile, you do it with a personal touch and you put things right if anything does go wrong. None of it is rocket science and that is what irritates me about some of the companies we deal with. They seem to make it so difficult.”

While opinions as to what constitutes good service may vary from person to person, individual customers generally do not compartmentalise expectations of good service within individual sectors they deal with. According to Ted Johns: *“Customers of Ryanair will eventually end up making the same service demands as they do of other companies because if they have had experiences of superior customer service they translate those into other sectors even if the other sectors do not want then to do that.”*

Superior customer service is most often associated with a combination of organisational and technological capabilities with discretionary personal touch. There is traditionally a strong and natural association between personal touch and human discretionary effort. The most extensive ability to adapt to customer needs and desires has traditionally relied on highly personalised services with high human effort, care, and discretion. Expensive hotels and restaurants have more staff per guest than cheaper ones in order to ensure a close human connection between the customer and the services. This is quite different from organisations providing production-line services, such as fast-food outlets, where there may be less need to listen to individual customers, or the application of customer self-service, such as internet banking where the customers are entirely in charge themselves, within the limits of features offered.⁵

There is little doubt that customers increasingly expect good service. Professor Peter Cochrane of Cochrane Associates, argues that the big business challenges are knowledge management, business modelling, decision support and customer-relationship management (CRM): "...and I do not know any company that really does CRM well. So all of these things seem to me to be the Achilles heel of the future. Not having good knowledge management, business modelling, decision support, is going to kill you. Not being able to look after the customer adequately is also going to kill you."

What is then the role of innovation with information technology in order for the organisation to better listen to the customer? Can high human effort be replaced to some extent with technology?

As demonstrated in areas such as internet banking, personal investment portfolio management, online shopping, and Internet travel booking, information technology can indeed play a key role in providing good service without intense use of human discretionary effort.

However, much more interestingly, we will argue that innovation with information technology provides opportunities for challenging established services models, such as; highly personalised services; production-line services; and customer self-service. This report argues that innovation with IT can mix and merge different types of listening to customers and that good quality service can be affordably delivered through IT support for listening.

IT can facilitate new ways of listening to customers by reducing costs and automating the interaction. The potential has been illustrated in quite optimistic accounts of the "market of one", where each customer will obtain uniquely defined products and services.⁶ In some aspects, the market-of-one has, according to Ted Johns, already arrived: *"The future will be more and more sophisticated segmentation of customers into smaller groups, which in fact the Internet enables the suppliers to do. At Amazon I am a segment of my own. I buy a particular book and they tell me about all the other books this guy has written and what other people have bought."*

4. FOOTPRINTS IN CYBERSPACE – CHEAP ONE-WAY DATA COLLECTION WITH IT

Marketing is the traditional home of an organisation's efforts to understand customers. Marketing strategies can generally be characterised in terms of the four types of: transaction-, database-, interaction- and network marketing. The first two are based on a transactional- or encounter perspective, and the last two on a relational perspective.⁷

Organisations traditionally engage with customers through transaction marketing efforts that seek to position the organisation in the customers' consciousness. Marketing is therefore most often based on the understanding of customer segments. The extensive use of database technology to identify and target customer segments is frequently used as an addition to transaction marketing.

Most organisations will also offer customer service support for individual customers wishing to contact the organisation when they experience specific problems in relation to company products or services. More often than not, there is little or no integration between these marketing and customer service functions.⁸ Customer brand loyalty evidenced through regular repeat business will only register with the company as increased sales, and not as increased knowledge about the individuals themselves. The relationship is one entirely managed by the customer.

Investment in marketing the brand, and in ensuring operational excellence in logistics so that customers always have simple and straightforward means to engage with the brand and select products and services, are essential aspects of building a relationship between the customer and the organisation. Marketing is engaging in more and more fine-grained customer profiling to enhance the organisation's understanding of its customers. The in-sourcing of customer profiling by Cadbury described in our earlier report is a pertinent example of the strategic importance for organisations in understanding customer preferences and deploying extensive database marketing.⁹

As customers increasingly conduct a significant part of their lives online, or leave a record of their real-world transactions as 'digital footprints in the snow', it is also becoming easier to rely on various automated means for obtaining information about customer behaviour or preferences.¹⁰ Over the past decade, many retail chains have launched



customer loyalty cards as both a means of establishing brand loyalty, and as a mechanism for easily collecting information about how customers spend money.

Gradually the process of recording data about such customer encounters can be used to guide a more complex process of marketing. Google's success is indeed a direct result of a convergence of individual customer web-search behaviour and marketing expenditure when organisations remunerate Google for exposing customers to their brand.

Lars Plougmann, senior consultant at the enterprise social computing consultancy Headshift¹¹ argues that companies can employ social media as a means of listening to what the world is saying about them: *"what we can call social media monitoring, which is ways of tapping into open conversations on the web and use the power of search engines to identify when something relevant is being said. {...} the tools are being built already that will facilitate that kind of listening. {...} If you are selling wonderful products, people will take to them and be passionate about them. They will photograph them and they will talk about them. It creates a stream you can tap into and a little slice of that stream will show you how people use your products in unanticipated and beautiful ways that you can take back and use in your innovation process."*

5. FORGING RELATIONSHIPS – TWO-WAY STREETS ARE MORE FUN!

There is more to life than a series of brief effective transactions through encounters between customers and organisation. This idea has been extensively explored in discussions about relationship marketing.¹² Ongoing relationships are essential mechanisms to foster trust between parties.¹³ For example, having a family doctor or the same hairdresser for years implies engaging in a trusting relationship where the services provided can be tailored to individual needs and preferences.

Extending the brand relationship has taken new forms in the retail sector where some organisations actively seek to engage customers in an ongoing relationship through various mechanisms beyond simply recording spending behaviour through store loyalty cards.

Apple Stores are far more than simply traditional outlets for customers to purchase products in straightforward purchase encounters.¹⁴ The stores offer free Internet connections to all customers over open WiFi networks. All computers on display can be used for Internet browsing. A theatre constantly educates customers how to use Apple products and services. There is a place to get one-to-one tuition and a help desk where customers can get their technical problems solved.

Apple stores generally seem busy because people can use them as a free Internet cafés. They represent more than just a warehouse from which products can be obtained, but instead provide a physical hub from which a relationships with customers can be explored and cultivated.

Similarly, Starbucks does not encourage people to buy coffee and leave quickly but instead to stay longer by offering comfortable chairs and the opportunity to purchase WiFi Internet connections. This has created an atmosphere where people feel relaxed, and allowed Starbucks to build a brand where many people regard it as an unofficial corporate meeting room and a place to work and do business.

FIGURE 1: Shifting from brand-based encounters to performance-based relationships potentially introduces feedback, arguments, praise and mutual adjustments.

From Brands to performance?

BRAND ENCOUNTERS



PERFORMANCE RELATIONSHIPS



Google has shown that it is possible to redefine the role of marketing and advertising through technology, and highlights the potential for IT to support ongoing adaptive relationships between the customer and the service provided by the organisation. IT, in the form of information services, can mediate an ongoing relationship where the service provided can be adapted to customer needs, desires and wants. What people may be missing is just how subtle and distributed the role of these information services might be.

Let us illustrate this concept with a very intimate example of such technology-mediated adaptive capability. SynchStep is one of the thousands of unofficial iPhone applications, which essentially makes the iPhone into an iPod music player with a twist.¹⁵ SynchStep uses the data generated from the iPhone accelerometer to pick songs from the user's library matching the pace of walking or running. As the pace varies, the application picks the next song to match, and the user will no longer have to synchronise their running or walking rhythm to whatever song is playing. The application will listen and adapt to the user by choosing a song matching the user's pace providing a more fluid soundtrack to everyday life.

Peter Cochrane sees significant advantages of this kind of distributed monitoring and adaptation: *"BT and the like are planning to put all sorts of stuff in*

people's homes monitoring. However my iPhone already has accelerometers so it can monitor my habits and if something changes, something could have happened to me. Every day as an old person, between 8:00 and 8:30 Peter gets up, switches on his phone and starts moving. He walks 16 paces to the kitchen makes a coffee, makes three more paces, picks up the letters, walks 8 more paces, sits down and reads the paper 15 minutes. He does that every day. When habitual activities deviate, the application activates a question; are you feeling OK? Do you need help? That immediately negates all the work of all these big companies that want to monitor you opening the fridge door. This starts to impact on insurance rates, your healthcare, everything."

The reality of mediated relationships is of course much more complex. Engaging with customers in services relationships, as opposed to individual product encounters and transactions, imposes significant challenges. Service relationships are ongoing conversations where the end-result is continually shaped and influenced by these conversations. Recording, understanding and adapting to customer preferences is both an essential part of the relationship and will become very expensive if the majority of the business process relies on human effort. Figure 1 illustrates the shift from brand-based series of encounters to two-way relationships.

One of the key issues is therefore the mediation of these service relationships through information technology. For this to be successful, the organisation will need to engage in some form of codification and collection of customer data and preferences, which will be essential for supporting the engagement. Standard customer records, perhaps linked to more complex Customer Relationship Management (CRM) systems, is a traditional means of supporting the management of organisational listening.

However, for the organisation to more fundamentally be able to engage in an evolving and adaptive relationship with the customer, it needs to utilise information technology much more comprehensively to support uncertain and shifting requirements. This will require the re-arrangement and integration of organisational and technical capabilities.¹⁶

Lars Plougmann argues that customer expectations are changing rapidly; *"We are moving towards a society where somebody posting something about a product on Twitter expects this to be heard and reacted to. People become tired of waiting 20 minutes to speak to a customer representative and then for their conversation to be recorded in a giant database where they have no transparency as to what happens to the*

information they supplied. The behaviour is now changing to you posting on Twitter or on your blog in the expectation that within 24 hours, somebody from the company is going to come back to you".

To most people born before 1980 this may seem a distant and even strange notion, but for younger generations, who are "digital natives", this is less far-fetched.¹⁷

For the information technology industry itself, the shift away from being entirely based on product encounters has already proved quite profound. IBM has re-invented itself as a services firm, Nokia is in the process of doing the same, and Apple has with the iPod and the iTunes Music Store, demonstrated the power of an ecosystem of products and services jointly defining an attractive customer proposition. Google is defining a platform of services for a variety of purposes. As argued by Microsoft's chief technologist, Ray Ozzie; *"Just packaging software, collecting the money, and then producing a new version a few years later (whether people want it or not) is no longer a sustainable business plan. The relationship with customers must be constant and continuous"*.¹⁸ This is indeed the case beyond the IT industry.

6. THE COMPLEXITY OF LISTENING – TO WHOM, WHY, AND FOR HOW LONG?

For many organisations, listening is not merely about the end-consumer. Listening is often an activity conducted at different levels and relating to a complex ecosystem of stakeholders, who each may require specific means of interaction.

Various versions of the Symbian operating systems have been shipped in a total of more than 250 million mobile phones the past decade, and for a development organisation, listening to all of their customers individually will require highly focused inquiries. According to its Executive Vice President for Research, David Wood, Symbian organises the way it listens to and engages with its customers, developer community, key partner executives, and handset manufacturers in different ways depending on the level and number of people involved. David argues that Symbian organises the way it listens to customers in terms of a pyramid structure; *“We have seven customers in terms of companies who are shipping our software, and at the top-level we operate with a group of sixty key-people who can make or break our business”*. Below these sixty people is a group “ten times as large who are the project leaders and technical advisors.” This group meets regularly with Symbian managers and David emphasises

that *“we will pay great attention to their feedback to us”*. At the next level is; *“what we call the Symbian 10,000, which is all the developers involved in the device creation market.”*¹⁹ This group is supported by an exclusive variant of the web-portal Symbian Development Network (SDN)²⁰, called SDN++. The ordinary SDN is targeting interaction with the hundreds of thousands of developers who wish to write software for Symbian phones. As the basic platform for developing Symbian operating systems is open source licensed through the Symbian Foundation, there is a large and active community of volunteer developers, for example served through the Symbian Foundation blog as well as David Wood’s own blog.²¹ According to David, listening is a crucial activity for technology companies like Symbian, for example as; *“We find out the parts where the bleeding edge is too bloody.”* Dr Mark Turrell, CEO of the innovation management company Imaginatik²², agrees and points out that; *“You should listen*

to your customers and don't just manufacture what you can make. This is thirty or forty year old knowledge. We don't seem to have got too far beyond that. So, clearly, the need has been there. We are just doing it badly." He emphasises that "one of the critical problems for the world of the consumer is to actually have a dialogue with 15,000,000 consumers."

Lars Plougmann, Headshift, argues that consumers are increasingly using information technology to force companies to listen to and reckon with them. The video-sharing web-service YouTube is frequently used by customers to vent their anger. Searching YouTube for videos on "customer complaints" yields a result of over 300 current videos.

There are many other examples of individuals gathering in web-communities under the banner of discontent with a particular company, and Lars highlights the emergence of web-based intermediaries supporting customers in making their voices heard, such as Fix My Street²³ and Get Satisfaction²⁴, which enable citizens and consumers to get attention for a particular problem with or without the blessing of the organisation involved.

For organisations, there will be good reasons to participate in these on-line discussions and on Get Satisfaction the number of company employees registered a forum for that particular company will be listed. Lars argues that as an organisation, *"you are judged not only by your products, but you are judged how you engage in the conversation, especially right now where it's not the norm to engage in the conversation. The organisations that get it right are put on a pedestal. Those who do it wrong get spoken about in a more negative way. But the opportunity is fantastic, because it's a much richer world."*

Harry Barkema, Professor of Innovation Management at both London School of Economics and Erasmus University, agrees that such intermediaries can be of great benefit to organisations; *"It's a way of testing new ideas with an audience or getting new ideas from an audience that includes people who buy cars from other companies as well."* Harry mentions Edmunds on-line community Car Space²⁵, *"which has independently built a community in the car world with lots of car enthusiasts sharing their opinions. Edmund's business model is to sell the knowledge of the community in aggregate forms to car producers."*



7. PRIVACY OR CONVENIENCE? LISTENING IS A VERY TRICKY BUSINESS!

It would seem that the next logical step from simple mass-marketing to more complex customer profiling will be through robust two-way relationships enabling organisations to listen to the preferences, needs and opinions of customers so as to help shape the products and services provided to them. It is also clear that information technology can both support the automation of parts of the relationship, and enable extensive customer self-service in other aspects. An obvious question is therefore, why isn't everyone doing this, and for the ones who are, why are they not doing it particularly well?

The main reason is that getting listening right is highly precarious. Put more simply, every attempt to listen can potentially further alienate your customers!

Listening to customers implies learning about them, and is essential for providing a better service, but this can be considered by the customer to be a breach of their right to privacy.

When a user registers online an Oystercard for travelling on the London transport system, the travel payment card can be linked to a customer payment card and the customer can instruct the system to automatically top-up the card when it contains less than £5 in credit. This saves time and mental energy by not having to queue at ticket offices and kiosks to put money on the card.

Registering the card, however, creates a direct link between the customer's identity and the stream of location data generated when the card is used around London. For some people, this is a problem as they do not trust that this data being used for other purposes, for example, to associate a person with a particular place where a criminal act was conducted.²⁶

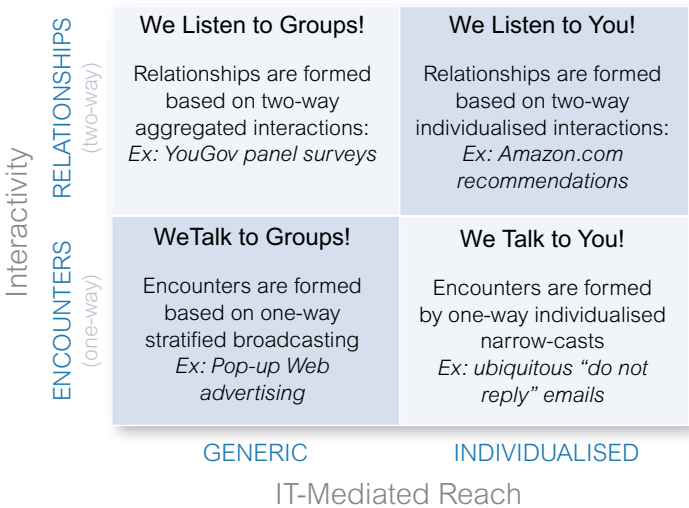
However there is a trade off – by accepting this invasion of privacy, the user can achieve a closer relationship with the organisation and hopefully achieve better and more convenient services.

This fundamental balance between privacy and convenience will always occur when the relationship is mediated by information technology. Since there are not yet any established trusted third-party organisations ensuring identity and semi-anonymity, it is not a problem that will be solved immediately.²⁷ David Birch argues: *"The real identity of a counter party is probably the least interesting fact about them in a commercial transaction. In most transactions I actually don't care who you are. What I care about is things about you, like, have you been to my shop before? What did you buy last time? – things like that."*

Many customers are already wary of organisations disturbing them with telephone calls. They may be even more suspicious about the consequences of handing over data trails of recorded behaviour and preferences. On the other hand, any mobile phone user with a contract already entrusts their operator with call logs and their phone's locations, and any store loyalty card holder will for a small financial return have handed the store detailed information about their spending patterns.

Peter Cochrane: *"It is funny that people worry about Google knowing what they email but not the bank knowing what all their transactions are. They have built a confidence in the banks but not yet in Google. I have been asking audiences when I give talks, and around 30% of business audiences use Google Desktop, which gives Google all the information about the company from top to bottom."*

FIGURE 2: Classifying the combination of IT-mediated reach of organisational interaction with the degree of interactivity provides four distinct ways of engaging.



8. INDIVIDUALISE OR AGGREGATE?

It has been argued that one way of alleviating this problem, although not solving it, is to ensure that all private data collected belongs solely to the individual, with just the aggregated and anonymised data belonging to the organisation aggregating it.²⁸ This division would in most cases allow the individual to remain private while providing essential services for the benefit of everyone and at the same time keep individuals free of unwanted interruption.

However, this is in some senses the worst of both worlds. There are plenty of controversial examples of this scenario being considered highly problematic from a privacy point of view. Public outcry against the company Phorm collecting web-browsing habits of British Telecom and Virgin Broadband customers was mainly based on the fact that broadband users were completely unaware that this was being done, and the reassurance that observations were anonymised did not sway the public debate.²⁹ North American researchers analysing behavioural

data from 100,000 anonymised British mobile phone users without customer consent ended up both getting a mix of fairly positive as well as negative press coverage, with the negative comments based upon the lack of consent.³⁰ Researchers from the UK-based CityWare project ended up getting negative press for using Bluetooth scanners to screen anonymised mobile phone user movements without explicit consent in order to aggregate the data and understand people's movement in cities.³¹

At the same time, it will not provide crucial level of adaptation to the individual who is willing to use such services. As David Birch states: "If there is going to be a richer interaction between me and the corporation, which is great, then you need to target me and you need to know who I am. If we just put to one side the million of man-years of effort going into "what do you mean by who you are?" at places like LSE and everywhere else and just take it at a broad level, then if there is not going to be a breakthrough in 'who you are' then I can't see how we can go further in this customisation. {...} I want the corporations to target me right. I want the right junk mail."

Ultimately, you cannot construct markets of one through the aggregation of anonymised data, even if there is significant scope for innovation in ways of associating personal information and anonymised identities. The website eBay, for example, supports individuals in building up extensive profiles based on user-ratings. Whereas eBay will have details about the credit card associated with an account, the user will not be required to reveal their identity to other customers.

Such semi-anonymity can remove some of the concerns for privacy, but still requires significant trust bestowed both in eBay and in any other organisations who might wish to retrieve the data.

It can also be argued that not all data is equal. Semi-anonymous customer reviews of commercial transactions in Cyberspace are different than logs documenting patterns of physical movement of an identified person, or indeed those patterns linked to a fingerprint or a DNA profile.³²

Distinguishing between generic- and individualised IT-based engagement with customers, as well as one-way encounters as opposed to two-way relationships, provides us with four distinct ways of engaging; One-way talking to groups or individuals or two-way relationships with either groups or individuals. This is illustrated and exemplified in Figure 2.



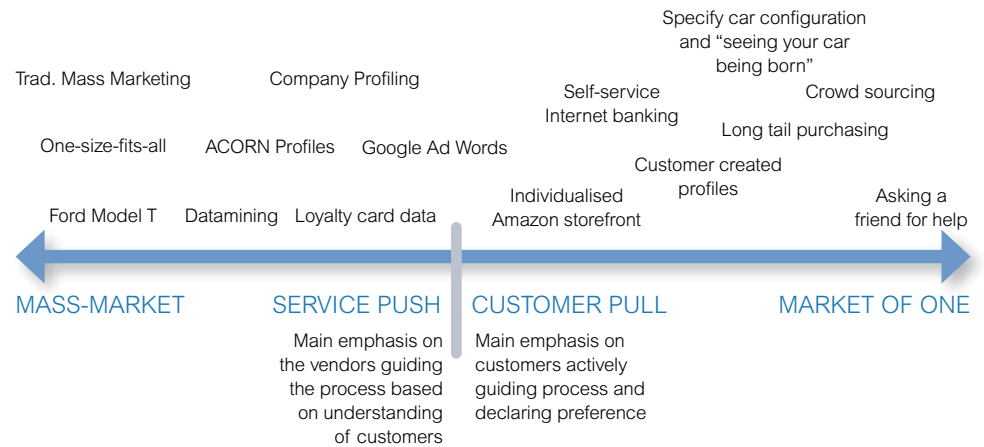
9. OPT-IN OR OPT-OUT?

Listening to people clearly has significant implications in terms of the privacy of individuals and explicit consent through opting-in is an essential element to success. While some may be very keen to get the convenience of individualised support, others are much more wary of data being collected about them. As it seems impossible to guess what category a particular person falls into in advance, the only safe bet is to inform people and offer them choice.

The iPhone will ask the user several times to confirm that its Google Maps application can determine the physical location of the handset. In the case of an experimental system combining Bluetooth scanning with RFID technology at Copenhagen Airport, advanced features tracking passengers have been implemented – not as anonymous aggregation but a dedicated individual service. The service allows Bluetooth and RFID tracking of children and elderly passengers travelling on their own so their family members outside the airport can see whereabouts in the airport they are. The service operates exclusively on an opt-in basis.³³ The cultural aspects of how such services will be received can not be disregarded and will most likely play a significant role.³⁴

Whilst ensuring opt-in is an essential criterion for success, it does not automatically imply leaving everyone with a free choice. A significant uptake can result in choices being available in theory, but not in practice.³⁵ The choices may be associated with price differences, such as the significant difference in cost of a paper-ticket for London Underground compared with the Oystercard price. Also, whilst people can freely decide whether they wish to carry a mobile phone or not, the pressure of others' expectations combined with the rapid decline of public telephone boxes can make this into a Hobson's Choice.³⁶

FIGURE 3: Exemplifying the distinction between organisational service-push and customer-pull mapped onto the increasingly fine-grained segmentation from the mass-market of all to the individualised market of one.



10. SERVICE-PUSH OR CUSTOMER-PULL?

Even if the services offered through listening to customers are exclusively opt-in, there are still plenty of challenges in getting it right. The use of technology to listen to customers and subsequently adapt to their expressed (or unexpressed) needs and desires is a complicated affair. Douglas Adams expressed this well in *The Hitchhiker's Guide to the Galaxy* where the main character Arthur Dent discovered a tea-making machine providing a liquid *"almost, but not quite, entirely unlike tea"* when trying to second-guess exactly what kind of tea the customer wanted based on examining their taste buds, metabolism and brain.³⁷ Properly understanding the customer through semi-automatically making sense of the information provided about them is very difficult at the best of times. Creating meaning out of patterns of observations through classification is inherently associated with uncertainty.³⁸

For example, a bank ascertains if a person other than the owner is using a credit card in an unauthorised manner by studying the stream of data on the financial transactions.³⁹ If the categorisation of valid and problematic transactions is too relaxed the bank risks losing money. As this is not desirable, the bank is more likely to be cautious and wrongly assuming that there is a problem. Such false positives will often lead to the customer's credit card being disabled temporarily until the transactions have been confirmed as valid.

In the automatic or semi-automatic classification of customer behaviour and any associated inference drawn from the categories, it is essential to draw the line between services or actions requested by the customer and those initiated by the organisation. The first kind can be characterised in terms of customer-pull and the second as service-push.

This distinction is similar to the push-pull line from manufacturing where products are either pushed by the manufacturer or demanded (pulled) by customers.⁴⁰ In the credit card example above, banks will frequently engage in a service-push unilaterally blocking the card until the customer explains him or herself.

When a customer notices a transaction, which looks strange, they can call the bank, and hereby engage in customer-pull. Obviously, banks guard this classification process with secrecy to safeguard against unwanted re-engineering allowing extended illegal use of stolen cards. However, two of the strong triggers seem to be using the card for Internet transactions or when travelling – two of the primary reasons for obtaining a credit card in the first place. One obvious improvement is to help minimise false positives could be the addition of a simple control panel on the customer's Internet banking page allowing the indication of impending erratic, but authorised, behaviour. Such customer-pull could greatly inform the automatic algorithm in its attempts to make sense of the stream of transactions.

Generally, it can be assumed that service-push for classification and inference may be effective for the organisation as technologically embedded business rules here actively can enforce the organisations' interests.⁴¹

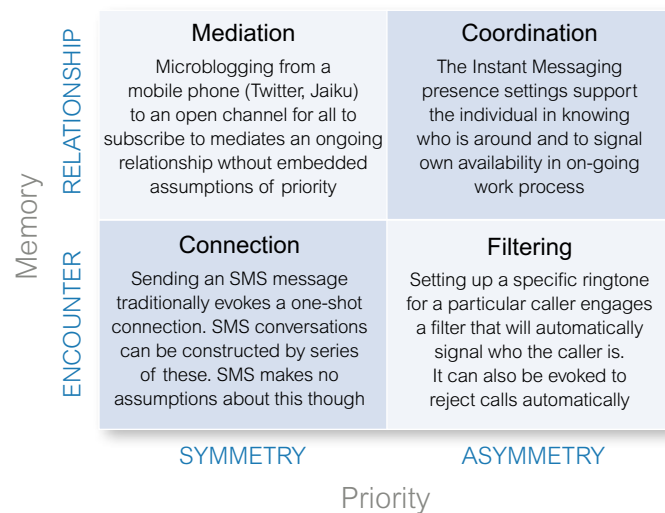
However, for the customers unilateral service-push by the organisations they deal with is not necessarily deemed suitable. Indeed, the credit card example above illustrates this problem well. At the instance of the service being evoked by the bank, there is a micro-conflict of interest between the bank and the bank customer. The bank seeks to minimise loss, which from a more high-level perspective is in the interest of the bank, the customer and shareholders. The individual customer will, however, experience immediate loss of convenience.

To summarise, too much reliance on service-push can aggravate and unnecessarily disturb the customer. Too much customer-pull may, however, result in financial loss for the organisation or reduced quality of service for the customer – e.g. most insurance customers will probably wish to know if their insurance is up for renewal. It is therefore essential for the organisation to carefully design the push-pull service interface with the customer.

Innovating listening to customers through IT also implies establishing new channels for customer interaction and partly automating the processing of the information gathered about the customer. Getting this balance right relates critically to the organisation's operational excellence and its ability to understand customer needs. If customers are subjected to service-push, which they deem inappropriate or wrong, they will lose confidence in the organisation's ability to deliver services.

If an organisation has a good grasp of how to support the process of understanding its customers and delivers operational excellence then customers are more likely to accept a given push-pull arrangement. Figure 3 illustrates with examples how organisations can choose to position specific customer interactions in terms of the push-pull line between organisational service-push and customer-pull.

FIGURE 4: Organisational information services embedding assumptions of interaction symmetry and –asymmetry can support organisations cultivating their boundaries.



11. SYMMETRY OR ASYMMETRY? OPERATIONAL EXCELLENCE IN LISTENING!

It can be argued that much of the listening organisations traditionally engage in is conducted from the perspective of internal efficiency of the organisation. Whilst customers would prefer to be immediately connected to contact centre agents, they frequently end up listening to low-fidelity renditions of easy listening classics, and messages encouraging them to hang up and visit the company website, instead. Often they are asked to enter various kinds of information on the keypad or into interactive voice response (IVR) systems.

Organisations have naturally sought to reduce costs by automating and improving efficiency of operations through information technology innovation.⁴² There is in principle nothing wrong with this as market forces push innovation with information technology to reduce costs in order for these to be passed on to customers.⁴³

The mass-deployment of telephone-based contact centre staff can be seen as a 20th Century knee-jerk solution to the 21st Century problem of customers demanding unprecedented levels of access to organisations to spend their money, ask questions, complain about the services received, and generally have their voices heard. As Marcus Hickman, Executive Research Director at the Customer Contact Association says: *"A chief executive of a large bank was saying that if I look at where I get my customer complaints, it is not really about the branch it is not about products. It is not about the Internet site. It is really about the call-centre. That's where I get the complaints"* Customer contact centres are very expensive to run and yet often generate highly negative customer experiences as well as high turnover of staff. Furthermore, according to Marcus Hickman,

"a call-centre agent will often have to toggle between up to 15 screens to find information, which is often a very slow process, and frequently the customer knows more about the product than the agent." It is indeed possible for an organisation to spend an excessive amount of money ensuring that it listens to customers!

Many organisations will not only be hiding behind guarded fences to ensure the health and safety of their neighbours, it is also necessary to ensure undisturbed operations. Any organisation will spend considerable time and effort carefully cultivating its boundaries to the outside world. However, new technologies, new business models, emphasis on good service delivery, and a general push for organisations to be more transparent impose challenges to existing perceptions of organisational boundaries.⁴⁴ Innovating how the organisation engages with its surroundings whilst ensuring operational efficiency relates directly to the contemporary challenge for organisations to balance concerns for improvement and innovation. Organisational ambidexterity is essential for organisations balancing radical innovation and continuous improvement. This involves

both adapting to changing conditions through innovation and ensuring short-term operational alignment.⁴⁵ An essential way of understanding operational efficiency can be defined as designing cost-effective mechanisms for listening to and interacting with customers.

Innovating with information technology to enable the organisation to better listen to customers implies redefining existing organisational boundaries both in terms of organisational procedures, and the roles involved, as well as the supporting technologies themselves. Traditionally, organisational borders are governed by the principle of asymmetry so while the organisation may reach its customers directly, purposefully designed or emerging barriers hinder customers reaching the organisation.⁴⁶

Carefully crafted organisational procedures supported by information technology help manage the organisational effort invested in listening to customers. The mobile phone operator can reach customers directly with an SMS to ensure they stay on the operator's network when roaming, or indeed change if the mobile phone has decided that another operator offers better coverage.⁴⁷ Organisations can deploy "do-not-reply" emails ensuring perfect asymmetry of one-way personalised interaction.

Tesco grocery delivery drivers exemplify carefully crafted organisational asymmetry. The customer will provide their most convenient contact number, which the driver can call directly in case of delays, early arrival, or if lost. Such calls will be done via a mobile phone with caller-id blocked so the customer cannot see the number. The anxious

customer who is keen to get hold of the driver will, however, have to go through the process of calling the general Tesco customer services number where an agent can take the query further to the store from which the driver is managed. A manager at this store can then in turn contact the driver and pass the message back up the chain of command again. There is a whole list of obvious reasons for maintaining this asymmetry, for example, operational efficiency, shielding the driver from excessive customer calls, removing reliance on inter-personal relationships in delivering services and to maintain organisational control over driver performance.⁴⁸

Customers will generally associate good service with some form of symmetry in the relationship. Indeed, good customer service can even be explained in terms of the asymmetry turning the other way around. Internet self-service banking can be seen as the bank offering IT-based symmetry in customer access to basic banking services. We have yet to discover the full potential of IT transforming rigid organisational asymmetry in interaction with customers into affordable symmetry. Figure 4 illustrates the portfolio of design-choices available in the design of Information Services at the organisational boundary. We consider these in terms of interaction symmetry and asymmetry, and whether services offer instant encounters as opposed to mediating ongoing relationships with memory of previous interactions. The four distinct mechanisms of connections, filters, mediators and coordinators each display specific characteristics in terms of cultivating organisational interaction barriers.

12. FLEXIBILITY OR LOCK-IN – TWO-WAY LISTENING CHANGES RISKS

Innovating the ability to engage in relationships with customers, and establishing two-way relationships with them through IT and organisational measures both critically depend on and facilitate trust. Loyalty cards and other relationships that build and maintain customer profiles can also serve the purpose of ensuring a higher barrier for the customer to choose products or services from another organisation, thereby increasing 'stickiness' and reducing churn.

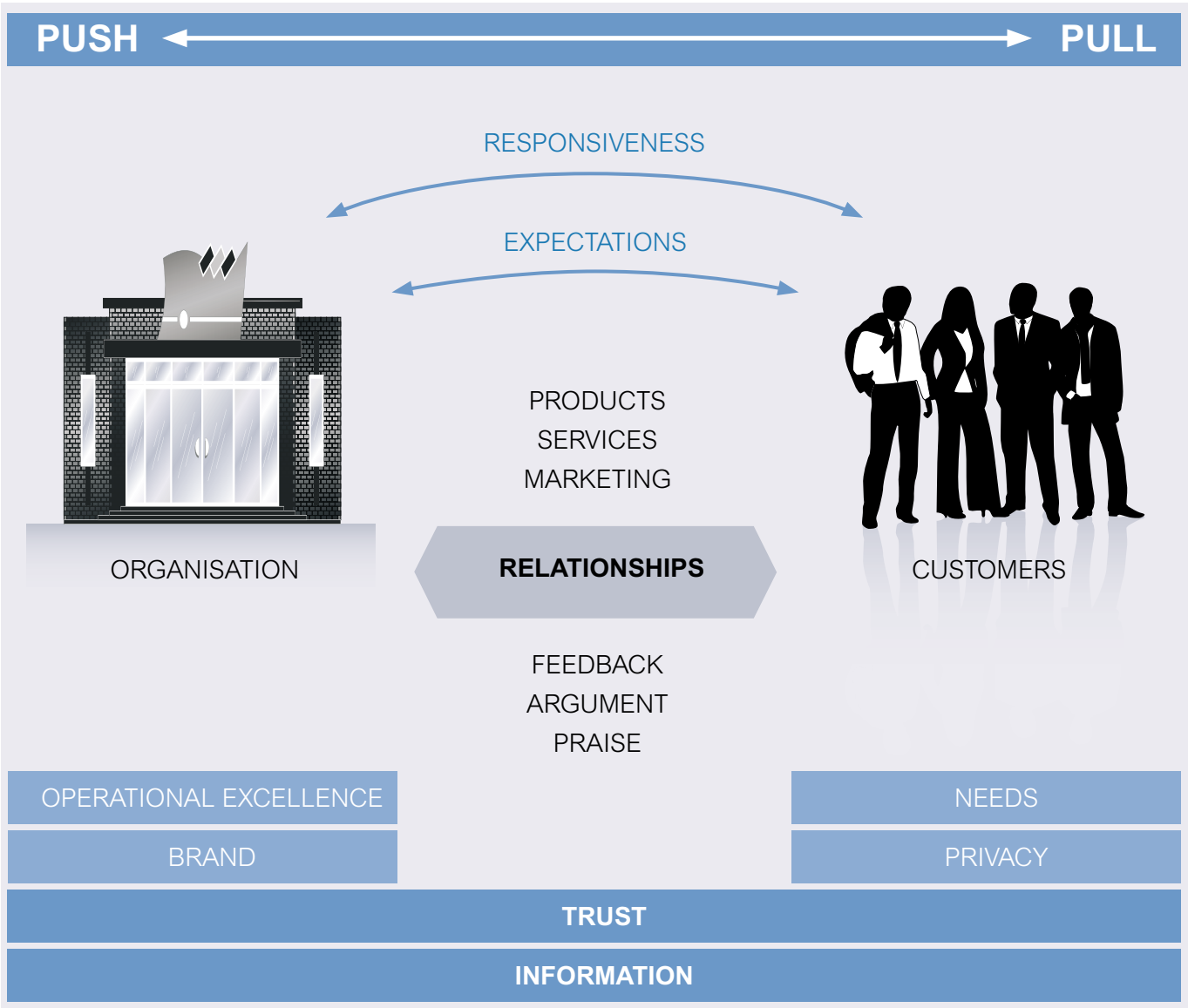
For example, once the customer has spent time and effort building up a weekly grocery shopping list on Tesco.com they are more likely to continue shopping with that organisation.⁴⁹ The customers' investment of time and effort in refining their profile and inference rules result in greater loyalty, or customer lock-in. As the switching cost increases the longer and stronger the relationship grows.⁵⁰

Services that aggregate services from other organisations and hereby providing additional ease of use for individual customers can strengthen such lock-in. The Egg MoneyManager is an example of such an aggregation as it affords a simple interface for the customer to all his or her accounts with both Egg and other banks. This provides the customer with an instant overview of the balance of all accounts with one single login and thereby ties the customer closer to Egg as leaving the bank would result in a step back to multiple logins and lack of instant overview.

The customers can also be engaged in a collective lock-in. The mutual recommendation offered by Amazon does not directly tie customers together the same way as other services such as social networking sites, e.g., Facebook, Myspace, LinkedIn and Bebo.

When a social network of profiles, shared activities and preferences has been carefully knitted over time, this investment will represent a barrier for people leaving. Social networking sites will generally seek to reinforce this barrier by making it difficult for people to move their network along to another service provider. The technology blogger Robert Scoble was, for example, temporarily banned from Facebook when he attempted to run a computer programme exporting his list of friends. Subsequently Facebook has launched its Connect service allowing profile data to be integrated into a number of approved sites.⁵¹

FIGURE 5: Virtuous circles of interactions between organisations and customers demand new behaviours based around shared principles and for both parties to fulfil their part of the contract.



13. VIRTUOUS CIRCLES OF INTERACTION WITH INFORMATION TECHNOLOGY

How can organisations engage in creating relationships of virtuous circles of interaction and communication between the organisation and its customers? Below we summarise the essential aspects of a virtuous circle of interaction where IT supports the organisation in listening to customers:

Trustworthiness is critical

In the 21st century hyper-connected world, gaining customers trust is a necessary requirement. The organisation must also ensure that it is trustworthy, as listening requires recording and processing customer information in order to support an ongoing relationship with the customer. Traditionally brands have been an important mechanism in gaining trust, and there are no reasons to believe this will undergo radical change. Transparent performance measures may be just as essential. However, we agree with David Birch who sees brands as a poor substitute for a good effective underlying trust-management infrastructure. In an interconnected business world of services, trust and trustworthiness is not only relying on the individual organisations but also who it associates itself with. Getting a trust management infrastructure in place is an essential precondition for innovating the way an organisation listen to customers.

Operational excellence

Innovating the ability to listen to customers more effectively through IT requires operational excellence. This involves the ability to automate parts of the process of collecting, managing and processing customer data as well as carefully orchestrating the inference drawn from that data.

Operational excellence also relies on the ability to integrate all elements in the customer experience. For example, those in the organisation who are in direct customer contact should have all the necessary information to engage with the customer integrated in a usable manner. The knowledge generated through customer contact should be communicated to the rest of the organisation.

Operational excellence also implies the ability to provide automated discretion in a variety of forms. The propensity of false positives when banks attempt to second-guess unauthorised use of credit cards demonstrates that there are plenty of challenges yet.

Across sectors, operational excellence will also eventually have to involve the establishment of new institutions delivering an infrastructure for managing trust. Such trusted third parties can support customer semi-anonymity and thereby increasing trustworthiness.

Good understanding of customers needs and desires

Listening to the customer is risk-free if the organisation is trustworthy and it ensures that it does so with the customer's blessing. While store loyalty cards may be Marmite-innovations strictly dividing the population into two camps of those for and those against, the direct customer-relationship is relatively weak and the data collected mainly supports increased internal efficiency.

Listening to customers with IT must also have a more comprehensive purpose of not only ensuring internal efficiency needs, but also be able to understand and serve customers better. This will in turn require critical decisions regarding when to take action, engaging service-push, and when to hold back and rely on customer-pull.

Egg, for example, many years ago asked customers to fill in a small 10-minute web-survey to find out how each individual customer wanted to be contacted by the bank. Defining the characteristics of the push-pull relationship requires a good understanding of the customer. False positives blocking credit cards because the customer shopped on the Internet or used the card before and after having flown on an aeroplane is not the hallmark of customer understanding.

Responsiveness in relationship

The organisation must be responsive in the interaction with customers. This will enable the organisation to better understand the customer, and improves the customer's experience. Here IT can increase both the responsiveness and the demand for responsiveness. If the organisation,

for example, wishes to shift customer contact from telephone to web or email contact, then the convenience of shifting to the asynchronous channel of email must still be responsive. The customer may not expect immediate answers, but they will most likely expect answers quicker than the two weeks response time that can often be the norm. If the customer's expectation of response time is met, both parties have benefited. The organisation can gain efficiency by semi-automatic responses to the emailed requests, where the customer did the work of recording it. The customer can benefit from the convenience of not having to wait at the end of a phone. Also, for this kind of interaction, the recording and tracking of progress can not only be highly automated, it can also be a visible to the customer.

The ultimate responsiveness can be achieved if the organisation allows the customer to engage in a high degree of self-service. For example, most retail outlets now have web-presence and for most it is relatively easy to locate the address and opening hours for a particular branch. For one struggling chain of clothes shops, this has only recently been implemented. If a customer cannot look up the information on the website, it is highly likely they will call and ask for information. A call that is very easy to avoid.

Managing expectations in the relationship

Much innovation with IT has traditionally served the purpose of optimising internal operations and improving the organisation's ability to compete. If customer-engagement is mainly carried out in discrete encounters – exchanging money and goods – then it is reasonably straightforward to manage customer expectations through carefully specifying the characteristics of the product. If the milk bottle stipulates the sell by date of the milk, there is relatively little to discuss if it turns sour before that date.

However, engaging in ongoing relationships is a process of give and take. If services are produced and consumed through a stream of ongoing “moments of truth”, then a key aim will be to carefully manage the customer’s expectations.⁵² The insurance industry has a long tradition of classifying circumstances and events into those that are covered by insurance and those that are not. However, for many service relationships it may not be appropriate or even possible to do so in advance.

An ongoing process can continuously change the relationship. For example, the relationship between a professional and a client is a highly adaptive one where at any stage in the process the psychologist, solicitor, medical doctor, or management consultant will adapt their decisions to the given situation through the application of discretion. There is a tendency for people to equate excellent customer service directly with extensive access to such human discretion, which of course is reasonable.

However, if the goal is to innovate the organisation’s ability to offer individualised services and support through IT, then the aim must be to deploy costly human discretion highly sparingly. To the extent that some aspects of human discretion can be subjected to partial automation, the organisation will be able to make symmetry in the relationship with customers more affordable through a combination of self-service and automation.

Despite best organisational intentions and strong customer wishes, the organisation will not be able to offer individualised support simply through broad application of human discretion. The road to affordable personalised services is paved with the same principles as that leading to cheap consumer goods, namely automation and standardisation.

The trick is to deploy innovative IT to square the circle of offering individualisation in ongoing relationships through standardisation and

automation. The wholesale application of 20th Century mechanisms for dealing with customer contact through contact centres does not seem to be a sustainable solution. The 21st Century organisation must rely on highly selective use of human discretion.

Cultivate good behaviour internally and externally

Sustaining happy relationships is not the sole responsibility of the organisation. Relationships are by their very nature a two way street, and achieving success will require the customer to play a part. For any organisation, the customers comprising its market will be a diverse bunch with their own differing expectations so it will be necessary for the company to make clear exactly what it expects from its customers in order to sustain the relationship. Organisations may wish to consider publishing some sort of ‘Customer Behaviour Charter’ which sets out clearly the behaviour that is expected from the customer, . i.e. “If you want this relationship to work and you want to benefit from it, here is the deal....”

Establish experimentation and dialogue

The challenges of innovating the ways the organisation engages IT in listening to customers are immense and identifying good solutions will require experimentation and dialogue with the customers. The possibilities for getting it wrong are substantial but at the same time, establishing a technical and organisational platform for two-way customer interaction can provide great opportunities for ongoing innovation.

The trick is to take careful and small steps once the foundation for IT-based listening has been established. The innovation is in tweaking your service and then listening to what happens.

“When the CEO of Amazon, Jeff Bezos, has meetings, he has an empty chair that no one is allowed to sit in. That is the customer’s chair and whatever is discussed has to be relevant for the invisible guest. If we are talking about something that is not relevant to the customer then we are wasting time.”

DR TED JOHNS,
CHAIRMAN OF THE INSTITUTE OF CUSTOMER SERVICES

ENGAGE!
OPEN FOR INNOVATION
WITH INFORMATION
TECHNOLOGY



1. INTRODUCTION

In the preceding report “Listen!” we argued that it is necessary for all organisations to listen to their customers. The World Wide Web, global mobile telecommunications infrastructures and other Information Technology (IT) innovations have ensured that listening can now take place on an unprecedented scale creating both opportunities and risks for businesses. Furthermore, listening enables organisations to move away from transactions based around discrete encounters towards ongoing relationships fostering trust and loyalty.

In this report we will examine the opportunity for organisations to build upon this trust in order to create true collaborative engagement with customers, employees, and partners in the context of deeper relationships where all parties are continually engaging in mutual adjustments to achieve the most beneficial possible outcomes.⁵³

Mutual adjustment is the emerging informal co-ordination of activities.⁵⁴ We are used to experiencing this on a daily basis, for example when new opinions emerge from discussions in meetings, or when two people negotiate to move a heavy piece of furniture through a narrow door. It is an iterative process of listening and then continually adapting responses and behaviour to reflect new information and circumstances.

Global information infrastructures offer explosive growth in our ability to support highly distributed mutual adjustments in a cost-effective manner. Engaging in ongoing processes of mutual adjustments, as a way of engaging customers and partners, challenges the nature of

organisational boundaries and re-defines the shape of the organisation in the 21st Century.

What we refer to as engagement in this report is essentially a reflection of what arises from ongoing dialogue of mutual adjustment mediated by IT.

While listening to customers is essential and the challenges in doing so are relatively straightforward, engaging customers and others external to the organisation in processes of mutual adjustment demands careful consideration and discretion. The trust and loyalty fostered in Web 2.0 communities based on social networking successfully harness distributed mutual adjustments through IT innovations. It would appear as though such communities of collective endeavour are in direct conflict with traditional business operations. We will argue that this is not the case. It is a matter of how the opportunities are adapted to the specific business context, as discretionary decisions are needed in order to determine how engagement through mutual adjustment can provide business benefits, rather than undermining the commercial proposition.

Car Ownership as Mutual Adjustment

Living in Central London makes owning a car a stressful and often futile affair. Public transport is an effective way of getting around, and combined with the difficulty and cost of driving your own car, it is fairly easy to decide not to own one at all. There are, however, times when having a car is an excellent and flexible solution to infrequent problems. The company Streetcar⁶⁵ offers its members easy and flexible access to just under 1000 cars distributed across London and a few neighbouring cities. Signing up and paying the annual membership fee allows the member to book one of the cars for periods of one hour to as many days as desired. A website with email and SMS notifications is the hub for co-ordinating the booking of cars and a call-centre offers instant advice for managing exceptional situations.

The members book cars themselves and an electronic system ensures access to both the car and a petrol card in the glove compartment. This organisation can only exist and offer car sharing at a price-level competitive with car rental firms and taxis because members do most of the work through themselves. Is Streetcar a commercial organisation or a members club? Are members of the car-sharing scheme also members of the organisation? What is the boundary of this

both traditional, yet new business? The business is clearly one relying critically on information technology innovation, and this innovation supports a business model raising all the questions above.

The traditional alternatives to securing access to a car are either to avoid any need for mutual adjustment by purchasing a car, relying on instant availability from a traditional car-rental firm, or hailing a cab in the street. These alternatives all rely on surplus resources readily available either owned or purchased as market-transactions.

Streetcar offers a means for optimising flexible access to a variety of cars for drivers with an occasional need. This is accomplished through a centralised booking system that manages member bookings by supporting highly distributed mutual adjustments in the demand for access to the pooled resource of around 1000 cars distributed in various locations around the city.

Each booking is managed by a member and can be cancelled without penalty up to four hours before taking effect. Members can extend their booking by sending an SMS to the system assuming that nobody else has booked the car. Should a member be delayed returning a car, a penalty will be passed on as compensation to the person who has been inconvenienced. Here, the system could perhaps support even more complex mutual adjustment between the two parties.

Adjustments for Continuous Improvement or Radical Innovation?

As illustrated by the Streetcar example, innovation with IT can support a brand-new entrant into an existing market simply by providing central support for highly distributed mutual adjustments. Our argument in this report is, however, more fundamental than this example suggests. With an estimated 1.5 billion people connected to the Internet and 4.3 billion mobile phone connections⁵⁶ there is general availability of global information infrastructures providing the technical platform from which to engage consumers and partners in ongoing relationships of mutual adjustments.⁵⁷

This global technical platform is made up of a multitude of technologies from low-cost sensors to global communication networks. Its fundamental currency is information, and as such has helped to shape new industries making a business out of pure information. However, do not assume that the benefits and challenges associated with these are restricted to the world of Web 2.0 organisations. Increased ability for turning simple product encounters into service relationships mediating mutual adjustments at reduced cost can affect most traditional sectors as well.

It is therefore essential to distinguish between different strategies for augmenting the business with the ability to support relationships of mutual adjustment with customers and business partners. Relating to the two survival patterns of improvement and innovation⁵⁸, we characterise the opportunities for mediating relationships of mutual adjustment in terms of:

1. **Operations** where the transactional proposition is easy to change and support for mutual adjustment can support direct operational gains. This follows an improvement survival pattern.
2. **Innovation** where the transactional proposition needs high up-front investment. This option relies on an innovation survival pattern.
3. **Innovative Operations** where the transactional proposition is flexible in the customers' hands. Innovative operations represent a hybrid strategy of seeking both to improve operations and to innovate the business through support for ongoing relationships of mutual adjustment.

This report argues that there is not a simple recipe for success but that organisations must choose the most appropriate form of engagement for their business and we will illustrate this with examples, as well as discussing the primary challenges involved.



2. ENGAGEMENT REDEFINES THE BOUNDARY

20 years ago when the engine manufacturer Rolls Royce formulated engine-performance based maintenance relationships under the name “Power by the Hour”⁵⁹ what was sold was not so much an engine, but the promise of only paying for maintenance when the engine was working. Here, information technology has allowed the previous business model, which before was a matter of replacing parts when they were broken (cheap but possibly dangerous), or when some schedule dictated it (safer but also more expensive), to be replaced with a more precise regime where parts are replaced only when they need to be.

Such maintenance regimes can only be accomplished through ongoing semi-automatic processes of monitoring performance. This is an example of innovative operations where the transformation results in both increased operational excellence and an innovative business model based on more complex management of information.

The Streetcar example also illustrates innovative operations with both an effective business processes and an innovative business model that involves customers directly in operations by allowing them to mutually adapt their car requirements to the available stock. The Rolls Royce and Streetcar examples also both illustrate how a new arrangement of mediated mutual adjustment challenges the traditional understanding of what is inside and outside the organisation.

Redrawing the Boundary

Most organisations traditionally protect themselves with impermeable buildings, strict security guards, and complex organisational rules and procedures governing who is allowed inside and who must remain outside. Boundaries that regulate who the organisation is engaged with and how this engagement is organised are essential for the effective running of any organisation, as well as governing its ability to innovate.⁶⁰ Allowing anyone access inside the boundary might create chaos and be wasteful of organisational resources. Being too restrictive leads to risk of the organisation not understanding emerging opportunities, or indeed, its own role in the marketplace. The key issue here can be translated into the challenge of orchestrating the appropriate means for mutual adjustment between the organisation and its market environment.

“80% of the software our clients run is aimed at execution of processes with minimum variation”.

LARS PLOUGMANN, PARTNER AT HEADSHIFT

In the previous report *Listen!*, we looked at one aspect of the organisational boundary and presented the key-questions organisations must consider when seeking to improve their ability to listen to customers and partners concerning their existing product and service offerings. We concluded that virtuous circles integrating customer experience and further innovation can contribute greatly to organisational agility.

This report broadens the discussion beyond basic listening. We consider the opportunities for and challenges of engaging customers and partners in mutual adjustment through IT both as a source of improvement of existing business processes, and to support comprehensive and radical innovation activities.

Engagement and Customer

Organisations will often attempt to engage customers by proxy by having the marketing department and others attempt to understand and imagine their changing needs and desires in order to meet these with new products and services. Dr Ted Johns, the Chairman of the Institute of Customer Services, illustrates well the concern for bringing the customer into internal discussions; *“When the CEO of Amazon, Jeff Bezos, has meetings, he has an empty chair that no one is allowed to sit in. That is the customer’s chair and whatever is discussed has to be relevant for the invisible guest. If we are talking about something that is not relevant to the customer then we are wasting time.”* The imaginary customer offers silent input in a process of mutual

adjustment between what is discussed at Amazon and what customers are perceived to desire.

This report emphasises engagement beyond simply imagining what customers may wish to hear, namely organisations soliciting assistance beyond the traditional organisational boundaries of people who are not formally or contractually engaged by the organisation.⁶¹ As one of our interviewees, Mark Turrell CEO of Imaginatik argues; *“What does listening to consumers mean? It means for example, giving a consumer the opportunity to act and then see how many of them act upon it. However, these efforts are often marketing gimmicks and not treated as elements of a wider engagement.”* Such wider engagement must rely on not only soliciting opinions from customers, but also involve the parties in ongoing interactive processes of mutual adjustment where emerging needs and constraints can shape the final outcome.

The Streetcar example illustrates how the mutual adjustment can be almost entirely managed by customers themselves. Web 2.0 services such as YouTube, Wikipedia, and Flickr rely on a similar approach entirely within the digital domain. However, as the Rolls Royce example shows, mutual adjustment can also be reflected in a more traditional relationship between two established organisations, or as in the case of Internet retail banking, an operational enhancement between an organisation and its customers where a special domain directly supports ongoing mutual adjustment.

3. MUTUAL ADJUSTMENT ROLES

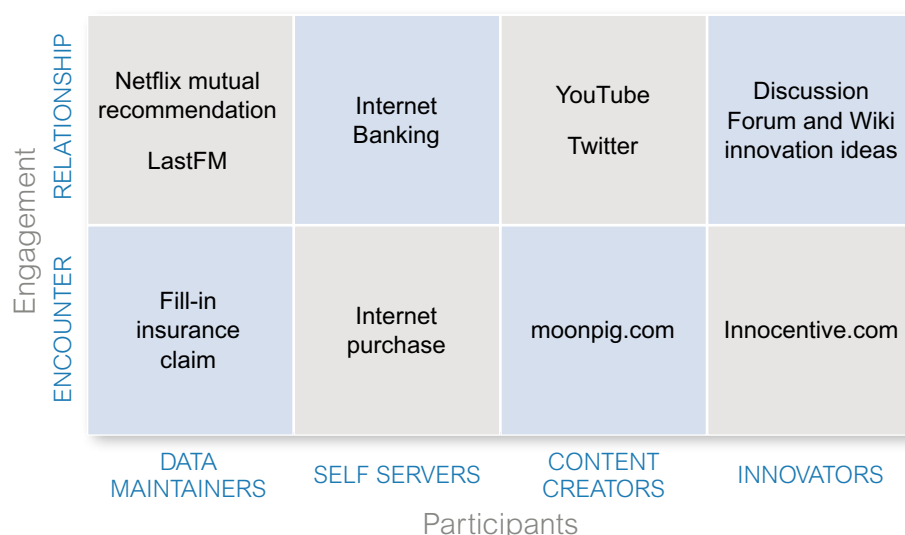
There is a relentless pressure on organisations to continuously improve operational excellence at the same time as gaining new ground by innovating.⁶² New arrangements supporting emerging mutual adjustment between the organisation, its customers and partners can serve a range of purposes spanning incremental improvements to services and reduction of operating costs, as well as forming an essential part of a transformational process of innovating parts of the organisation.

A range of factors contribute to this, for example increased interconnectivity, consumer expectations of involvement, etc.⁶³ At the same time, information technology innovation has made it possible to globally distribute collaboration in a variety of ways at very low costs, and for customers and organisations to engage across traditional boundaries.⁶⁴

A characteristic of most use of information technology is an internal focus on rendering enterprise processes more effective.⁶⁵ Traditional applications of information technology tend to engage in codification and modelling of business processes, material flows and employee performance. As Lars Plougmann, partner at Headshift, argues; *“80% of the software our clients run is aimed at execution of processes with minimum variation”*.

There is less emphasis on IT as a means of softening the organisational boundary between enterprises and consumers and through this, organising processes of mutual adjustment and emergence. Customers will experience a system aimed at minimum variation in this regime, rather than engaging in a process of mutual adjustment. This is because the customer is typically only represented by a record in a database for managing the customer relationship, or as an anonymous participant in increasingly complex customer segmentation for marketing purposes. The lack of integration between the marketing and customer services functions makes any kind of mutual adjustment highly problematic to achieve.

FIGURE 1: Characterisation of the different types of mutual adjustment ranging from simple one-time data entry when making an insurance claim, to the innovators both providing ideas and helping to sort out the good from the poor ones. Please note that some of the encounter examples indeed may also support ongoing relationships.



Distinguishing between IT enabled arrangements of mutual adjustment supporting operational improvements, organisational innovation, or a hybrid type addressing both, we can characterise a span of possible roles played by customers.

- They can engage with the organisation as data maintainers and simply supply relevant information.
- They can be self-servers and thereby own a small part of an interactive business process.

Delegating these first two roles to customers can help deliver operational efficiency gains through standardised web-interfaces, for example.

- Customers can also engage in mutual adjustment with each other and with the organisation in delivering and assessing content.
- Customers can be innovators supplying novel ideas and may participate in the cultivation of these ideas

Figure 1 illustrates the possibilities of these roles matched against the choice of engaging through a limited encounter versus an ongoing relationship. The opportunities for mutual adjustment are obviously greatly reduced when engaging through an encounter, but in a limited way, encounters can still provide essential engagement that is otherwise difficult to achieve.

When an insurance claimant needs to make a claim, the negotiation of the domain between policy rules and the specifics of the claimants situation can be navigated through a web-based system that interactively takes the claimant through the process of filing a claim. A customer designing their own personalised greeting card on moonpig.com will be able to create a card uniquely matching their need by negotiating their specific requirements under the constraints imposed by the system.

These kinds of 'encounter' activities will naturally be less comprehensive than ongoing relationships where, for example, on-line communities can engage in collaboration and not only upload content but also actively participate in cultivating the community and the content produced. as is common on a range of Web 2.0 social networking and content sharing platforms.

The most comprehensive mutual adjustment involves activities contributing to innovation and change. Customers engaging in on-line discussion forums where company representatives also participate, or the wide spread use of customers as software testers are examples of spaces where the organisation orchestrates a process of mutual adjustment.



4. THE CHALLENGES OF ENABLING MUTUAL ADJUSTMENT

Whilst there are a wealth of opportunities arising from engaging in mutual adjustment across organisational boundaries, there are also significant complications that must be carefully considered. Getting engagement right is a significant challenge. Marcus Hickman from the Customer Contact Association argues that because; *“consumers are busier and their expectations are higher, so there is more and more onus on the organisation to be proactive in the way that it deals with customers”*.

However, redefining long-established arrangements of how customers and others are engaged, what constitutes the inside and outside of the business, and how those outside the organisation should have access to decisions, marks a considerable shift for most organisations. Such a shift can both challenge fundamental beliefs and give cause for great concern.

Exposing aspects of the business previously conducted entirely internally will often require a significant shift towards formalising and technologising organisational processes that were previously subjected to a higher degree of organisational discretion. Essential aspects of the effort will often need to be much better understood and codified as more open-ended social control may not be possible.⁶⁶

British Airway's CIO Paul Coby, for example, argues that in order for the organisation to engage customers through web-based self-service they needed to streamline the offering since the customer should only be subjected to a limited list of possible options, and not the large number of options and combinations presented by a trained ticket sales representative.⁶⁷ The process of mutual adjustment between customer demands and BA supply needed to be streamlined to make it feasible for customers to participate actively without BA staff acting as an organisational buffer of discretion and knowledge.

There are risks associated with opening up the organisation by supporting ongoing processes of mutual adjustment. For example, if customers are directly implicated in discussions about future innovation this can inform competitors early about emerging ideas or lead to customers developing expectations that are difficult to fulfil.

Opening the organisation's doors and letting people inside to help run, shape and even innovate the organisation can lead to some loss of control. Those engaged may not engage exactly in the ways anticipated. Orchestrating an unpredictable process with unpredictable outcome is both an advantage and a risk of opening the organisation for mutual adjustment. The process must be carefully designed so as to ensure that the risks and benefits are understood in advance.

In 2007 when Heinz invited the public to submit home made promotional videos for its famous ketchup, this was an attempt to engage the public



in contributing to a new marketing campaign instead of the traditional approach of sourcing a marketing agency for the job. However, Heinz only sourced the content from the public and did not set up an IT-based mechanism supporting the mutual adjustment of jointly deciding with the public which were the best submissions.

Heinz did not fully understand the consequences of engaging a large anonymous crowd and ended up having to sieve through a large number of technically inadequate entries, which ended up costing the company as much as hiring a professional agency to produce the commercial.⁶⁸ This is an example of immature innovation where the roles were not clearly defined and a traditional organisation did not properly understand the principles of harnessing engagement and mutual adjustment through IT innovation.

Even if the process of mutual adjustment is well designed, it can still be unpredictable. When Chevrolet enrolled the great American public in creating adds for the 2007 Tahoe Sports Utility vehicle, many of the adds submitted were satirical comments, for example, highlighting the environmental impact of these vehicles. Many of the Heinz advertisements also inadvertently associated ketchup with something negative, such as bad teeth.⁶⁹ When the British pop group The Spice Girls launched an online petition for fans to help decide in which city the group would open their reunion tour in 2007, the poll was hijacked with the highest-scoring entry being Baghdad.⁷⁰

Engaging customers, users, partner organisations and the greater public is a critical element in future business innovation, and new information and communication technology offer easy and affordable ways of making such engagement a reality. However, as IT-amplified engagement marks a radical departure from tried and tested methods of innovation in the organisational arsenal, and as getting it right is difficult, a proper understanding of the main aspects is essential.

This report therefore asks the question; *How can organisations flexibly arrange itself to gain competitive advantage through engaging participants in ongoing processes of mutual adjustment?* This question is far too extensive for this brief report to offer in-depth answers to all aspects, but we will seek to provide an overview over some of the essential aspects to consider. Each of the following sections explores a particular issue of importance when deciding the appropriate design of engagement through mutual adjustment. These issues are:

- Process or Content?
- Publish or Engage?
- Operations or Innovations?
- Closed or Open Engagement?
- Planned or Emerging Behaviour?
- Push or Pull Innovation?



5. PROCESS OR CONTENTS?

As illustrated above in the case of a customer making an insurance claim on-line, or in the case of an Amazon customer picking goods and checking out, customer self-service is an important aspect of delivering operational improvements through IT – here through supporting mutual adjustment between organisational rules or available stock and the emerging needs of the customer. This was already one of the major innovations in retail after the Second World War where the supermarkets allowed the customers to discover on their own what they wished to purchase as they wandered through the store, instead of engaging in a process of mutual adjustment with a shopkeeper standing behind the counter.⁷¹ The ability to provide self-service has been put forward as one of the primary efficiency drivers of information technology.⁷²

Providing customers with direct access to parts of core business processes is a simple way of enabling the customer and the organisation to engage in mutual adjustment, even if it will mostly involve the customer adapting their expectations to what is available. It is essential to acknowledge the limitations of such standardised business processes of customer self-service in terms of mutual adjustment.

In particular, problems can arise when a customer experiences an exception outside of the scope of the normal process, which the organisation needs to deal with. Marcus Hickman points out that; *“It is a fundamental problem that has to do with a relationship between the customer and whatever they are engaged with, because the problem is if you take that 30 calls that you would say are identical, they are not identical. One of them*

is fielded by an old lady, who grew up after the war, who is not used to taking any kind of abuse, because she’s a nice old lady, and another one is from an aggressive academic like me who will bite the head off anybody and be very sarcastic, so it’s the same problem we have, but we are different people”. One of the challenges of providing self-service is to offer the customer a set of possible ways to engage, which match their individual preferences – to establish boundaries for mutual adjustment wide enough to capture common exceptions but narrow enough to still enable self-service.

The exercise of supporting customer self-service is a good way of ensuring that excessive organisational complexity is ironed out and streamlined in order to be presented to the customer in a meaningful manner.



Paul Coby, CIO of British Airways, suggests IT as *“an anvil for simplification”* and continues: *“If you have 29 different choices from the database, that’s no use. It’s got to be really easy to use. As you put more and more on-line, so it forces you to be really clear about what the proposition is and to clean up your processes. And if you clean up your processes you begin to simplify the airline. You have got a happy virtuous circle”*.⁷³ Enabling customers to engage with automated processes of mutual adjustment with a pre-determined scope of possibilities is an example of engagement for operational gains.

YouTube is one such anvil for simplification, but not in the sense of engaging customers in simple business processes. Instead, YouTube offers a set of collaborative services enabling anyone with an internet connection and access to either a video camera or recorded video clips to upload these for everyone else to view, rate, and comment upon. Such cultural production in all its richness is almost entirely user-driven. Significant filtering is employed by commercial organisations who have had their copyrights infringed by video posted illegally, by members offended by certain videos and therefore marking them out, and by YouTube staff pruning the wildly exploding cloud of content.⁷⁴ YouTube is an example of innovative operations enabling global processes of highly distributed content production and mutual adjustment concerning this content – discussions, blocking inappropriate content, videos posted as

response to other videos, or indeed mashing and remixing of other videos.

Flickr offers similar sharing of photos. Social networking sites such as Facebook, MySpace, Bebo, and LinkedIn offer similar functionality as additions to the essential core features of users connecting with each other.

Marcus Hickman mentions user discussion forums as a way of organising some of the engagement; *“organisations like Vodafone and others have set up an e-forum themselves where 40,000 people help each other resolve problems.”* However, he points out, *“when it comes to actually looking at someone’s account and dealing with an issue with that account then this is still private, and some matters customers will still want to deal with the organisation directly about. They won’t necessarily trust anyone else”*.

Professor Peter Cochrane of Cochrane Associates, exemplifies the readily available IT platforms for people to work together, with the case of Apple initially trying to ensure that their iPhone was locked so unauthorised applications could not be installed; *“Apple have got ten people trying to make the iPhone secure and out there is a community of 10,000 people trying to bust it. They bust it and the crack arrives on the website and you go and get it. You think, why are people doing this? How do they make their money? A lot of the time, they don’t. They do it for the kudos.”*

6. PUBLISH OR ENGAGE?

Global collaborative platforms for sharing cultural content such as YouTube and Flickr serve two distinct purposes for the user. They are simultaneously platforms for publishing content and for engaging in processes of mutual adjustment with others. Flickr can both serve the purpose of a photo album in the internet cloud storing a collection of photos, and as a global playground for sharing, commenting on, and playing with photos.⁷⁵ YouTube can both be used as a free video-serving platform by commercial organisations for promotional videos, and a stage for discussions and self-staged competitions between users. Content platforms become both global data repositories and global stages for collective experimentation and collaboration with unexpected outcomes. Young advertising professionals upload edgy unsolicited promotional videos for products in the hope they will start a viral process of diffusion and thereby form a springboard to lucrative contracts for official ads.

These two purposes will often converge in unanticipated ways, such as in the case of the fans of Monty Python's Flying Circus maintaining a collection of their favourite clips from the television series and movies on YouTube. As a result the people behind Monty Python decided to start an official YouTube channel. A large proportion of the reported 23,000% increase in Monty Python DVD sales has been linked to the YouTube user community engaging in promoting the material.⁷⁶

David Wood, Executive Vice President for Research at Symbian, explains how the organisation engages in collaborative innovation with a global community of Symbian developers. He points out that their business relies critically on a wide range of collaborative arrangements beyond the four main mobile phone handset manufacturers (Nokia, Sony Ericsson, Panasonic and Samsung) that licence its software; *"it's also the people that contribute software that gets assembled into devices. That includes many middleware providers, multimedia companies and semiconductor manufacturers who ship software and hold the software. There are about 10,000 people in this device creation community"*.

He further explains that Symbian manages the relationship with this large community, as well as an even broader community of additional contributors, through a range of collaborative information technologies, such as discussion forums, wikis and websites.

Global communities of content contributors offer a new level of responsiveness that can be very difficult to comprehend, as exemplified by the incident of an American Airlines airplane landing in the Hudson River on 15 January 2009. While helicopters from the major television networks were circling Manhattan trying to locate the plane a couple of minutes after it had crashed, thousands of people across the world were watching a photograph uploaded by Twitter user "jkrums" from his mobile phone as the ferry he was on helped to rescue passengers standing on the wing of the floating airplane.⁷⁷

Engagement through mutual adjustment can also be formalised through standardised systems of recommendation, for example, mutual recommendations on Digg or Alexa, left as votes for interesting places to visit that when aggregated form decision support for where others may wish to go as well.

Such collaborative platforms offer users support in helping each other out. The mutual recommender functionality on Amazon.com is another good example of such functionality. Customers leave a whole range of digital traces behind for others to gain insights from, for example, navigation patterns, purchases, score ratings and written reviews.⁷⁸ Dr Ted Johns from the Customer Services Association argues that collaborative filtering and other similar techniques allows Amazon to treat him as a customer segment of one, informing him of relevant books he may



wish to consider purchasing based upon his own previous behaviour and that of others. In this way, the systems support the customer in engaging in a process of exploring their needs and desires as well as leaving behind traces of opinions and experiences for others to use.

For the customer and organisation alike, such mutual recommender functionality can offer significant advantages. It provides a clever way of encouraging buying decisions by organising the synthesis of customer decisions so that the organisation does more business and the customer feels well served by the organisation.

However, such aggregation of customer profiles or the aggregation of services also raises new challenge for both parties. For example, in the case of the movie rental company Netflix where groups of friends can share information about film titles and preferences, thereby forging a stronger sense of community through sharing and mutual adjustment. This sense of community may result in increasing “stickiness” and may contribute to people finding it more difficult to unsubscribe the service, but on the other hand, if and when they do, the effect is that much more serious for the organisation as they may decide to leave not one at the time but en masse.

Engagement of individuals through their contributions by self-servicing part of the business process may have limited scope. Engaging large groups can deliver significant benefits from the scale and self-organising aspects of the collaboration. However, it also provides risks in terms of co-ordinated customer- or partner action, with the relative loss of control on the part of the enterprise.

7. OPERATIONS OR INNOVATIONS?

Much of the discussion so far has been concerned with engagement through supporting mutual adjustment in operations. Self-servicing Amazon customers and Streetcar members play an active role in the daily operations of the firms precisely because the systems offer automated ways of engagement through mutual adjustment. Communities may, however, challenge the initial assumptions and cultivate innovative behaviour, in particular when the platform offers flexibility. YouTube is as much a platform for social innovation as it is a site for sharing videos. Facebook offers easy ways of adding new functionality and this has fostered extensive innovation.

Organisations can seek to engage external participants for the purpose of innovation rather than operations. The driving idea is to not only solicit innovation internally from within organisation, but extending the perspective beyond the organisation. As argued by the director of the UK television station Channel 4's innovation company 4IP, Tom Loosemore, *"You win sailing races by looking outside on the wind, not inside at the boat"*.

Lars Plougman, Headshift, argues that web communities can lead to companies increasing engagement: *"Lego has through the web discovered the true Lego enthusiasts and given them special privileges. Some of these might in the past have gone directly to the company and asked if they could buy 2,000 red Lego bricks in one go. Some of them would just get their stuff from the normal packs and they would never have appeared on Lego's radar. However, if somebody is vocal about something and if they share it on the web then you can tap into and participate in that discussion."* Here, engaging with customers

can be a source of innovation where the result is significant mutual adjustment also on the part of the organisation.

Recently, a number of firms specialising in technology-mediated innovation have emerged. Such "innomediaries" can provide new indirect or mediated contexts for engaging customers, and crowds, and through this engagement and they can be divided into three categories:⁷⁹

1. Customer network operators providing access to specific segments of a maintained panel of customers, such as YouGov, Nielsen and Ipsos-Mori;⁸⁰
2. Customer community operators such as the Edmunds Carspace car enthusiast community;⁸¹
3. Innovation marketplace operators establishing contexts for providers and buyers of innovations to meet, such as Innocentive, Yet2come, and NineSigma.⁸²



Chesbrough coined the term “open innovation” to capture the increasing need for companies to rely on external sources of innovation. The most famous adoption of this concept was Procter & Gamble’s re-orientation from internal, centralised research and development to what the company called “connect + develop”.⁸³ Procter & Gamble claims that external collaboration plays a significant role in almost half of their new product developments.

In a recent study of senior executives, 59% of respondents listed involving customers in innovation as the most important priority, whilst second most important was third party collaboration as expressed by 46% of respondents.⁸⁴ Harry Barkema, professor of innovation management at LSE and at Erasmus University, highlights the interesting prospect of organisations using various forms of the second and third type of innomediaries mentioned above as means of providing a testing ground for new ideas, citing Edmund’s Carspace as an example; *“which has independently built a community with lots of car enthusiasts sharing their opinions. The business model at Edmunds is that they sell access to information from their community in an aggregate form to car manufacturers. It also offers the opportunity for car companies to engage with a broader community than just their own clients. That’s a way of testing new ideas with an audience or getting new ideas from a broader audience.”*

In 1988 Eric von Hippel famously proposed the extreme position of looking to lead-users as the source of innovation and illustrates this with examples such as the invention of windsurfing and mountain biking.⁸⁵ A large-scale European effort of facilitating user-driven innovation for mobile products and services has resulted in a methodology and a large number of projects across sectors and industries.⁸⁶

However, the sources of innovation are clearly more complex as argued by Bhidé in his extensive study of venture capital backed start-ups. Here, he did not find any evidence of lead-users. He did, however, find significant evidence of innovative companies relying extensively on actively participating alpha- and beta-testers who contributed significantly to understanding innovations through their use.⁸⁷

David Wood, Symbian, illustrates how his organisation engages their 10,000 developer large device creation community as; *“in a sense our first customers for new innovations and through whom we find out where the bleeding edge is too bloody”*.

Geoff Carrs, Imaginatik, argues that the appropriate focus and platform can create innovation from within the firm; *“We did a project with a huge retailer where they reached out to one person in five thousand stores to ask how to reduce heating, water, cooling, and electricity costs. This engaged minimum wage employees at one hour per store, per day for four or five days to come up with some ideas. This project ran in the middle of February and they came to our meeting eight weeks later and said, our group CFO will allow us to announce you’ve already saved thirty-eight million dollars.”*

Geoff argues that this kind of innovation is based on scaling small savings into large amounts; *“Innovations like these are really pragmatic, down to earth stuff, but management are just not aware of the possibilities. For example, removing unnecessary lightbulbs from vending machines is not considered an important issue, but scaling it to five thousand stores and it’s a saving of one million dollars a year.”*

8. CLOSED OR OPEN ENGAGEMENT?

As our main emphasis is on understanding engagement through harnessing the power of IT, we are particularly interested in understanding the potential for organisations to leverage innovation through engagement that is mediated by IT. The general availability of Internet access and maturation of Internet technologies provides an easier means of cultivating large-scale collaboration, and has resulted in a lot of attention and many buzzwords that characterise this kind of engagement but also hide a wealth of diverse choices and approaches.

“Collective intelligence” has been used as an umbrella term characterising variants of intelligence emerging from an IT-mediated pool of self-organised collaboration, such as, crowd wisdom, crowdsourcing, and collaborative filtering.⁸⁸

As we discussed in the *Listen!* report, organisations traditionally spend considerable effort carefully cultivating their boundaries to the outside world and this report has highlighted examples of how boundaries can be softened and turned into permeable membranes allowing more wide-spread mutual adjustment through inclusion of insights and efforts from those traditionally expected to be passive consumers and bystanders.

Questioning the nature of what is inside and outside the organisation – understanding the organisation as an open entity as opposed to one that is carefully controlled and closed – naturally raises the issue of to what extent the engagement should be controlled or allowed to emerge out of the community.

Crowdsourcing is a particular powerful example of collective intelligence, and one, which fundamentally challenges traditional organisational boundaries in terms of engagement. In the Listen! report we saw examples of crowd sourcing applied to coordinate customer or citizen actions on Fix My Street and Get Satisfaction.⁸⁹ According to the inventor of the concept, Jeff Howe, crowdsourcing is: *"the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call"*.⁹⁰

According to professor Barkema, a number of industries are engaging their own communities of customers in crowdsourcing, and he mentions Muji, Nike and Ducati as successful examples; *"many of companies now have an active community of users, which they involve in idea generation and at the beginning of the innovation pipeline"*.⁹¹ The use of large communities raises specific challenges, as argued by Mark Turrell, Imaginatik's CEO: *"For example if you have fifty million people that use your shampoo. Do you want to speak to all of those fifty million people, or would you like to have a more engaged group? If you have an engaged network, how often do you pulse this network?"*

Examples of crowdsourcing span a range of innovation activities from an established organisation asking its customers, in a general and open-ended manner, to provide their opinions, to new enterprises entirely basing their business model on crowdsourcing. Dell's Ideastorm is a good example of the first instance and users have already logged over eleven thousand ideas, commented on by other users over half a million times. Based on this concept Starbucks has launched its own version.⁹²

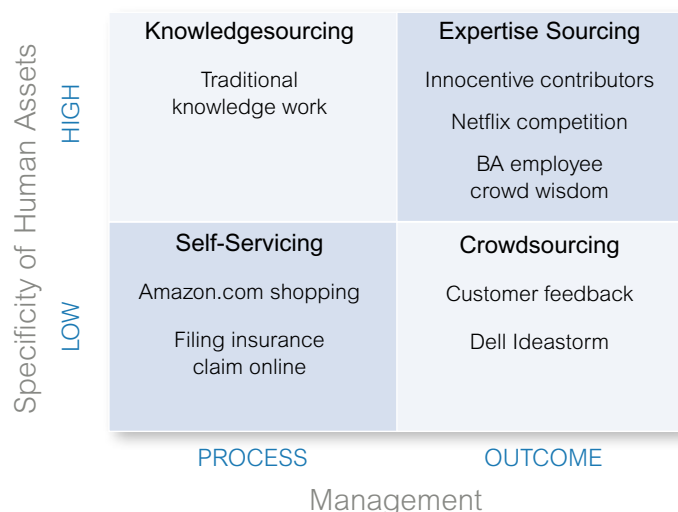
Crowdsourcing is essentially open innovation combined with large-scale collaboration from on-line communities.⁹³ The clothes company Threadless is a good example as it sells T-shirts designed entirely by an online community and shares the revenue with designers.⁹⁴ iStockphoto deploys a similar open business model where an online community uploads stock photos, but there the community also plays an important role in

educating newcomers on what constitutes good stock photographs.⁹⁵ Crowdsourcing provides access to a large talent-pool beyond the traditional workforce who are paid for results not effort, if they indeed are paid at all. Professor Barkema argues that; *"Crowds are very powerful magnet for selecting good ideas and there are many examples that they function as prediction markets in terms of what is going to be successful"*. These crowds constitute systems of operational innovations, often questioning existing business models.

Amplifying innovation through engaging customers, partners, and global on-line communities can both create new business opportunities and generate lots of interaction and data. Tapscott & Williams argue that the essential requirements for collective intelligence to provide innovation are openness, peering, sharing and global reach as these facilitate large-scale self-organised horizontal networked collaboration with few intellectual property issues.⁹⁶ They, furthermore, argue that such conditions with dramatically decreased transaction costs can lead to the inversion of Coase's law stating that a firm expands until the transaction costs equals the cost of accomplishing the same transaction on the open market. The inverse law states that due to dramatically reduced costs of managing information, the firm will contract until the additional transaction costs on the open market becomes equal to that of carrying out the transaction within the firm.⁹⁷

This upside-down or inside-out view of how technologically reduced transaction costs provides a disruptive game changer, is one that Enterprise IT Analyst Neil Ward-Dutton of MWD Advisors has characterised as the "uncompany", and challenges traditional organisations.⁹⁸ According to Ward-Dutton, the uncompany is shaped by increased globalisation of customer bases, supplier networks and competition, by increased demand for business transparency, and the ready availability of effective connected markets. The uncompany is shaped more by customers, partners, on-line communities and others engaging in the ecosystem than by its own five-year strategy.

FIGURE 2: Illustration of the diversity of sourcing depending on the specificity of human assets needed and the management of either process or outcome.



Zopa.com is an example of such an “uncompany”. It is a collaborative platform supporting peer-to-peer lending, an open-ended bank managing direct relationships between the person lending and the person borrowing money and the conditions for the arrangement – quite literally the retail bank redefined as an entirely decentralised system of mutual adjustment between lenders and borrowers mediated by a centralised platform. Similarly, the M-PESA system in Kenya is an open and decentralised system facilitating payments from one mobile phone to another through SMS messages.⁹⁹

The idea that one of the future business challenges will be to facilitate the cultivation of highly decentralised collaborative networking has been made by several writers also discussed in a previous report.¹⁰⁰ As argued by David Birch, Consult Hyperion; “we’re a small company and we’re growing at the moment and, we’re doing it through developing an associate program, because it’s better to work with networks of motivated individuals than try and capture them within a corporate structure.”

David Wood, Symbian, an organisation which engages an extensive and diverse set of communities, points out that in their situation – developing an operating system for several mobile handset manufacturers – the essential aspect of collaborating and engaging is building trusted relationships with the various partners in the process; “*These trusted relationships are partly kept by just individuals knowing when to keep quiet and when to speak, but also because of a well-developed infrastructure*”.

As Mark Turrell, Imaginatik, argues; “*It is much easier to innovate in the service world than it is in the manufacturing world, by an order of magnitude {...} if you are innovating, at least 60% of what you are doing will go wrong. If nothing goes wrong then you are not innovating, you are doing things as a guaranteed win and that doesn’t count! That’s just called operation excellence. {...} Because a service company has a massive volume of transactions, they can experiment and, for example, see what happens if they treat 100 customers so badly you wouldn’t believe it. Let’s treat them like absolute dirt, as a controlled experiment to find out how that works.*”

“These trusted relationships are partly kept by just individuals knowing when to keep quiet and when to speak, but also because of a well-developed infrastructure”

DAVID WOOD, SYMBIAN

The engagement can be based on varying degrees of specificity of human assets.¹⁰¹ Whilst it is assumed that customer self-service can be conducted by most people who have some general understanding of how to access the Internet from a computer, some types of engagement requires highly specialised skills and knowledge. Figure 2 plots types of engagement by matching the specificity of human assets against the management of the engagement through process or through outcome.

We have excluded the specific category of collective intelligence called ‘clickworking’ from our analysis as clickworking services such as Amazon Mechanical Turk, GalaxyZoo.org, and GWAPs (Game With A Purpose) do not offer mutual adjustment but rather modularise tasks at a very fine level of granularity so as to enable straightforward operations by the user completing basic tasks that are simple enough to do with few clicks but too difficult to automate entirely.¹⁰²

9. PLANNED OR EMERGING BEHAVIOUR?

Although many of the observations above may ring true for many organisations, it is also important to note that collective intelligence approaches such as crowdsourcing are still relatively new and generally form niche contributions to overall strategy. Engaging large global on-line crowds does not offer a simple solution whereby employees are substituted with customers, although done well, this can be one of the benefits.

As the cost of participation is very low, a lot of participation will naturally occur – the platforms do not discriminate talented, insightful and valuable contributions from those to which none of these attributes can be associated. Indeed, Howe argues that Sturgeon’s Law applies, stating that 90% of user-generated content is useless and of the 10%, which is not, only a much smaller proportion is very good.¹⁰³

The challenge is, therefore, to engage crowds in collectively deciding what constitutes the 1% top-quality contributions and not, like in the Heinz example discussed earlier, to only source content from the crowd. As Mark Turrell, Imaginatik, argues; *“The volume becomes massive. This is one of the critical problems for the world of the consumers – that you can actually have a dialogue with 15,000,000 consumers.”*

David Wood, Symbian, points out, that engaging customers and partners is by no means a recipe for success as their customers, i.e. handset manufacturers, have demanded certain innovations, which turned out not to be important in the end; *“So that led us to think we need to put a layer in there. Listen very carefully and astutely to the customers and then apply some independent judgement. The customers are the best possible guide, but they are not infallible. We need to develop our own expertise, sensibly. There is quite a large product management team and that’s an important part of the decision making process.”*

It is also important to understand to what extent large-scale collaboration is subject to sinister behaviour and to what extent these communities are sustainable.¹⁰⁴ For example, the issue of intellectual property for innovations may in the initial phases seem a less complex matter, since the lead organisation in establishing the global playing-field has the opportunity to define the rules un-contested.

However, Coarse’s inverse law as formulated by Tapscott & Williams, also implies that large online communities easily can be fickle and swarm to more interesting or lucrative firms at the drop of a hat. The Internet saw the first example of radical user-behaviour when the first Netscape Navigator web browser captured a majority of the web-user community in weeks from the incumbent Mosaic.¹⁰⁵

It is still far from clear exactly how specific organisations constrained by sector-specific contexts can best utilise collective intelligence techniques for innovation through engagement. The wealth of good examples available signals that the necessary technologies are all in place, it is mostly a matter of organisations experimenting to explore the dynamics.

However, it is also important to remain cautious that the dynamics of cultivating such innovation processes marks a radical departure from tradition and it is therefore essential to also keep an eye on the fundamentals. With the phenomenon of global crowds roaming through cyberspace still in its infancy, it is reasonable to expect the unexpected, a sentiment best captured by Libert & Spector’s Albert Einstein quote stating; *“If at first the idea is not absurd, there is no hope for it”*.¹⁰⁶

A good example to illustrate this is the rapid rise to Internet fame of the musician Kutiman by essentially remixing, cutting up and combining YouTube videos of people playing instruments into new music videos where the result is truly original

“If at first the idea is not absurd, there is no hope for it”

ALBERT EINSTEIN

although made up of existing pieces.¹⁰⁷ This individual surfs the crowd of thousands of YouTube users' submissions and out of this raw material creates new music illustrates Lessig's arguments on culture as remixing of existing culture.¹⁰⁸ The cheaply available means for ordinary people to produce and publish their own videos containing music for Kutiman to remix is an example of the means of digital production being democratised, and breaking down of the producer-consumer barrier.

iStockphoto is another example of the “professionalisation” of the amateur or indeed the “amateurisation” of professional work simply because the basic skills required largely are already there. Jimmy Wales, the founder of Wikipedia, has argued that one contributing factor to its success is the fact that most people know what an encyclopedia entry is.¹⁰⁹

Lars Plougmann, Headshift, argues that social media monitoring is an important technique to help make sense of and get innovations from the chaos of crowds; *“Social media monitoring is a way of tapping into conversations on the web and using the power of search engines to identify and tag when something relevant is being said. We then couple that practice with our internal enterprise tools for sharing information and awareness. If you are selling wonderful products, people will be passionate about them, photograph them, and talk*

about them. This creates a stream of information that you can tap into and a little slice of that stream will show you how people use your products in unanticipated and beautiful ways. This you can take back and use in your innovation process.”

Plougmann further argues that if all of this information is organised in feeds, then the organisation can more easily multiply its ability to process and socialise the information, as well as applying collaborative filtering and classification.¹¹⁰ He adds, that although there are algorithms for automatic identification of hot topics, collaborative tagging in a tag-cloud offers an easy point to begin collaboration and product design.¹¹¹

FIGURE 3: Characterisation of types of crowd sourcing depending on different rewards and initiatives.



10. PUSH OR PULL INNOVATION?

In the first report Listen! We discussed the service-push and customer-pull line characterising the point of initiation in the process of listening. Similarly, innovations can be divided into those pushed by an organisation or other entity and those pulled by customers, partners or online communities, in other words, who initiates and manages the process of mutual adjustment?¹¹² Mark Turrell, Imaginatik argues; *“You should listen to your customers and do not just manufacture what you can make. This is thirty or forty year old knowledge but we do not seem to have gone too far beyond that. The need has clearly been there, we are just doing it badly”*.

The Netflix competition offering \$1million for a solution improving the logistics algorithm of matching customer preferences for DVD rentals with available DVDs is an example of an organisation setting a specific innovation task to an external community – pushing a specific innovation problem – one sparking global collaboration.¹¹³

The innomediary Innocentive offers a portal soliciting or pulling innovation ideas, similar to Procter & Gamble’s Connect + Develop platform and Dell’s Ideastorm – other examples of innovation pulled from a community.¹¹⁴ Neil Ward-Dutton argues that the characteristic conditions favouring the uncompany replace the traditional push-driven innovation process with pull-driven innovation.¹¹⁵

Whereas traditional product marketing is the typical push-driven innovation process, the extreme version of pull-driven innovation is von Hippel’s notion of the lead-user entirely breaking the mould and creating new business areas.¹¹⁶ It has also been argued that a shift from push to pull is a driving force for business development with a pull-strategy for mobilising resources offering improved means of countering uncertainty.¹¹⁷

The emerging forms of mediated collective intelligence discussed so far, mark an interesting change in the linearity of the engagement. These changes are similar to the changes from traditional engineering design and production planning to concurrent engineering, or the changes from developing information systems using a linear

waterfall model towards more agile, iterative and incremental approaches. The innovation process becomes a more complex mixture of pull- and push elements.¹¹⁸

Concurrent engineering improved engineering design by feeding crucial information about later phases in the development and about the use and disposal of the product into the early stages. This provided more comprehensive information about possible miss-matches early on, therefore avoiding expensive mistakes. The associated costs of gaining this advantage in manufacturing was, however, dramatically increased interaction between all parties involved in the process and the need for managing this chaos of information, interaction and negotiation.

Contemporary innovation through IT-mediated engagement can yield similar benefits of ensuring that products and services are desired or needed – as argued in a book on crowdsourcing; “we built it so we will come” rather than “we built it so they will come”.¹¹⁹ It is also clear that appropriate organisation and orchestration of this process is essential in order to alleviate possible complexities.

For example, considering several of the crowdsourcing services, the sheer number of suggestions, comments, votes on suggestions, comments on comments etc, does not imply a free innovation lunch but rather the need for carefully thought-out strategies for dealing with the amount of information, interaction and decision making.

Mark Turrell, Imaginatik, points out that the characteristic of innovation is; “*the process of doing new things that deliver back. If you do not deliver value at the end of the day then you are not innovating.*” His colleague Geoff Carrs agrees and argues that although much business innovation emerges accidentally, there is great potential for making it happen on purpose by more carefully understanding how to engage customers and understanding the underlying relationships for delivering value.

Figure 3 illustrates the possible combinations when contrasting innovation initiatives instigated by the organisation or by a crowd with the purpose of the engagement, in terms of Benkler’s distinction between traditional economic production and social production.¹²⁰

11. CULTIVATING ENGAGEMENT THROUGH MUTUAL ADJUSTMENT

In the cultivation and innovation of different rules of engagement with customers and partners, it is essential to recognise that organisations are different, the markets they operate in are different, and there are therefore also differences in the ways each organisation can benefit from experimenting with engaging those traditionally considered external to the organisation. It is important to recognise that in terms of technological innovations, then most are already available; what is not is the precise understanding of how particular organisations can benefit from these. The challenges are, therefore primarily related to the engagement of humans in innovating and improving the organisation, not a matter of merely installing some kit that will fix the problem. Cultivating the appropriate mutual adjustment without risking undermining, or indeed transforming the existing business model is risky, but possibly rewarding, business.

At the start of this report we formulated several rules of engagement, depending on whether the aim is either emphasising an incremental improvement pattern or to embark on a more radical innovation trajectory.¹²¹ Here we expand on these further:

- **Operations** where the transactional proposition is easy to change and support for mutual adjustment can support direct operational gains. This follows an improvement survival pattern. For many companies engagement will simply be a case of keeping the business the same but experimenting with technology to establish more effective engagement through relatively incremental technological interventions.
- **Innovation** where the transactional proposition needs high up-front investment. This option relies on an innovation survival pattern. Some organisations will wish to be more radical, completely transforming the way specific business processes are conducted.
- **Innovative Operations** where the transactional proposition is flexible in the customers' hands. Innovative operations represents a hybrid strategy of seeking both to improve operations and to innovate the business through support for ongoing relationships of mutual adjustment.
- **Insufficient Clarity**. In some cases there may be confusion regarding exactly the role of engagement and unclear understanding of how engaging customers and partners can contribute effectively to improving or innovating the organisation. This can result in neither of these two if there is a mistaken belief that the technology will transform the organisation, when the only radical measure is the technology itself, and not the underlying business processes. For example:
 - Heinz assumed they were transforming for the better by replacing an advertising agency with a crowd, but then did not take the logical step of having the crowd do all the work.
 - The difference between Google Video and YouTube was that YouTube provided more than a site for sharing videos, it inspired and engaged a global community.

When organisations consider their choices of engagement, our distinctions offer a pick-list to choose from and a discussion of the consequences, as we have set out in the previous sections. The left side options signify a less radical choice than the right side, and different combinations of choices down this list can inspire different solutions:

- Process or Content?
- Publish or Engage?
- Operations or Innovations?
- Closed or Open Engagement?
- Planned or Emerging Behaviour?
- Push or Pull Innovation?

As we have demonstrated, Information Technology supports a range of possibilities for organisations to further engage those traditionally outside of their boundaries, as well as opportunities for creating new types of organisations exclusively founded on economic or social value created through novel types of engagement. What therefore, are some of the key issues to consider when redefining engagement?

What type of engagement will be designed?

Engaging customers, volunteers and partners in processes of mutual adjustment through the application of IT can be done in many ways and for a range of purposes. It can serve the simple purpose of cutting out data-entry functions or making the customer responsible for operating parts of the business process. Customers can also provide customer support to others by sharing experiences in user-forums, or indeed become the organisation itself by providing the raw material and main decision power for its daily operations.

There is, however, also an important role of engagement beyond operations, and we have seen several examples of how IT-enabled engagement can play a role in harnessing innovation. This can be conducted in many ways, for example pushing a concretely formulated problem to a community or pulling suggestions from them.



The use of crowds for both operations and innovations is an emerging phenomenon with great potential but also an endeavour requiring careful consideration. Howe argues that engaging crowds requires careful attention to a number of factors, such as;¹²²

- Establishing the appropriate model, for example whether decision, content creation, voting or funding is required
- Cultivating the right crowd
- Ensuring acceptable incentives for participation
- Avoiding viewing it as simple labour replacement
- Guiding the crowd actively
- Modularisation and keeping granularity fine
- Accepting that most contributions may not be useful, and using the crowd to decide which ones are useful.

Structure and management of engagement

Whilst organisations traditionally seek to govern processes of mutual adjustment through some form of hierarchical structure, engaging customers, partners and volunteers can challenge assumptions about traditional organisational structures, the general management of the decision process, and the role of engagement in this. Malone argues that whilst the organisation in the future will need to balance command-and-control style management with decentralised cultivation of collaboration, organisations are traditionally much better at the former than the latter.¹²³

Balancing the concern for operational improvement through fine-tuning closely governed structures, as opposed to establishing networked operations allowing agile innovation relates closely to applying centralised versus decentralised engagement. When customers own a small part of a business process they are part of a highly regulated environment. When they are provided with an open-ended global collaborative platform for discussions, they are clearly not. The extreme cases are here often relatively simple to assess, it is the hybrid forms, which are the most challenging.

Libert & Spector suggest the following advice when managing crowds:¹²⁴

- Lead from the rear
- Know when to step in
- Cultivate the community
- Ensure transparency
- Do not aim for perfection
- Stir things up occasionally
- Say thanks
- Build relationships

What is the scope of engagement?

Contemporary IT innovation supports a broad scope of engagement between the organisation and its constituencies of customers, crowds, partners, etc. If the purpose of the engagement is to elicit opinions, obtain preferences or in other ways ask questions, then there will be distinctly different challenges associated with this than for providing a general platform soliciting a broad range of suggestions, such as Innocentive or P&G's Connect + Develop, and the highly focused challenge formulated by Netflix.

In some situations, all that is needed is a temporary window of highly specific engagement, such as a specific marketing campaign. The organisation may also wish to continuously keep open a small window of engagement within a specific area. Yet other organisations are entirely driven by turning inside-out, becoming an "uncompany" and having the crowd or the community run the show.

So what for some will be a matter of carefully designing the organisational boundaries for controlled engagement, for others will be more a matter of the organisation becoming a membrane for engagement subjected to ongoing cultivation and tweaking. The recent changes in how feedback is provided in eBay is a good example of how organisations driven by the crowd will need to continuously cultivate the engagement.¹²⁵ This also relates directly back to the previous discussion of engagement aiming at operational efficiency gains as opposed to organisational innovation.

When engagement relies on collective efforts of crowds, it is important to carefully consider how to provide a global platform mediated by unified processes supporting openness and self-organisation in horizontal peer-to-peer interaction sharing content with few intellectual property right issues.¹²⁶

A Final Word On Engagement

In conclusion, it is clear that the majority of organisations are still very much rooted in the 20th Century mode of doing business, i.e. following continuous improvement survival patterns. However, as 21st Century challenges of both listening to customers and engaging with external communities in order to both improve and innovate are becoming more prevalent, there will be a need for more comprehensive re-formulation of how organisations view engagement as a means of adaptive behaviour through support for mutual adjustment.

Until now, there has been a great deal of media and research interest, a wealth of highly interesting experiments, and some clear success stories. However, listening and engaging are still very much a niche activity that soon will become the subject of more mainstream consideration as both the technology and sociological and organisational understanding of it matures. As Dr Ted Johns argues; *"organisations tend to become much more innovative when they are up against problems and staring into the abyss."* Now is perhaps a good time for many organisations to begin a discussion of how to innovate ways of engaging?

“You can automate the fundamental processes and make those processes as customer friendly as is possible but you’ve still got to give a degree of discretion to people at the front-end, because if the frontline people don’t have any discretion then the customer doesn’t have any discretion either.”

DR TED JOHNS,
CHAIRMAN OF THE INSTITUTE OF CUSTOMER SERVICES

BE!
OPEN FOR INNOVATION
WITH INFORMATION
TECHNOLOGY





1. QUALITY SERVICE FROM HUMAN EFFORT

The two previous reports in this series argued that all organisations can benefit from listening to customers and that carefully designed engagement of customers in processes of mutual adjustment can benefit some organisations. This third report explores the implications for the organisation in terms of information technology support and the structuring of organisational activities associated with this.

Human discretion is the traditional hallmark of good customer service, as well illustrated by Dr Ted Johns, from the Customer Services Association, highlighting the John Lewis department store principle of “random acts of kindness”, where employees are rewarded for taking initiative themselves.

The characterisation of services in terms of cheap, mass-market, production line services, customer self-service, and expensive personalised services offers an easy distinction in terms of customer role, adaptation to individual needs, and the expense of the service.¹²⁷ A 5* hotel will have more staff per hotel guest than a 1* hotel, and will most likely be much more expensive. Dr Ted Johns further argues that; *“You can automate the fundamental processes and make those processes as customer friendly as is possible but you’ve still got to give a degree of discretion to people at the front-end, because if the frontline people don’t have any discretion then the customer doesn’t have any discretion either.”*

There is of course little doubt that direct access to organisational members with discretionary powers to both listen and adjust according to emerging needs can result in high-quality individualised services. However, these will also be expensive exactly because of the reliance on intensive human involvement. The application of human discretionary effort is therefore a barrier to mass-delivery of individualised services.

The problem is that it is exactly this kind of personalised service that the mass-market demands and in this report we will consider how IT can be used to support this kind of personalised service relationship, providing a platform to allow the organisation to focus on simply being excellent in its core business.

2. PRESSURE POINTS

A consideration of the core achievements of the 20th Century industrialisation in delivering mass-produced goods can help to untangle high-quality service from human effort, in the delivery of affordable yet individualised services. Put simply, the production of goods has been the subject of a dramatic optimisation where human effort has been carefully organised, managed, and to significant extent replaced by machinery.

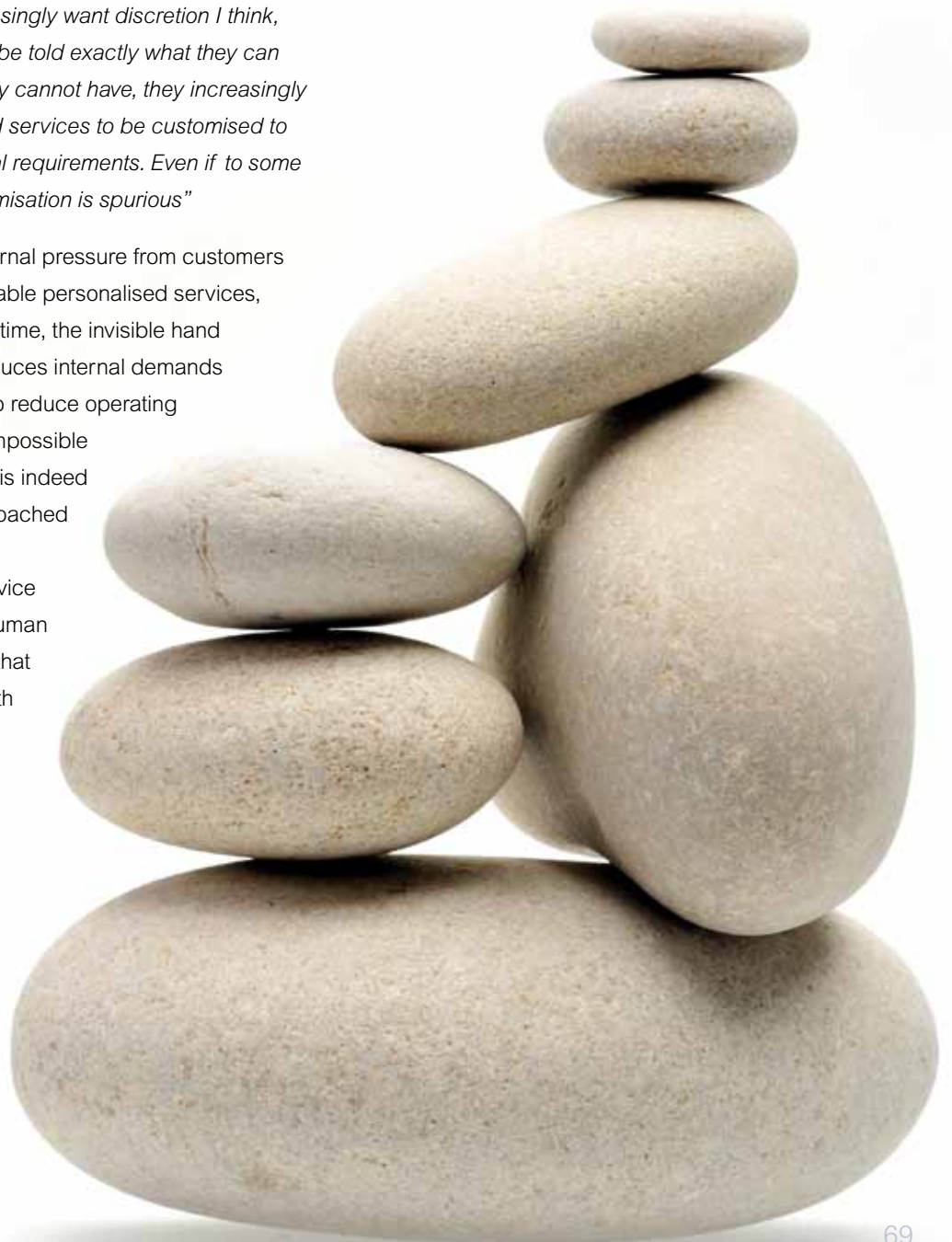
Supply chains have been streamlined, design and manufacturing processes have been geographically separated, designs have been modularised into reusable components, and production processes have been globally distributed. Advances in the production of goods have resulted in increased living standards in industrialised countries.¹²⁸ Innovation in Information Technology (IT) has played the crucial role in enabling extensive control of these ever increasingly complex processes.¹²⁹

Products that in the past had been available only to the wealthy few, became within reach of a large customer mass-market, who accepted that products would be the result of a standardised manufacturing process with little room for individualisation in terms of the product specification. The products can, however, once in the customer's possession, be subjected to adjustments and individualisation. A production-line car can be fitted with a tune-up kit. An iPod will be subjected to ongoing customisation when old songs are replaced with new ones. While the customer may have limited opportunities to specify individualised product requirements up front, they will often personalise the product through use after purchase.

The arrival of the knowledge-, service- or information society has been proclaimed since the 1960's and developments since the Second World War have led to an increased focus on the provision of services.¹³⁰ The distinguishing difference between products and services is one of ownership, in that the customer may own a product but the service provider will own the service, which will often be both produced and consumed at the same time with considerable customer involvement.¹³¹ Services must be adaptive to varying needs and preferences. These preferences are explored and formulated through processes of listening and mutual adjustment. Customers, employees and business partners alike may need to play an active role on the service relationship, nudging matters in the right direction by stating preferences and by engaging in processes of give and take. This is the primary reason why high quality services traditionally have been linked with human discretionary effort, as such services are often organised as human-to-human contact where the ongoing conversation defines the service.

Industrialised production enabled mass-production of high quality products through innovation, standardisation, automation and control. The increased demand for affordable, personalised, high quality services relationships presents an equal challenge for organisations.¹³² Mark Turrell, CEO of Imaginatik, illustrates the increasing expectation of personalisation; “25 years olds have grown up with 500 TV channels and the Internet. They’ve grown up with choice. I was in a restaurant in Boston having breakfast and five college kids were ordering. Every single one of them customised their order. *“Can I have my toast on rye” and “can I have unsalted butter, please”.* The fifth person ordering only wanted to eat a standard breakfast, but she felt compelled to customise it anyway.” Dr Ted Johns argues that: *“Customers increasingly want discretion I think, they don’t want to be told exactly what they can have and what they cannot have, they increasingly want products and services to be customised to their own individual requirements. Even if to some degree that customisation is spurious”*

The mounting external pressure from customers demanding affordable personalised services, whilst at the same time, the invisible hand of the market produces internal demands for organisations to reduce operating costs, seems an impossible circle to square. It is indeed impossible if approached with the traditional assumption of service quality equating human effort. We believe that the solution lies with the innovative application of IT.



3. A NEW DEAL

What is emerging is a new deal between organisations and customers that might equal that already established for mass-market access to products. To achieve mass access to high quality individualised service relationships, these must be subjected to a high degree of standardisation and automation. As discussed in *Listen!* and *Engage!*, global information infrastructures and associated services, often labelled as Web 2.0, offer ample opportunities for listening to customers, and engaging with them in processes of mutual adjustments affordably.

Innovating with IT allows the organisation to rethink its business mix and to create affordable high quality services at scale. This requires of the organisation to augment inwards-looking processes of innovation, focused on cost-savings through optimising internal operations with outwards-focused innovation of services relationships.¹³³ As argued by Gordon Penfold, Chief Technology Officer at British Airways; *“We try to get away from the standardise, automate and eliminate mantra. It struck us that businesses that were creative and trying to create a long-term future needed to engage both their customers and staff in a more contemporary way.”*

The mass-provision of individualised services relationships will require a new deal much like the one established in the relationship between consumers and the manufacturers of affordable mass-produced goods. In order to offer extensive personalised support through ongoing service relationships, some form of automation will need to take place. We argue that such adaptive automation will form a key component of the mediated relationship, along with extensive self-service allowing the dynamic and adaptive aspects of the relationship to be played out without relying extensively on employee effort.

It is important to recognise however, that simply providing adaptive automation and self-service cannot provide a significant aspect of services relationships. The final element is rethinking and strategically deploying human effort and discretionary decisions. This implies that all parties in service relationships must adjust their expectations in terms of:

- a more comprehensive role of information technology in providing scalable support for adaptive service relationships
- increased reliance on customer self-service, co-creation, and crowd intelligence supporting the processes of mutual adjustment in the service relationships,
- highly selective direct engagement of the organisation in providing paid human discretionary decision making.

The following three sections present these aspects in turn as: adaptive automation; self-service and co-creation; and rethinking employee engagement.

4. ADAPTIVE AUTOMATION

The first challenge in providing affordable yet individualised services is to automate essential aspects of the ongoing service relationship. Dr Ted Johns suggests aiming to; *“automate the bits that don’t add value for the customer.”* This is also the traditional approach when transforming manual services relationships into simple transactions, and a valuable element in both making the experience smooth for the customer and effective for the organisation. British Airways’ CIO, Paul Coby, presents information technology as an *“anvil for simplification”* and such automation will continue to play an important role as organisations seek to streamline their operations.

In the case of British Airways, significant organisational restructuring allowed radical simplification of the purchasing process so it indeed could be a simple customer transaction on a website instead of a complex process with little additional value for customers.

This type of automation, however, has limitations as it does not mediate an ongoing service relationship allowing for mutual adaptation along the way but rather streamlines a complex relationship into a simple encounter. The question then is to what extent automation can add value for customers, and to what extent customer service relying on human discretionary effort does add value?

The Christmas 2008 television advert from the no-frills retailer Argos illustrates that the degree of human engagement is not always adding value. Here 11 attentive sales assistants collaborate to provide excellent service to a woman simply wanting to purchase a small wallet, with Stephen Fry’s voice-over arguing that Argos *“makes a little less fuss”*.¹³⁴ Dr Ted Johns argues that one of the key characteristics of an organisation delivering superior service is being easy to deal with, and there are many possible interpretations of what this implies.

When one of the authors needed a new inner tube and tyre for a baby buggy wheel, he phoned the

department store where it was purchased, which is well known for its excellent customer service. It was not clear to the staff at the store exactly who was the right person to help with this problem and a 45 minute call bounced backwards and forwards between a number of extremely kind and helpful store assistants. Was it after-sales, repair or the baby department? In the end, a message was left and the appropriate person called back after a couple of hours providing exactly the information needed. It was, unfortunately, not possible to purchase the inner tube and tyre alone, but only an entire new spare wheel at the price of £20 plus £20 in delivery charges imposed by the manufacturer.

However, after just 10 minutes of search on eBay.co.uk a brand new inner tube and tyre was purchased for a total price of £12 including postage and the goods were delivered two days later. The department store obviously offered extremely responsive and high-quality service in the interaction, but the resulting bill would have been almost four times that of the auction on eBay, and at a good deal more than four times the effort. eBay was in this case much easier to deal with than the department store. The example shows how automation has enabled direct access to a long tail of goods with eBay mediating the transaction between supplier and customer.

Beyond simple transactions, adaptive automation can enable organisations to easily deal with ongoing process of nudging the service relationship in the right direction. If essential aspects of the mutual adjustments in the service relationship can be formalised, then this may be perceived by the customer as better service than having an employee of the organisation do the nudging.

Carefully crafted portfolios of information services integrating business processes, listening, and mutual adjustment with advanced information technology offer ways of squaring the circle of affordable, yet personalised, services. Standardisation and adaptive automation form the first of the three main elements. The relationship must be modified from being conducted primarily through loosely stipulated organisational procedures and a high degree of ad hoc human involvement, towards a service relationship largely mediated by information technology, and thereby relying on an extensive degree of standardisation and automation.

This kind of automation will to some extent seek to streamline processes of engagement; but to be effective they will mediate relationships more than the traditional effort where business processes are reduced to automated transactions. The online card merchant Moonpig is a good example of a hybrid form of traditional and adaptive automation.¹³⁵

Customers simply choose a birthday – or other type of card on the website, submit a personal message and an address to which it is to be posted, and pay by credit card. This is a version of a traditional Internet merchant but with the twist that each product is personalised, and that customers can upload their own photos to use on the cards, as well as have an account with prepaid amounts.

Although the elements where the customer nudges the process along here are relatively trivial, for example, providing the text and maybe even image for the card, it simultaneously allows adaptation to specific customer needs at a low cost. The organisation and the customer engage in mutual adjustment within the pre-specified boundaries presented by the system. Customer preferences for music – or movie purchases can, for example, be extensively supported by recommender technology. This technology emerged in the Mid-90s as websites such as Firefly and now forms part of a range of services, for example, the iTunes Genie.¹³⁶

The aim of adaptive automation is to ensure flexible and adaptive support for an ongoing systems-mediated relationship of mutual adjustment. Adaptive automation will, as opposed to a simple automated process, not merely be an instance of input, unbroken processing, and output that assumes the entire process can be codified in one encounter. It is an ongoing interactive process that needs to be nudged along in the direction desired, in order to deal with more complex problems. This will require ongoing interactivity, for example with employees, customers, partners, sensors, or other system components.¹³⁷

Adaptive automation can be based on a range of efforts from simple CRM profiles containing customer information to complex semi-automatically updated relationships based on sensors, such as the example suggested by Professor Peter Cochrane, from Cochrane Associates, in our first report *Listen!* with an iPhone application recording the typical morning routine of a senior citizen and discretely asking if everything is OK when the routine is broken.

5. EXPANDING SELF-SERVICE AND CO-CREATION


The second element in an information services portfolio is the extensive application of self-service as a means of managing the ongoing relationship. This is intrinsically linked to the adaptive automation mentioned above as the two together ensure that the relationship is managed in an adaptive manner suiting all the parties in the relationship. This was also evident in the examples discussed above.

As argued above, it is possible to disassociate good customer service and extensive use of human discretionary effort. Gordon Penfold, BA, highlights the advantages for customers in feeling that they are in control; *“It’s actually very satisfying to be in control of whichever process or relationships you are dealing with. The ATM is a classic example of self-service introduced in the 1970s. Everybody thought it was going to be terrible. They would rather deal with a person, but everybody now thinks it is fantastic that there are ATM’s everywhere and you can access your money 24/7.”*

Banking has a long tradition of self-service. The addition of online banking at a large scale through the web-based systems introduced in the mid-90s, and the emergence of mobile banking solutions, are both examples of how customers can actively service their own banking needs within a set of restricted options. Web-based front-end links into enterprise systems in general, allow for extensive customer involvement in data-entry and some transactions.

Self-service is a much broader phenomenon than merely customers entering their own data directly when setting up a web-site profile, although this is of course a very typical activity. It generally represents the disintermediation of specific roles and the specific types of interaction these roles would traditionally carry out. As an example, before the personal computer, universities used to employ administrative staff to type up manuscripts for academics, who would provide these staff with hand-written manuscripts.

We have in *Listen!* and *Engage!* presented several examples of how self-service can provide great value for both those engaging in it, and those organising it. In truth, we have only begun the journey of understanding how the capabilities of highly distributed and networked information technologies can combine adaptive automation and self-service to gain significant productivity gains and enable new business models. The discussion in *Engage!* of large-scale mutual adjustment, for example in crowd-sourcing and open-innovation, clearly demonstrates that there is significant scope for engaging customers, employees, and partner organisations in a much more



comprehensive manner than has previously been considered in many organisations.

It is, however, still a significant challenge to understand the dynamics of self-service. In what areas of their life are people willing to self-service, for example? Will different generations and societal groups have different pre-dispositions to actively engage? We do not know the general answers to these questions and there is a great need to experiment, and therefore also plenty of scope for gaining competitive advantage when such experimentation is successful.

Allen Huish, former Head of Innovation, now Head of Supplier Relations at British Airways, discusses BA's ongoing design of self-service both for customer and employer relations. As an example, Allen mentions the changes to staff travel booking; *"We had large rooms where people would go with banks of seating where you would go and pick a number like in a delicatessen shop and your waiting time was 40 minutes or an hour. You would sit there with a newspaper and wait until somebody spoke to you and when they spoke to you it was pot luck what level of information they gave you [about available tickets and destinations]. To cut a long story short after a four or five year process we achieved 100% self-service for staff travel."*

Allen Huish also mentions that while the trades unions were not initially overwhelmingly positive towards self-service like this, they are now actively suggesting new areas for self-service enablement, and he continues; *"the whole conversation turns on its head when people have come to terms with the counter intuitive notion that if you make me do something that a person used to do for me then this can be an improvement. This opens huge opportunities for us because you then take that thinking into real value creating business processes. For example, we have a system of stand-by manning for flight crews. Changes due to schedules changes, peoples' changing plans, illness or late incoming flights mean that we need to adjust rosters rapidly. It is very important for our customers that we are able to operate as scheduled and flight crew manning is something that directly affects that. As flight crews like being on standby because they earn extra money {they are motivated to self service}"*.

Online banking, holiday travel and hotel bookings, Amazon shopping, and a rich global ecosystem of “social production”, as Benkler characterises it¹³⁸, all form a testament to the growing ability to, and interest in, self-servicing. What we are witnessing is a topsy-turvy world where customers are acting as paid or unpaid employees.

The principles of what is a feasible size for a company are changing radically, as the means to organise mutual adjustments through amplification with information technology is shifting the fundamentals. One of the most popular Playstation 3 games, Little Big Planet, is a global collaborative platform that allows players of the game to develop and upload their own worlds for others to play.¹³⁹ The significant effort of delivering extensive and constantly updated content is conducted by a global community of engaged players.

Our research highlights the need for more comprehensive support for self-service and decentralisation. For example, a trust-infrastructure is required for enabling decentralised bottom-up co-creation, moving away from a simple model of individual customers engaging in self-service with an organisation, and instead moving towards a highly decentralised system of integrated self-service.¹⁴⁰ David Birch, Director at Consult Hyperion, highlights a possible scenario of such decentralised federation of collaboration; *“Assume that I read your blog and decide to pay you for writing on mine, I then need to see a digital signature, which proves that you are the person that wrote the stuff I read. You then send me a digitally signed piece of work {...} Hiring you means issuing you with a certificate and key so you can log into my network and put stuff on the blog etc. I can then also have a bank account to transfer money to. If after a few months I don't like something you wrote or you're late with your work all the time then I may decide to fire you. I simply do that by revoking the certificate so you can no longer get in. We here have a complete cycle where I have hired, paid and fired you without the slightest idea of who you are and that doesn't matter because the whole system functions. I can even punish you because if you stole some money from me or something like that, I could go to a judge and prove that you've done it and the judge*

could get the bank to revoke your certificate and that means that you couldn't get anymore work. The reputation that you built up over time in that certificate is very valuable.”

Given the right circumstances it is possible to disassociate good customer service from human discretionary effort. Gordon Penfold, British Airways, for example argues that; *“providing customers the ability to check-in online and print their own boarding card is innovative especially in the context of customer service where it's all about meeting the nice person in a uniform at the desk. However, it's about putting people back in control. When I travel, one of the greatest things is knowing that I've checked myself in and printed my boarding cards because I've just bought myself time. You don't want to get stuck in a queue, at a check-in desk because it's just down time, as far as you are concerned”*.

As discussed in *Engage!* IT innovation can amplify processes of mutual adjustment, and it is essential to carefully design this mutuality. When a customer purchases a product, for example a mobile phone, they engage in an ongoing process of mutual adjustment outside the realm of the device manufacturer. Services will, however, ultimately be controlled by the service providing organisation and this can lead to a breakdown of trust if the service appears to behave in counter-intuitive manners or directly against the interest of the customer. When Amazon sold copies of 1984 to owners of its Kindle digital book, it had made a mistake and did indeed not have the rights to do so. The company therefore decided to revoke the sale from all customer Kindle devices resulting in the book being deleted.¹⁴¹ As The Register article on this argues: *“Customers are accustomed to the concept of ‘buying’ as being permanent. And if it's not permanent, why can't I force them to refund it if I don't like the book? How come the ability to revoke the sale is unilateral, one-sided, asymmetric?”* if the service provider wishes to engage the customer in processes of self-service and mutual adjustment, as well as maintain the right to unilateral asymmetric actions, it will, as in the quote above, raise the issue of why such rights are not symmetric.

6. RETHINKING EMPLOYEE ENGAGEMENT

The third, and final, part of our proposed strategy is to rethink employee effort and discretion. Organisational design, innovation and operation rely critically on human collective effort, organised within frameworks of conventions, rules, standard operating procedures, schedules and mechanisms governing work. The suggestion here is therefore far from organisations simply seeking to run as large scale, self-served automated platforms. Extensive business innovation – reconfiguring the elements of adaptive automation, self-service and employee effort – can allow the organisation to offer mass-access to tailorised services. This in turn can support the organisation in re-directing discretionary employee decisions to where they matter most, for example, in the design of new services or in the handling of complex exceptions. If, for example, contact centre staff are employed, then they will be servicing processes driven by adaptive automation and self-service, and therefore sufficiently streamlined for a contact centre agent to make discretionary decisions – something that rarely happens in call centres today.

The widespread practice of companies simply providing customers with access to representatives who do not have any power to exercise discretion seems counter-productive. Marcus Hickman, Executive Research Director at the Customer Contact Association, directly argues that as the level of calls to contact centres fall, there will be increased need for more discretion and an emphasis on problem solving and knowledge management, rather than automated behaviour closely following pre-determined scripts. He exemplifies; *“simple transactions between the customer and the organisation will be automated or are being automated. Four or five years ago British Airways had 30 million telephone calls each year, now they have 6 million calls each year. The calls are replaced by other types of interaction, for example via the Internet and text messages”*. Dr Ted Johns, Chairman of the Institute of Customer Service argues that in one organisation; *“86 percent {of contact centre staff} welcomed {abandoning scripted interaction}, which means there were 14 percent who didn’t and who would have preferred to continue with a script. I wonder who these people are, do they run their lives like this?”*

When discretionary employee effort is deployed, it should exactly be discretionary. Organisations may, for example, be keen to find good opportunities to get in touch with the customer in order to strengthen or expand the relationship. Insurance companies, for example, find the interaction with customers making claims highly valuable, as this is where they are useful to the customer and potentially pay back money instead of claiming the premium. A smooth and personal claims process can strengthen the brand and the customer relationship.

In many cases organisations have evolved ways of carefully rationing employee effort in matters where the application of human effort is critical for the customer. The case of Ask Sunday serves as an illustrative example of the careful packaging of human effort into a service.¹⁴² Ask Sunday offers its subscribers, for a monthly fee, highly measured 24/7 accesses to personal assistance from one of the company’s employees via email or telephone, as well as access to a dedicated assistant within normal working hours. The rules of engagement

are simply that each task will be devoted 20 to 30 minutes and each payment plan allows a certain number of requests for each month. General 24/7 assistance typically could be talking to customer service representatives, scheduling appointments with doctors or salons, making travel arrangements, and ordering flowers, gifts or books. Ironically, the most popular activity is to use Ask Sunday to call customer services in other organisations.

Tasks allocated to the personal assistant will typically be data entry, Internet research, outbound calling, document editing, and email correspondence. For Ask Sunday, the use of email and telephone systems, along with a database mediating the ongoing relationship between the customer and company employees, allows the careful management of employees supporting customers.

YouTube offers a good illustration of the combination of adaptive automation, self-service and rethinking of employee effort. YouTube is a collaborative platform for sharing, rating and discussing videos, as well as creating playlists of several selected videos and flagging problematic ones. The primary human effort involved is conducted as self-service by a global user-community and YouTube staff mainly become involved as arbiters e.g. by blocking content based on customers flagging it as problematic, or when there are changes in the arrangements with copyright holders – such as that which recently led the company to block access to all music videos within Great Britain due to copyright issues with the music business.¹⁴³

The ability to cultivate and organise human skills, creativity and ingenuity is at the core of what constitutes an organisation and is central to innovation. If adaptive automation and self-service form essential elements in the organisation’s ability to listen and engage, then employee discretion forms the key element in formulating the essence of the organisation. The core of Apple Inc, for example, is the ability to devise designs that are highly user-friendly. For that reason it does not run its own manufacturing and logistics operations but let others take care of that.



The past 15 years have seen dramatic increases in the aspects of organisations that are “separated out” and taken care of by others in various outsourcing arrangements.¹⁴⁴ One of the key challenges in designing outsourcing arrangements is for the organisation to ensure that it retains core capabilities. This is a similar discussion to that of deciding what aspects of innovations or operations should be taken care of by rethinking the arrangement of adaptive automation, self-service and human effort. Where is discretionary employee effort critical for either the organisation or the customer?

In the case of the Streetcar.co.uk example, discussed in *Engage!*, members of the scheme are responsible for most of the operations of booking cars on the company’s website, picking up the cars themselves, and keeping them filled with petrol. However, the organisation wishes to ensure that any member joining the scheme has a valid driver’s licence so human operators in a contact centre will ensure the membership process seeks to keep anyone out who may not be legally qualified.

For some organisations, this will lead to simply seeking to reduce the amount of non-discretionary work through shifting labour-intensive tasks towards self-service, whereas for other organisations unusual combinations of an innovative information technology platform combined with a novel view of self-service can lead to new business models and a reshaping of the fundamentals of what constitutes the organisation in terms of human effort.

7. CHALLENGES

Whilst it may seem as though we are advocating organisations solely comprised of customers, volunteers and automated computer systems, this is of course far from the case! However, with decades of experience of internal streamlining of business processes in one part of the organisation, and large-scale application of menial information work in contact centres in another, there is often a need to re-consider the overall aim.

Assemblages of discretionary-, procedural- and automated effort make organisations what they are. We merely point at ways in which traditional divisions of these efforts can be rethought. This section highlights some of the challenges of establishing a new balance of the elements.

Big Cheap Switches!

Recent efforts to automate a range of computer services is a good example of technology-centric adaptive automation, as also discussed by Nicholas Carr in his most recent book.¹⁴⁵ For a mere \$0.15 per gigabyte of storage, Amazon's S3 users can backup their data to what has been called "the cloud" without having to rely on extensive amount of IT services staff, systems analysts and mainframe operators. Add \$2 per month and the company Jungle Disk offers on top of this, a service streamlining and automating the process significantly by providing the user with a host of facilities. In fact it is now possible to procure large scale IT infrastructure with a simple credit card payment.

Nicholas Carr illustrates the trend of turning computation into a utility of hosted services through a number of examples, such as Google, Amazon and others.¹⁴⁶ Professor Peter Cochrane also argues that not only will outsourcing and automation influence the way IT services are organised, there will also be increased virtualisation of the IT function; *"So, when you are online at night but aren't using your machine they back it up, update virus definitions, update all your*

software and clean up your machine. If you get into trouble, you call them and they come online and fix it for you. If the machine dies or if somebody steals it, immediately you notify this virtualised IT support function and a new machine is loaded with all your stuff and is FedExed to you." Peter Cochrane furthermore, argues that younger generations who have grown up with computer technology will largely self-service their own IT support.

The question remains as to what extent aspects of work previously relying extensively in discretionary decisions can be shifted towards automated processes delegated to software services. The people we interviewed offered different perspectives on the matter, but generally agreed about the value of seeking to automate aspects of the interaction between the organisation and its constituents. Dr Ted Johns from the Institute of Customer Service and Marcus Hickman, The Customer Contact Association, both emphasise the core need for organisations to be able to address exceptions through human discretionary decisions. Lars Plougmann points towards the extensive use of automated functions, for example for monitoring how the organisation can engage with on-line communities, but also very much sees the challenges as ones relying critically on supporting organisational members collaborating. Mark Turrell and Geoff Carrs from Imaginatik, along with Gordon Penfold and Allen Huish from British Airways, seek to push the boundaries for shifting manual processes to automated ones.



In the battle between Yahoo and Google over domination in the Internet advertisement market, Yahoo's strategy was based on more labour intensive approach with human review of ads, while Google put all bets on a fully automated approach, which could not guarantee the same quality of service but was much more globally scaleable. Google's system AdWords was much more adaptive to automatically weed out non-effective adds as it used a wider ranger of behavioural measurements than Yahoo's.¹⁴⁷

Data or Process?

Generally, it is always easier to standardise and streamline data than processes. This is the reason that standardising and automating decision processes into computational transactions at times produces structural constraints, when the assumptions behind this automation do not hold and an exception occurs.¹⁴⁸ If, for example a simple automation relies on assumptions, which are inaccurate, then the end-user may struggle as the difference between the intended effect and that delivered triggers an exception with the end-user. The difference between the algorithmic codification in a simple automation encounter and an adaptive service is precisely that the adaptive service will provide some freedom for the process to be adapted by the user in the context of an ongoing relationship. It supports mutual adjustment between service and user.

One of the main reasons that information support for distributed collaboration has emerged only slowly since the early 1980s is that technologically stipulated assumptions about how collaboration processes unfold must be sufficiently open-ended to cater for emerging changes.¹⁴⁹ It is much easier to provide engineering designers with a computer-based tool providing support for 3D modelling, than it is to embed process to support stipulating who should contribute when, and with what decisions, throughout the modelling process. Indeed, it can be argued that the standardisation of business processes can at times lead to the opposite effect than that intended.¹⁵⁰

David Wood, Executive Vice President for Research at Symbian, explains the critical aspect of standardising data in the configuration management of the highly complex task of collaborating on building and maintaining Symbian operating systems. The configuration management systems tie the developers together so; *"whenever the configuration management systems are running slow, it's gut wrenching for developers"*. The configuration management systems form the foundation for attempts to automate the

process of keeping track of different versions of the operating system and ensuring that changes made by different developers are properly integrated into various versions of the system semi-automatically. Configuration management systems formalise the structural aspects of tracking and controlling changes to the software, but do not stipulate in detail how each software engineer conducts this work.

Lars Plougmann, Partner in Headshift, provides an example of how a collaborative platform can serve as a focal point for rapid delivery of a service valuable to customers; *"A law firm, Allen & Overy, have a collaboration platform used by between a third and half of their fee earners. So for example, when the credit crunch kind of crystallised they had the ability to throw up a space discussing it. They did that in 15 minutes and suddenly they were able to blog about it and to collaborate on positions and intelligence on a wiki. They shared collections of bookmarks and brought everything together in a space, in order to help them to advise their clients in a recession."*

Intuition or Automation?

Much debate has been concerned with the extent to which automation in general is possible, and what outcomes this may lead to, and there are still no certain answers. Some observers have an unyielding optimism regarding our ability to model highly complex human systems through information technology, for example, in order to make more precise decisions by removing the need for intuition and discretion through extensive data mining.¹⁵¹

However, balancing these quite optimistic assumptions about the extent to which formalised computational models can represent social and organisational phenomena are those arguing that life will always manage to escape the firm grip of formalisation. It is argued that models will always have predictive limitations and that the intrinsically emerging nature of organisational life makes the few completely unexpected exceptions a force to be reckoned with and one, which cannot easily be subjected to formalisation.¹⁵² As Taleb argues, for the turkey, 364 days of the year humans are pretty friendly creatures, but come Thanksgiving or

Christmas, relying on past performance measures will not be a reliable prediction of the future. As we argued in *Listen!*, even the prediction of credit card transactions being valid or fraudulent can easily result in false positives.

Mark Turrell, Imaginatik, argues that the importance of technologically supporting decision-making enables more evidence-based decisions simply because the technology allows sampling at a much greater scale and interactivity and he argues that, for example, two-way interaction between strategic planning and the opinions on the issues polled from employees and customers can be highly valuable. *"The 40 people in the meeting room on the Monday morning will trigger a question to 4,000 employees for specific input on a strategic decision they are discussing. This can only be done with technology and it also needs to be collaborative. If it's a one way survey drop box, it's no better than getting an instruction from military high command."* These two views may seem contradictory, but only because they are based on two different premises and the provision of different types of support. Whereas Lars Plougmann is concerned with broader support for organisational decisions, Mark Turrell seeks to formalise large-scale interaction through limiting the scope of this interaction. He also argues that the volume of transactions in service companies can be used as a source of better understanding customers through purposeful experimentation, for example, trying to understand the effects of reducing the quality of service for a small section of customers, something very difficult to achieve for companies selling products.

Dave Birch, Consult Hyperion, argues that interconnecting the automated parts in machine-to-machine interaction must also be an element in providing good services adapting to emerging situations; *"When there's a traffic jam on the M4 motorway there is a massive traffic jam through a certain village because everybody's satellite navigation system tells them to drive via the same diversion. However, if the satellite navigation systems were interconnected they could make much better decisions for themselves."*



8. CIO CHALLENGES

Much debate recently has been concerned with the possible role of information technology as a differentiating factor with views ranging from IT being the main instigator of change and strategic advantage, to the view that IT does not inherently offer any strategic advantage at all but merely forms part of the infrastructure for business in line with electricity.¹⁵³ However, innovating services relationships makes it increasingly difficult to separate the business from the supporting technology. As argued by British Airways CIO, Paul Coby; *“there are no IT projects, there are only business projects.”*

In contemporary organisations, the CIO is both in charge of the IT infrastructure and, jointly with other stakeholders, responsible for any crowd associated with the organisation. Amplifying large-scale mutual adjustment demands greater levels of systems availability and operational excellence. When hackers attacked Twitter.com and rendered it unavailable for a couple of hours it made global news headlines.¹⁵⁴ As the crowd interacts directly through the organisational infrastructure, the mesh of business processes, technological support and social aspects becomes even more inseparable than in traditional information systems. This implies that the CIO de facto will be far more than a technologist. Minor inconspicuous changes to systems capabilities can lead to dramatic crowd reactions, as the negative press generated when it emerged that Netflix deployed an algorithm favouring new customers' DVD rental choices instead of those expressed by loyal customers.

For the CIO to optimise his or her contribution to the organisation, the aim should be to create a symbiosis between IT and the business so that the organisation can excel in its core business whatever that may be. This will require work and experimentation to establish the perfect mix of people and IT to allow you to excel at what you want to do. Technology will of course be a major enabler of organisational innovation but this must also be supported by some significant cultural change to adapt the organisation so that it is able to exploit the benefits offered by the technology.



At the most simple level this might require the IT organisation to characterize those it supports as 'customers' rather than 'users'. It is an interesting analogy that when thinking about other examples of businesses that refer to their customers as users we thought first of narcotics dealers!

Many of the technologies that enable listening and engagement are easily accessible by anyone within the organisation. Social networking websites are entirely external to the organisation's own IT systems, and it is increasingly possible for tech-savvy employees to source their own IT on a large scale using only their credit card. Rather than letting the organisation lurch towards such Web 2.0 and Cloud-based services by stealth the CIO should ensure that the IT organisation is right at the centre and leading these opportunities to innovate with clear policies and technology roadmaps.

It is a highly complex journey for the organisation to rethink how to innovate through adaptive automation, self-service, co-creation, and through redefining the role of employee discretion. However, good examples and fundamental insights can go far in terms of inspiring new ways of tackling old problems. Many organisations could do worse than paying attention to Gordon Penfold, CTO of British Airways; *"We have four golden rules: Do it once, do it right (and neither of those are particularly intuitive in airline companies), if customers can do it better, help them, and treat your staff as a special case of customers and customers as a special case of staff."*

It is important to acknowledge that we understand far better how to standardise and automate processes into automated encounters surrounded by employee effort, than mixing up the elements seeking to technologically mediate ongoing adaptive relationship with central elements of co-creation, self-service, and highly selective employee discretion. As argued by Dave Birch; *"It's almost as if we're in Victorian times complaining that the electric light doesn't work properly yet. I accept the argument that these are still kind of early days."* A range of issues and challenges still need to be addressed, such as: the limits for adaptive automation; the necessary infrastructures relating to identity management and trust; as well as much better understanding of the relationships between technological capabilities and opportunities to deliver value. We have in these three reports *Listen!*, *Engage!* and *Be!* sought to raise some of the key challenges. It is only through willingness to experiment and embrace the challenges and changes wrought by increasingly empowered customers and a complexly interconnected world in which organisations will be able to innovate in order to create new value.

LISTEN! REFERENCES

Adams, D. (1979): *The Hitchhiker's Guide To The Galaxy*. London: Pan Macmillan.

Albrecht, K. & L. McIntyre (2006): *Spychips: How Major Corporations and Government Plan to Track Your Every Move with RFID*. USA: Nelson Current.

Associated Press (2008): Cell phone users secretly tracked in study. CNN.com, June 4th. <http://edition.cnn.com/2008/TECH/06/04/cell.tracking.ap/index.html>

Ayres, I. (2007): *Super Crunchers: Why Thinking-By-Numbers is the New Way to Be Smart*. New York: Bantam Books.

Barabási, A.-L. (2002): *Linked: The New Science of Networks*. Cambridge, MA: Perseus.

Bell, D. (1976): *The Coming of Post-Industrial Society: A Venture in Social Forecasting*. Peregrine books. Harmondsworth: Penguin.

Birkinshaw, J. & C. Gibson (2004): *Building Ambidexterity Into an Organization*. Sloan Management Review, vol. 45, no. 4, pp. 47-55.

Boateng, K. (Forthcoming): *Understanding Contemporary Work Practices: On The Dynamics Of Control In Technology Mediated Interaction* PhD Dissertation, London School of Economics.

Bowker, G. & S. L. Star (1999): *Sorting Things Out: Classification and Its Consequences*. Cambridge, Massachusetts: MIT Press.

Brodie, R. J., N. E. Corviello, R. W. Brookes, & V. Little (1997): Towards a Paradigm Shift in Marketing? An Examination of Current Marketing Practices. *Journal of Marketing Management*, vol. 13, no. 5, pp. 383-406.

Browning, H. L. & J. Singelmann (1975): *The Emergence of a Service Society: Demographic and Sociological Aspects of the Sectoral Transformation of the Labor Force in the U.S.A.* ED131193. http://eric.ed.gov:80/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED131193&ERICExtSearch_SearchType_0=no&accno=ED131193

Carlzon, J. (1989): *Moments of Truth*. HarperCollins.

Castells, M. (1996): *The Rise of the Network Society*. vol. 1. *The Information Age: Economy, Society and Culture*. Oxford: Blackwell.

Coviello, N. E. & R. J. Brodie (2001): Contemporary Marketing Practices of Consumer and Business-to-business Firms: How Different are they? *Journal of Business and Industrial Marketing*, vol. 16, no. 5, pp. 382-400.

David, P. A. & D. Foray (2003): *Economic Fundamentals of the Knowledge Society*. *Policy Futures In Education*, vol. 1, no. 1, pp. 20-49. <http://www.worldwords.co.uk/pfie/>

- Demetis, D. (2008): A Systems Theoretical approach for Anti-Money Laundering informed by a Case Study in a Greek Financial Institution: Self-reference, AML, its systemic constitution and technological consequences. PhD Dissertation, London School of Economics and Political Science. <http://is.lse.ac.uk/research/theses/>
- Fildes, J. (2008): Mobile Phones Expose Human Habits. BBC News. <http://news.bbc.co.uk/1/hi/sci/tech/7433128.stm>
- Foley, J. (1997): Market of One - Ready, Aim, Sell! Technology is Helping Companies Treat Their best Customers Like Individuals Again. The Payoff and the Challenges Can Be Enormous. InformationWeek, February 17.
- Gersuny, C. & W. R. Rosengren (1973): The Service Society. Cambridge, Mass: Schenkman Pub. Co.
- Gibson, C. & J. Birkinshaw (2004): The Antecedents, Consequences, and Mediating Role of Organizational Ambidexterity Academy of Management Journal, vol. 47, no. 2, pp. 209-226.
- Gilmore, J. H. & B. J. Pine II, ed. (2000): Markets of One: Creating Customer-Unique Value through Mass Customization Harvard Business School Press.
- Gutek, B. (1995): The Dynamics of Service. Jossey Bass Wiley.
- Halmos, P. (1970): The Personal Service Society.
- Holmberg, L. & L. Mathiassen (2001): Survival Patterns in Fast-Moving Software Organizations. IEEE Software, vol. 18, no. 6, pp. 51-55.
- Höök, K., D. Benyon, & A. J. Monroe, ed. (2003): Designing Information Spaces: The Social Navigation Approach. Computer Supported Cooperative Work. London: Springer-Verlag. 1 85233 661 7.
- Kallinikos, J. (2006): The Consequences of Information: Institutional Implications of Technological Change. Cheltenham: Edward Elgar.
- Lessig, L. (1999): Code and other laws of cyberspace. New York: Basic Books.
- Levy, S. (2008): Ray Ozzie Wants to Push Microsoft Back Into Startup Mode. Wired Magazine, pp. 170ff. http://www.wired.com/techbiz/people/magazine/16-12/ff_ozzie
- Lewis, P. (2008): Bluetooth is watching: Secret Study Gives Bath a Flavour of Big Brother. The Guardian, July 21. <http://www.guardian.co.uk/uk/2008/jul/21/civilliberties.privacy>
- Livingstone, S. (2002): Young People and New Media. Sage.
- Machlup, F. (1973): The Production and Distribution of Knowledge in the United States. 1962. Princeton University Press.
- Mathiassen, L. & C. Sørensen (2008): Towards A Theory of Organizational Information Services. Journal of Information Technology, vol. 23, no. 4, pp. 313-329.
- Memon, K. (2008): Consumer Attitude Towards RFID: A Strategic Framework. Unpublished Dissertation, London School of Economics.
- Neely, B. (2008): Copenhagen Airport Pilots RFID Tags for Passengers. RFID Journal, May 30. <http://www.rfidjournal.com/article/view/4104/>
- Palfrey, J. & U. Gasser (2008): Born Digital: Understanding the First Generation of Digital Natives. New York: Basic Books.
- Pentland, A. S. (2008a): Honest Signals: How They Shape Our World. Cambridge, Mass: MIT Press.
- Pentland, A. S. (2008b): Reality Mining (Video). Cambridge, Mass: MIT Media Lab, <http://web.media.mit.edu/~sandy/PentlandTR10.mov>
- Rai, A. (2004): Envisioning Management of Information. In Designing Manufacturing & Service Processes. Unpublished Presentation, 24. Atlanta: Georgia State University,
- Rai, A. & V. Sambamurthy (2006): Editorial Notes – The Growth of Interest in Services Management: Opportunities for Information Systems Scholars. Information Systems Research, vol. 17, no. 4, pp. 327–331.



Rasmus, D. W. & R. Salkowitz (2009): *Listening to the Future*. Hoboken, New Jersey: John Wiley & Sons.

Saunders, A. & E. Brynjolfsson (2007): *Information Technology, Productivity and Innovation: Where Are We and Where Do We Go From Here?* Report prepared for The Institute for Innovation and Information Productivity (www.iii-p.org). MIT Sloan School. March. 231.

Sawhney, M., S. Balasubramanian, & V. V. Krishnan (2004): *Creating Growth with Services*. Sloan Management Review, vol. 45, no. 2, pp. 34-43.

Shankara, V., A. K. Smith, & A. Rangaswamy (2003): *Customer Satisfaction and Loyalty in Online and Offline Environments*. International Journal of Research in Marketing, vol. 20, no. 2, pp. 153-175.

Shapiro, C. & H. R. Varian (1998): *Information Rules: A Strategic Guide to the Network Economy*. Harvard Business School Press.

Sørensen, C. (2008): *Unpacking Ubiquity: Interaction Symmetry and Asymmetry at Work*. In *The Role of New Technologies in Global Societies*, Hong Kong: Department of Applied Social Sciences, The Hong Kong Polytechnic University,

Sørensen, C., H. Fagrell, & P. Ljungstrand (2000): *Traces: From order to chaos*. In *Planet Internet*, ed. K. Braa, C. Sørensen, and B. Dahlbom. Lund, Sweden: Studentlitteratur, pp. 113-136.

Sørensen, C. & R. Gear (2007): *Innovating with ICT: The Executive Challenge*. LSE – PA Consulting Group Report.

Tapscott, D. (2009): *Grown Up Digital: How the Net Generation is Changing Your World*. New York: McGraw-Hill.

The Economist (2007): *Pocket World in Figures: 2007 Edition*. London: The Economist.

Thompson, C. (2007): *The See-Through CEO* Wired Magazine. http://www.wired.com/wired/archive/15.04/wired40_ceo.html

Weinberger, D. (2008): *Everything Is Miscellaneous: The Power of the New Digital Disorder*. Henry Holt.

Williams, C. (2008): *BT and Phorm secretly tracked 18,000 customers in 2006*. The Register, April 1st. http://www.theregister.co.uk/2008/04/01/bt_phorm_2006_trial/print.html

Williams, C. C. (2007): *Rethinking the Future of Work: Directions and Visions*. Management, Work and Organisations. Basingstoke ; New York: Palgrave Macmillan.

Yang, S.-C. (2008): *Exploring the Innovating Phases and Consequences of Customer Self-Service: A case study of Oyster ticketing system in London Underground*. Unpublished Dissertation, London School of Economics.

Zuboff, S. & J. Maxmin (2002): *The Support Economy: Why Corporations are Failing Individuals and the Next Episode of Capitalism*. London: Penguin.

ENGAGE! REFERENCES

- Ayres, I. (2007): *Super Crunchers: Why Thinking-By-Numbers is the New Way to Be Smart*. New York: Bantam Books.
- Barley, S. R. & G. Kunda (2004): *Gurus, Hired Guns, and Warm Bodies: Itinerant Experts in a Knowledge Economy*. Princeton University Press.
- Benkler, Y. (2006): *The Wealth of Networks*. Yale University Press.
- Bhidé, A. (2008): *The Venturesome Economy: How Innovation Sustains Prosperity in a More Connected World*. Princeton, N.J.: Princeton University Press.
- Birkinshaw, J. & C. Gibson (2004): Building Ambidexterity Into an Organization. *Sloan Management Review*, vol. 45, no. 4, pp. 47-55.
- Brabham, D. C. (2008): Crowdsourcing as a Model for Problem Solving An Introduction and Cases. *Convergence: The International Journal of Research into New Media Technologies*, vol. 14, no. 1, pp. 75-90.
- Brabham, D. C. (Forthcoming): *Crowdsourced Advertising: How We Outperform Madison Avenue*. *Flow: A Critical Forum on Television and Media Culture*.
- Buskirk, E. V. (2009): \$1 Million Netflix Prize So Close, They Can Taste It. *Wired News*. <http://www.wired.com/epicenter/2009/06/1-million-netflix-prize-so-close-they-can-taste-it/>
- Carr, N. G. (2004): *Does IT Matter? Information Technology and the Corrosion of Competitive Advantage*. Harvard Business School Press.
- Carr, N. G. (2008): *The Big Switch: Rewiring the World From Edison to Google*. W. W. Norton & Co.
- Carson, M. (2009): *Innovation Island: Is the UK Open for Business*. London: Economist Intelligence Unit, Slide Presentation at event in London February 27, 2009.
- Chesbrough, H. W. (2003): *Open innovation: The New Imperative for Creating and Profiting from Technology*. Boston, Mass.: Harvard Business School.
- Chesbrough, H. W. (2006): *Open Business Models: How to Thrive in the New Innovation Landscape*. Boston, Mass.: Harvard Business School Press.
- Chesbrough, H. W., W. Vanhaverbeke, & J. West, ed. (2006): *Open innovation: Researching a New Paradigm*. Oxford University Press.
- Clegg, S., D. Courpasson, & N. Phillips (2006): *Power and Organizations*. Sage.
- Courpasson, D. (2000): Managerial Strategies of Domination. *Power in Soft Bureaucracies*. *Organization Studies*, vol. 21, no. 1, pp. 141-161.
- Ellenberg, J. (2008): This Psychologist Might Outsmart the Math Brains Competing for the Netflix Prize. *Wired Magazine*. http://www.wired.com/techbiz/media/magazine/16-03/mf_netflix

Friedman, T. L. (2005): *The World is Flat: The Globalized World in the Twenty-First Century*. London: Penguin.

Gabriel, Y. & T. Lang (2006): *The Unmanageable Consumer*. London: Sage.

Gibson, C. & J. Birkinshaw (2004): The Antecedents, Consequences, and Mediating Role of Organizational Ambidexterity. *Academy of Management Journal*, vol. 47, no. 2, April, pp. 209-226.

Goldthorpe, J. H. (2000): Social Class and the Differentiation of Employment Contracts. In *On Sociology: Numbers, Narratives and the Integration of Research and History*. Oxford: Oxford University Press, pp. 206-229. Chapter 10.

Grantham, C. E. (2000): *The Future of Work: The Promise of the New Digital Work Society*. New York: McGraw-Hill.

Grantham, C. E., J. P. Ware, & C. Williamson (2007): *Corporate Agility: A Revolutionary New Model for Coping in a Flat World*. AMACOM.

Haddon, L., E. Mante, B. Sapio, K.-H. Kommonen, L. Fortunati, & A. Kant, ed. (2006): *Everyday Innovators: Researching the Role of Users in Shaping ICTs*. Computer Supported Cooperative Work. London: Springer.

Hagel III, J. & J. S. Brown (2005a): *From Push to Pull: Emerging Models for Mobilizing Resources* Working Paper. October. <http://www.johnseelybrown.com/pushmepullyou4.72.pdf>

Hagel III, J. & J. S. Brown (2005b): *The Only Sustainable Edge: Why Business Strategy Depends on Productive Friction and Dynamic Specialization*. Harvard Business School Press.

Holmberg, L. & L. Mathiassen (2001): Survival Patterns in Fast-Moving Software Organizations. *IEEE Software*, vol. 18, no. 6, November/December, pp. 51-55.

Höök, K., D. Benyon, & A. J. Monroe, ed. (2003): *Designing Information Spaces: The Social Navigation Approach*. Computer Supported Cooperative Work. London: Springer-Verlag.

Howe, J. (2006): *The Rise of Crowdsourcing*. Wired Magazine. <http://www.wired.com/wired/archive/14.06/crowds.html> brown

Howe, J. (2008): *Crowdsourcing: Why the Power of the Crowd is Driving the Future of Business*. New York: Crown Business.

Hughes, N. & S. Lonie (2007): M-PESA: Mobile Money for the "Unbanked": Turning Cellphones into 24-Hour Tellers in Kenya. *Innovations*, no. Winter/Spring, pp. 63-81.

Kakihara, M. (2003): *Emerging Work Practices of ICT-Enabled Mobile Professionals*. PhD Thesis. The London School of Economics and Political Science.

Kallinikos, J. (2006): *The Consequences of Information: Institutional Implications of Technological Change*. Cheltenham: Edward Elgar.

Keegan, H. (2009): *Public vs. Private: Conflict and Compromise in Converging social Networks*. In *2nd Digital Cultures Workshop: Social Media Publics*, ed. B. Light. University of Salford:

Kluth, A. (2008): *Nomads at Last - A Special Report on Mobile Telecoms*. The Economist, April 12th. http://www.economist.com/specialreports/displayStory.cfm?story_id=10950394

Leadbeater, C. (2008): *We-think: The Power of Mass Creativity*. Profile Books Ltd.

Leonard, A. (1997): *Bots: The Origin of New Species*. San Francisco: HardWired.

Lessig, L. (2004): *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*. New York: Penguin Press.

Lessig, L. (2008): *Remix*. New York: Penguin Press.

Libert, B. & J. Spector (2007): *We are Smarter Than Me: How to Unleash the Power of Crowds in Your Business*. Wharton School Publishing.

Malone, T. W. (2004): *The Future of Work: How the New Order of Business Will Shape Your Organization, Your Management Style, and Your Life*. Harvard Business School Press.



- 
- Malone, T. W. & R. J. Laubacher (1998): The Dawn of the E-Lance Economy. Harvard Business Review, no. Sep.-Oct., pp. 145-153.
- Mintzberg, H. (1983): Structure in Fives: Designing Effective Organizations. Englewood Cliffs, New Jersey: Prentice-Hall.
- Moore, G. A. (1998): Crossing the Chasm: Marketing and Selling Technology Products to Mainstream Customers. Capstone.
- Nambisan, S. & M. Sawhney (2007): The Global Brain: Your Roadmap for Innovating Faster and Smarter in a Networked World. Wharton School Publishing.
- O'Reilly III, C. A. & M. L. Tushman (2004): The Ambidextrous Organization. Harvard Business Review, pp. 74-81.
- Pralahad, C. K. & M. S. Krishnan (2008): The New Age of Innovation: Driving Cocreated Value Through Global Networks. McGraw-Hill Professional.
- Prandelli, E., M. Swahney, & G. Verona (2008): Collaborating with Customers to Innovate: Conceiving and Marketing Products in the Networking Age. Cheltenham ; Northampton, MA: Edward Elgar.
- Rothwell, R. (1994): Towards the fifth generation innovation process. International Marketing Review, vol. 11, pp. 7-31.
- Sawhney, M., E. Prandelli, & G. Verona (2003): The Power of Innomediation. Sloan Management Review, pp. 77-82.
- Scarbrough, H. (1995): Blackboxes, Hostages and Prisoners. Organization Studies, vol. 16, no. 6, pp. 991-1019.
- Sørensen, C., H. Fagrell, & P. Ljungstrand (2000): Traces: From order to chaos. In Planet Internet, ed. K. Braa, C. Sørensen, and B. Dahlbom. Lund, Sweden: Studentlitteratur, pp. 113-136.
- Sørensen, C. & R. Gear (2007): Innovating with ICT: The Executive Challenge. LSE – PA Consulting Group Report.
- Story, L. (2007): The High Price of Creating Free Ads. The New York Times. May 26. pp. http://www.nytimes.com/2007/05/26/business/26content.ready.html?_r=2&ref=technology&oref=slogin
- Strassman, P. A. (1985): Information Payoff: Transformation of Work in the Electronic Age. Macmillan.
- Taleb, N. N. (2008): The Black Swan: The Impact of the Highly Improbable. Penguin Books Ltd.
- Tapscott, D. & A. D. Williams (2007): Wikinomics: How Mass Collaboration Changes Everything. Atlantic Books.
- Thackara, J. (2005): In the Bubble: Designing in a Complex World. Cambridge, Massachusetts: MIT Press.
- von Hippel, E. (1988): The Sources of Innovation. Cambridge, Massachusetts: The MIT Press. <http://web.mit.edu/evhippel/www/sources.htm>
- von Hippel, E. (2005): Democratizing Innovation. Cambridge, Massachusetts: The MIT Press. <http://web.mit.edu/evhippel/www/democ.htm>
- Ward-Dutton, N. (2006a): Towards the Uncompany: Fusing Business and the Web. Part I: the changing face of the Web. www.mwdadvisors.com.
- Ward-Dutton, N. (2006b): Towards the Uncompany: Fusing Business and the Web. Part II: the changing face of business. www.mwdadvisors.com.
- Weinberger, D. (2008): Everything Is Miscellaneous: The Power of the New Digital Disorder. Henry Holt.
- Zittrain, J. (2008): The Future of the Internet: And How to Stop It. Allen Lane.
- Zmud, R. W. (1984): An Examination of 'Push-Pull' Theory Applied to Process Innovation in Knowledge Work. Management Science, vol. 30, no. 6, June, pp. 727-738.
- Zuboff, S. & J. Maxmin (2002): The Support Economy: Why Corporations are Failing Individuals and the Next Episode of Capitalism. London: Penguin.

BE! REFERENCES

- Ayres, I. (2007): Super Crunchers: Why Thinking-By-Numbers is the New Way to Be Smart. New York: Bantam Books.
- Bell, D. (1976): The Coming of Post-Industrial Society: A Venture in Social Forecasting. Peregrine books. Harmondsworth: Penguin.
- Beniger, J. R. (1986): The Control Revolution: Technological and Economic Origins of the Information Society. Harvard University Press.
- Benkler, Y. (2006): The Wealth of Networks. Yale University Press.
- Browning, H. L. & J. Singelmann (1975): The Emergence of a Service Society: Demographic and Sociological Aspects of the Sectoral Transformation of the Labor Force in the U.S.A. ED131193. http://eric.ed.gov:80/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED131193&ERICExtSearch_SearchType_0=no&accno=ED131193
- Carr, N. G. (2003): IT Doesn't Matter. Harvard Business Review, no. May.
- Carr, N. G. (2004): Does IT Matter? Information Technology and the Corrosion of Competitive Advantage. Harvard Business School Press.
- Carr, N. G. (2008): The Big Switch: Rewiring the World From Edison to Google. W. W. Norton & Co.
- Carstensen, P. & C. Sørensen (1996): From the Social to the Systematic: Mechanisms Supporting Coordination in Design. Journal of Computer Supported Cooperative Work, vol. 5, no. 4, December, pp. 387-413.
- Castells, M. (1996): The Rise of the Network Society. vol. 1. The Information Age: Economy, Society and Culture. Oxford: Blackwell.
- Ciborra and Associates, C. U. (2000): From Control to Drift: The Dynamics of Corporate Information Infrastructures. Oxford: Oxford University Press.
- Davenport, T. H. & J. G. Harris (2009): What People Want (and How to Predict It). MIT Sloan Management Review, vol. 50, no. 2, pp. 22-31.
- David, P. A. & D. Foray (2003): Economic Fundamentals of the Knowledge Society. Policy Futures In Education, vol. 1, no. 1, pp. 20-49. <http://www.worldwords.co.uk/pfie/>
- Friedman, T. L. (2005): The World is Flat: The Globalized World in the Twenty-First Century. London: Penguin.
- Gersuny, C. & W. R. Rosengren (1973): The Service Society. Cambridge, Mass: Schenkman Pub. Co.
- Hall, J. M. & M. E. Johnson (2009): When Should a Process Be Art, Not Science? Harvard Business Review, March.
- Halmos, P. (1970): The Personal Service Society. Constable.



Hofstadter, D. R. (2007): *I Am a Strange Loop*. Basic Books Inc.

Kurzweil, R. (2005): *The Singularity is Near: When Humans Transcend Biology*. New York: Penguin Books.

Lazer, D., A. Pentland, L. Adamic, S. Aral, A.-L. Barabási, D. Brewer, N. Christakis, N. Contractor, J. Fowler, M. Gutmann, T. Jebara, G. King, M. Macy, D. Roy, & M. V. Alstyne (2009): *Computational Social Science*. *Science*, vol. 323, February 6, pp. 721-723.

Machlup, F. (1973): *The Production and Distribution of Knowledge in the United States*. 1962. Princeton University Press.

Malone, T. W. (2004): *The Future of Work: How the New Order of Business Will Shape Your Organization, Your Management Style, and Your Life*. Harvard Business School Press.

Mathiassen, L. & P. A. Nielsen (2000): *Interaction and Transformation in SSM*. *Systems Research and Behavioral Science*, vol. 17, no. 3.

Mathiassen, L. & C. Sørensen (2008): *Towards A Theory of Organizational Information Services*. *Journal of Information Technology*, vol. 23, no. 4, December, pp. 313-329.

Metz, C. (2009): *Amazon Kindle doomed to repeat Big Brother moment: How it's broke and why it can't be fixed*. *The Register*, July 24th. http://www.theregister.co.uk/2009/07/25/kindle_conundrum/

Pentland, A. S. (2008): *Honest Signals: How They Shape Our World*. Cambridge, Mass: MIT Press.

Rai, A. (2004): *Envisioning Management of Information*. In *Designing Manufacturing & Service Processes*. Unpublished Presentation, 24. Atlanta: Georgia State University,

Schmidt, K. & C. Simone (1996): *Coordination Mechanisms: An Approach to CSCW Systems Design*. *Computer Supported Cooperative Work: An International Journal*, vol. 5, no. 2-3, pp. 155-200.

Sørensen, C. & R. Gear (2007): *Innovating with ICT: The Executive Challenge*. LSE – PA Consulting Group Report.

Taleb, N. N. (2008): *The Black Swan: The Impact of the Highly Improbable*. Penguin Books Ltd.

Vogelstein, F. (2007): *How Yahoo Blew It*. *Wired*, pp. 126-131. <http://www.wired.com/wired/archive/15.02/yahoo.html>

Wegner, P. (1997): *Why Interaction is More Powerful Than Algorithms*. *Communications of the ACM*, vol. 40, no. 5, pp. 80-91.

Yates, J. (1989): *Control through Communication: The Rise of System in American Management*. Baltimore: The Johns Hopkins University Press. 0-8018-3757-X.

Zuboff, S. (1988): *In the Age of the Smart Machine*. New York: Basic Books.

Zuboff, S. & J. Maxmin (2002): *The Support Economy: Why Corporations are Failing Individuals and the Next Episode of Capitalism*. London: Penguin.

NOTES

1. One example is the tour-de-force delivered by Zuboff & Maxmin (2002) exploring the problems of contemporary organisations meeting customer demands
2. Discussions of the knowledge society (Machlup, 1973; David and Foray, 2003), which began in the 1960s, the service society debate from the 1970s (Halmos, 1970; Gersuny and Rosengren, 1973; Browning and Singelmann, 1975), the post-industrial society (Bell, 1976) subsequently has during the 1990s been formulated in terms of network society (Castells, 1996) and broadly characterised in terms of the information society. Willams (2007) provides a good overview of the discussion. Most industrialised countries have around 75% of the workforce employed in the service sector according to the statistics in (The Economist, 2007)
3. Zuboff & Maxmin (2002) characterise this as the individuation of consumption
4. (Sawhney et al., 2004; Rai and Sambamurthy, 2006)
5. (Rai, 2004)
6. (Foley, 1997; Gilmore and Pine II, 2000)
7. (Brodie et al., 1997; Coviello and Brodie, 2001)
8. This came out clearly in several interviews and although there may be good reasons in individual organisations, it clearly represents a problem in terms of delivering an integrated process of listening
9. (Sørensen and Gear, 2007, page 21)
10. (Sørensen et al., 2000; Höök et al., 2003)
11. <http://www.headshift.com>
12. See http://en.wikipedia.org/wiki/Relationship_marketing, but also (Brodie et al., 1997; Coviello and Brodie, 2001)
13. For a comprehensive discussion of the distinction between encounters and relationships, read (Gutek, 1995; Coviello and Brodie, 2001; Sørensen and Gear, 2007; Mathiassen and Sørensen, 2008)
14. <http://www.apple.com/retail/>
15. <http://synchstep.com/>
16. (Rasmus and Salkowitz, 2009)
17. Palfrey & Gasser (2008) coined the terms “digital natives” in their book about young generations’ and technology. Tapscott (2009) also explores this issue. Both books are written for a general audience, but there is also social science research on the relationships between younger generations and new media, for example work by Livingstone and Haddon (Livingstone, 2002), <http://www.eukidsonline.net/>.
18. (Levy, 2008, p.174)
19. This includes, according to David Wood; “people that contribute software that gets assembled into devices, middleware providers, multi media companies and semi conductive manufacturers who ship software.”
20. <http://developer.symbian.com/>
21. For the Symbian Foundation Blog visit <http://blog.symbian.org/>, for David Wood’s personal blog go to <http://www.dw2-0.com/>
22. <http://www.imaginatik.com/>
23. <http://www.fixmystreet.com/>. The website also offers a free iPhone application supporting citizens uploading a photo and description of a road problem automatically geo-tagged.
24. <http://getsatisfaction.com/>

25. <http://www.carspace.com> is established by the automotive industry publisher Edmunds <http://www.edmunds.com>
26. (Memon, 2008; Yang, 2008)
27. For more information about state-of-the-art in research on the future of identity management, see <http://www.fidis.net/>
28. This is, for example discussed by Pentland (2008a; 2008b)
29. (Williams, 2008)
30. The group was led by the author of the book *Networking*, Barabási (2002) and was the same day offered both fairly positive cover, e.g., (Fildes, 2008), as well as a negative response (Associated Press, 2008)
31. Read more about the interesting CityWare project on www.cityware.org.uk and sample the press coverage in (Lewis, 2008)
32. <http://www.fidis.net/>
33. The service is designed by the Spopos project (www.spopos.dk) and discussed in (Neely, 2008).
34. As an example, there is general significant resistance in the UK to a National Identity Card scheme, whereas there is less broad resistance to CCTV. In Denmark it is almost the other way around. Here there has for decades been a fully functioning (cardless) identity number scheme permeating all aspects of public and commercial life, whereas there in the past at least has been quite vigorous resistance to CCTV installations.
35. For an academic and comprehensive discussion of how structural order emerge from information, see (Kallinikos, 2006)
36. http://en.wikipedia.org/wiki/Hobson's_choice
37. (Adams, 1979, page 94)
38. There are several good books on this subject, for example, Bowker & Star (1999) discussing the fundamental issues of maintaining distributed classification infrastructures; Weinberger (2008) discussing the challenges of organising information; Ayres (2007) who is highly optimistic regarding the possibilities for automation; and Kallinikos (2006) critically examining the nature of information in organisational contexts.
39. Profiling of transactions is one of the key-sources to tracking and investigating suspicions of both credit card fraud and money laundering (Demetis, 2008).
40. http://en.wikipedia.org/wiki/Push-pull_strategy
41. A good example of a discussion of this can be found in several books, but Lessig (1999) offers many good thoughts on legal and practical implications of technical decisions. Bowker & Star (1999) offer a lucid analysis of social implications of classification. Albrecht & McIntyre (2006) questions that consumer interests are best served by organisations extensively collecting data on consumer behaviour.
42. (Sørensen and Gear, 2007)
43. The discussion of productivity gains with information technology was famously coined by Robert Solow's quote; "You can see the computer age everywhere but in the productivity statistics." However, comprehensive studies have subsequently established that information technology has led to increased productivity and that this mostly is passed onto the consumers. For an good overview of this discussion, read (Saunders and Brynjolfsson, 2007)
44. For a discussion of how organisations increasingly need to be transparent, see (Thompson, 2007)
45. For discussions on organisational ambidexterity, see (Birkinshaw and Gibson, 2004) and (Gibson and Birkinshaw, 2004). For a discussion of the improvement and innovation survival patterns, see (Holmberg and Mathiassen, 2001)
46. For a discussion of individual and organisational asymmetry, please read (Sørensen, 2008)
47. What of course, from the customers point of view, is needed is the ability to have the phone automatically change network according to call-rates
48. Boateng (Forthcoming) studies the balance of organisational control and service delivery in a similar organisation
49. (Shankara et al., 2003)
50. Shapiro and Varian (1998, page 103ff) offers a good discussion of both the theoretical and practical aspects of lock-ins and switching costs seen from both the customer and vendor perspectives.
51. Read the Scoble story on <http://www.techcrunch.com/2008/01/03/scoble-blocked-from-facebook/> and the Facebook Connect story on <http://arstechnica.com/news.ars/post/20081204-facebook-connect-goes-live-to-one-and-all.html>. Trusted third-party efforts by organisations such as Openid.net for one-stop login and the more general Dataportability.org for profiles attempt to establish open customer profile platforms.
52. (Carlzon, 1989)



53. Marketing research is increasingly taking an interest in better understanding how to engage customers, such as (Moore, 1998; Gabriel and Lang, 2006; Nambisan and Sawhney, 2007; Prandelli et al., 2008).
54. Based on Mintzberg's (1983) distinction between coordination of activities in terms of; 1) Mutual adjustment where emerging adjustments between participants ensures ongoing coordination of activities; 2) Standardisation where coordination is pre-programmed in advance; and 3) Direct supervision where one person assumes responsibility over others and thereby handle any emerging needs for decisions.
55. streetcar.co.uk
56. (Kluth, 2008) as well as www.gsmamobileinfo.com
57. The fundamental role of information technology in business innovation has been discussed by several authors emphasising, for example; the importance (Malone, 2004; Friedman, 2005) or indeed utility (Carr, 2004; Carr, 2008) of information and communication technology; the emerging design challenges (Thackara, 2005); the possibilities of establishing certainty through computer modelling and -simulation (Ayres, 2007) and the limitations (Taleb, 2008); the changing and practices of managing and classifying information with technology (Weinberger, 2008); and the importance of data, meta-data and the role of agency in processes of institutionalisation through information (Kallinikos, 2006).
58. The two survival patterns of improvement and innovation are discussed in (Holmberg and Mathiassen, 2001), and in terms of organisational ambidexterity by (Birkinshaw and Gibson, 2004; Gibson and Birkinshaw, 2004; O'Reilly III and Tushman, 2004). We have previously summarized the two survival patterns as (Sørensen and Gear, 2007):
The improvement survival pattern is based on the every-day efforts to simply become better at meeting customer demands and generate revenue to survive. At an operational level this implies a focus on delivery. At the tactical level, the organisation will then need to offer a supportive infrastructure making it possible to learn from one project to another and for the organisation to grow the appropriate professional practices.
The innovation survival pattern, on the other hand, implies dynamic strategy-driven innovation where the organisation survives through responding to rapid changes in the environment. This implies at the tactical level that the organisation pays less attention to establishing a solid infrastructure as this may be irrelevant a month ahead. Instead it must establish a flexible organisation ready for constant change. At the operational level the demands of strategy-driven innovation can only be met by networking behaviour allowing flexible reconfiguration of practices and relationships.
59. See <http://knowledge.wharton.upenn.edu/article.cfm?articleid=1665> and http://en.wikipedia.org/wiki/Power_By_The_Hour
60. (Grantham, 2000; Malone, 2004; Grantham et al., 2007)

61. A range of research study the itinerant nature of much work, for example Scarbrough (1995), Barley & Kunda (2004), Malone & Laubacher (1998), and Kakahara (2003). However, even if the increasing fragmentation of the organisational boundaries in terms of more flexible contractual arrangements is an extremely interesting area of concern in its own right, we have chosen to look beyond this and focus on the engagement of people who are not contractually bound to collaborate at the point they engage.
62. Characterised, for example in terms of organisational ambidexterity (Birkinshaw and Gibson, 2004; Gibson and Birkinshaw, 2004; O'Reilly III and Tushman, 2004), or as balancing improvement- and innovation survival patterns (Holmberg and Mathiassen, 2001).
63. (Zuboff and Maxmin, 2002; Friedman, 2005; Pralahad and Krishnan, 2008)
64. Friedman (2005) offers an often-cited account of factors "flattening" the world of business and collaboration, although he perhaps places too much emphasis on the transformative powers of information technology and too little on other contributing factors.
65. See the discussion in (Sørensen and Gear, 2007)
66. Scarbrough (1995) characterises the dialectics of social control and economic exchange in the transfer of knowledge and distinguishes between a prisoner-strategy with high degree of social control and low degree of economic exchange governing knowledge exchange; a hostage strategy with a mix of both; and a black-boxing strategy with a high degree of economic exchange and a low degree of social control. Although it of course in principle is possible to imagine engaging partners and customers using any of these three strategies, then an underlying rationale of engagement will probably be some form of standardisation of the collaboration. Goldthorpe (2000) investigates how the specificity of human assets and the degree to which activities can be directly supervised influences the organisational arrangement of work. Here any combination can in principle be considered as computer-mediated activities can both be very easily recorded but can simultaneously difficult to make direct sense of, at the same time as engagement can involve both high degree of routine work as well as work requiring high degree of specific skills and insights.
67. (Sørensen and Gear, 2007)
68. (Brabham, Forthcoming) and (Story, 2007)
69. (Brabham, Forthcoming) and (Story, 2007)
70. http://www.theinsider.com/news/299655_Spice_Girls_won_t_play_Baghdad_after_all
71. See <http://en.wikipedia.org/wiki/Supermarket>
72. This argument has been made by several, but Strassman's (1985) book on information work made it both very early on and convincingly
73. (Sørensen and Gear, 2007)
74. Benkler (2006) discusses the role of what he calls social production as opposed to economic production. Lessig has in several books explored the remixing and sharing of culture, for example, (Lessig, 2004; Lessig, 2008). Zittrain (2008) characterises technologies as generative if they for example allow customer experimentation.
75. See for example (Keegan, 2009)
76. www.mashable.com/2009/01/22/youtube-boost-sales/
77. The photo was distributed from Twitter users to blogs and news sites within minutes from being uploaded: www.twitpic.com/135xa
78. (Sørensen et al., 2000; Höök et al., 2003)
79. For more detail on this, see (Sawhney et al., 2003).
80. See yougov.com, nielsen.com and ipso-mori.com
81. carspace.com
82. For more information, see www.innocentive.com/crowd-sourcing-news/faq/, www.ninesigma.com/CompanyProfile.aspx, and www.yet2.com/app/about/about.
83. Read more about Chesbrough's notion of open innovation and open business models in (Chesbrough, 2003), Chesbrough et al. (2006) and (Chesbrough, 2006). Procter & Gamble's portal for Connect + Develop are at www.pgconnectdevelop.com
84. The P&G statistics is a quote from the P&G Chairman of the Board A.G. Lafley. The Economist presentation was given by senior analyst Melissa Carson (2009)
85. Eric von Hippel (1988; 2005) discusses lead-user innovation in his two books, which both are available as free downloads. Haddon et al. (2006) characterises the processes of everyday innovation by users, also partially discussed by Bhidé (2008, page 309ff) in terms of the interactive relationship between innovation and use. The Danish government is backing user-driven innovation by investing around £17million each year according to www.brugerinnovation.dk/. Also, see www.leaduser.com/

86. For information on Living Labs see www.livinglabs-europe.com
87. (Bhidé, 2008, page 309ff)
88. Thanks to Sarah Otner, LSE, (personal. lse.ac.uk/otner/) for input on collective intelligence and crowdsourcing
89. www.fixmystreet.com and www.getsatisfaction.com
90. (Howe, 2006; Howe, 2008)
91. For details, see www.businessweek.com/innovate/content/jul2006/id20060713_755844.htm www.muji.net (in Japanese) www.coolhunting.com/archives/2007/02/sneakerplay_the.php www.businessweek.com/magazine/content/06_39/b4002422.htm www.ducati.com/ducatiworld/index.jhtml
92. Dell's Ideastorm are at www.ideastorm.com. The Starbucks site can be found at www.mystarbucksidea.force.com/ and is based on a Salesforce.com platform.
93. (Howe, 2006; Libert and Spector, 2007; Howe, 2008)
94. A wealth of examples can be found at www.openinnovators.net/list-open-innovation-crowdsourcing-examples/ and www.crowdsourcingdirectory.com/. Threadless is at www.threadless.com
95. Brabham (2008) provides an in-depth discussion of both Threadless and iStockphoto.
96. (Tapscott and Williams, 2007)
97. (Tapscott and Williams, 2007, page 55ff.)
98. Based on the notion of the "unconference" (www.wikipedia.org/wiki/Unconference), which is a facilitated but user-driven and self-organised event, Ward-Dutton (2006a; 2006b) suggests the uncompany as a way of characterising emerging changes. There is a brief highlight on www.mwdadvisors.com/blog/2006/04/introducing-uncompany.html. A couple of actual companies has also used this term as a sign of differentiation, for example, www.theuncompany.blogspot.com/ and www.theuncompany.com/.
99. M-PESA is described in (Hughes and Lonie, 2007) and (Leadbeater, 2008, page 207)
100. We discussed this issue in (Sørensen and Gear, 2007), and it is widely discussed, for example, by Zuboff & Maxmin (2002), Malone (2004), and writers on crowdsourcing, such as (Tapscott and Williams, 2007), and (Leadbeater, 2008). It is, however, essential to remember that decentralisation and networking does not necessarily imply democratisation and equality as there may still be overarching issues at play governing resources, power relationships etc (Courpasson, 2000; Clegg et al., 2006; Kallinikos, 2006)
101. Distinction based on Goldthorp's (2000) distinction between non-specific and specific human assets.
102. See (Benkler, 2006) page 69-70 for a discussion on modularity and granularity. See www.mturk.com galaxyzoo.org and www.gwap.com for additional information on clickworking examples.
103. (Howe, 2008, Chapter 8)
104. Leonard's (1997) extensive examples of the complex dynamics of online communities offer a sobering reality.
105. [www.wikipedia.org/wiki/Mosaic_\(web_browser\)](http://www.wikipedia.org/wiki/Mosaic_(web_browser)) and www.ibiblio.org/pioneers/andreesen.html. Netscape Navigator has recently disappeared itself blog.wired.com/monkeybites/2008/01/netscape-the-br.html.



106. (Libert and Spector, 2007, page 2)
107. The musician Kutiman can be found on www.thru-you.com/ or on YouTube on www.youtube.com/watch?v=AzZi-btc8AA&e
108. For much more on Lessig's arguments read (Lessig, 2004; Lessig, 2008)
109. (Howe, 2008, page 286)
110. For more information on web feeds or RSS feeds, see www.wikipedia.org/wiki/Web_feed and www.wikipedia.org/wiki/RSS
111. For more information on tagging and tag clouds, see [www.wikipedia.org/wiki/Tag_\(metadata\)](http://www.wikipedia.org/wiki/Tag_(metadata)), www.wikipedia.org/wiki/Tag_cloud, and www.wikipedia.org/wiki/Folksonomy
112. (Zmud, 1984; Rothwell, 1994; Ward-Dutton, 2006b)
113. Ellenberg's (2008) and Buskirk's (2009) articles in Wired Magazine provides a good description of the Netflix challenge and the update of status.
114. For more information on innomediaries, see (Sawhney et al., 2003). For more on Innocentive, see www.innocentive.com/crowd-sourcing-news/faq/.
115. (Ward-Dutton, 2006b)
116. (von Hippel, 2005)
117. Hagell and Brown (2005a; 2005b) explores this.
118. (Holmberg and Mathiassen, 2001); (Zmud, 1984)
119. (Libert and Spector, 2007)
120. (Benkler, 2006)
121. This is discussed in our previous report (Sørensen and Gear, 2007) applying the notion of improvement and innovation survival patterns suggested by (Holmberg and Mathiassen, 2001) and relating to the dilemma of establishing organisational ambidexterity by combining the need for short-term operational goals and a long-term innovation strategy (Birkinshaw and Gibson, 2004)
122. Based on (Howe, 2008, Chapter 11)
123. (Malone, 2004)
124. (Libert and Spector, 2007, Chapter 8)
125. From eBay's inception, the rating of transactions has always been two parties rating each others' performance in the transaction. However, in 2007 eBay introduced a further detailed rating by the buyer of the seller along 4 dimensions such as seller responsiveness and shipping costs.
126. Summary of the essential criteria for large global communities working together according to Tapscott and Williams (2007).



127. Rai (2004) distinguishes between classical types of services include production line services, such as the ones experienced in fast-food outlets; customer self-services, for example those offered by Internet banks; and personalized services, such as the ones experienced at an expensive hotel or restaurant.
128. For example see www.wikipedia.org/wiki/Industrial_revolution and www.wikipedia.org/wiki/GDP
129. The issue of control is indeed forwarded by both Beniger (1986) and Yates (1989) as one of the defining characteristics of the 19th and 20th Century application of information technology, and although some, for example, Ciborra and Associated (2000) argue that the notion of organisational- and managerial control is increasingly a fallacy, it is still one of the stable foundations of improvement in manufacturing processes. Zuboff (1988) argues that information technology offers both the opportunities for automating and deskilling work and for informing workers and thereby making them able to better make decisions based on insights.
130. See, for example; (Halmos, 1970; Gersuny and Rosengren, 1973; Machlup, 1973; Browning and Singelmann, 1975; David and Foray, 2003) on the service society, (Bell, 1976) on the post-industrial society; (Castells, 1996) on the network society
131. Summary of services characteristics based on the synthesis of the literature in (Mathiassen and Sørensen, 2008).
132. See for example (Zuboff and Maxmin, 2002)
133. This is discussed extensively in (Sørensen and Gear, 2007)
134. To see the advertisement go to www.youtube.com/watch?v=HvUiXTg4p4
135. See moonpig.com
136. For more information on Firefly, see [http://en.wikipedia.org/wiki/Firefly_\(website\)](http://en.wikipedia.org/wiki/Firefly_(website)). Read (Davenport and Harris, 2009) for an interesting discussion on the business aspects of recommender technology to predict customer preferences.
137. As we discussed in (Sørensen and Gear, 2007), the distinction between computational services codifying decision processes into encounters and adaptive services relying on interactive adaptation is essential in order to address complex challenges. For extensive discussions on why interactivity is more powerful than simple algorithmic codification, see Wegner's (1997) article of almost that title, as well as the discussion in (Mathiassen and Nielsen, 2000).
138. For more information, see (Benkler, 2006)
139. See www.littlebigplanet.com



140. Several writers have discussed the future of work in terms of small units collaborating to provide more complex services, for example Malone (2004) and Zuboff & Maxmin (2002)
141. For details, see (Metz, 2009).
142. For more information, visit www.asksunday.com
143. See www.theregister.co.uk/2009/03/09/youtube_blocks_music_vids_in_uk
144. For extensive discussion of outsourcing, visit LSE's Outsourcing Unit's website on www.outsourcingunit.org
145. Carr's (2008) book "The Big Switch" investigates how information services increasingly are organised as standard utility functions as opposed to labour-intensive highly-specialised functions.
146. Read (Carr, 2008).
147. For a discussion of the Yahoo! and Google battle for the Internet advertisement market, see (Vogelstein, 2007).
148. See for example, (Mathiassen and Sørensen, 2008)
149. See (Schmidt and Simone, 1996) and (Carstensen and Sørensen, 1996) for more discussion on this aspect.
150. For an interesting discussion on the role of standardisation and formalisation, see (Hall and Johnson, 2009).
151. Ayres (2007) argue that extensive computation increasingly will remove the need for intuition as more and more decisions can be made based on increasingly plentiful and precise observations made subject of data mining. Efforts by researchers such as (Lazer et al., 2009) and (Pentland, 2008) to engage in what has been termed "computational social science" are also based on the assumption that the ready availability of very precise data will produce new breakthrough results in our understanding of social life. Kurzweil (2005) goes more than a few steps further and argues that humans at some point will converge with the computer. Hofstadter (2007) explains himself and consciousness as recursive computation.
152. Taleb's (2008) book *The Black Swan* is perhaps the best example of a counter-argument against the optimistic view.
153. Friedman's (2005) book "The World is Flat" is an examples of the techno-optimistic view, and Carr's (2003; 2004; 2008) writings offer insights into the opposite view.
154. See for example; http://www.computerworld.com/s/article/9136600/Twitter_withstands_second_DDoS_attack_in_a_week

At PA Consulting Group, we **transform** the performance of organisations

We put together teams from many disciplines and backgrounds to tackle the most complex problems facing our clients, working with leaders and their staff to turn around organisations in the private and public sectors. Clients call on us when they want:

an **innovative** solution: counter-intuitive thinking and groundbreaking solutions

a highly **responsive** approach: we listen, and then we act decisively and quickly

delivery of hard results: we get the job done, often trouble-shooting where previous initiatives have failed.

We are an independent, employee-owned, global firm of 2,700 talented individuals, operating from offices across the world, in Europe, North America, Middle East, Latin America, Asia and Oceania. We have won numerous awards for delivering complex and highly innovative assignments, run one of the most successful venture programmes in our industry, have technology development capability that few firms can match, deep expertise across key industries and government, and a unique breadth of skills from strategy to IT to HR to applied technology.

- defence • energy • financial services • government and public services
- international development • life sciences and healthcare • manufacturing
- postal services • retail • telecommunications • transportation

- strategic management • innovation and technology • IT • operational improvement
- human resources • complex programme delivery

Delivering business transformation

www.paconsulting.com

innovation@paconsulting.com

Enterprise LSE, the commercial company of LSE, manages over 100 projects a year for companies, governments, NGOs, academic bodies and international institutions around the world wishing to engage the expertise of LSE through research, consulting and executive education.

Dr Carsten Sørensen is a Senior Lecturer in Information Systems and Innovation in the Department of Management of the London School of Economics and Political Science (LSE).

LSE is a world class centre for its concentration of teaching and research across the full range of the social, political and economic sciences. There are around 7,800 full-time students and over 800 part-time students at LSE. They come from 140 countries around the world.

LSE has over 1,460 full-time and 1,320 part-time members of staff – 97 per cent of the academic staff are actively engaged in research, and 45 per cent are from countries other than the UK, almost half of these from European Union States, the rest from other nations around the world.

The School has around 80,000 registered alumni. Around 30 past or present heads of state have studied at LSE, and 28 members of the House of Commons and 42 members of the House of Lords have either studied or taught at LSE. Thirteen Nobel Prize winners in economics, literature and peace have been either LSE staff or alumni.

www.carstensorensen.com

www.lse.ac.uk

