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Understanding the consumption process through in-branch and e-mortgage service channels

A first-time buyer perspective

Jane Coughlan, Robert D. Macredie and Nayna Patel
Department of Information Systems and Computing, Brunel University, Uxbridge, UK

Abstract

Purpose – The twin aims of this paper are to explore the differences in the consumption process between the traditional in-branch and web-based (e-mortgage) service channels and how the differences relate to any problems identified in the electronic service environment, with respect to information search and product evaluation.

Design/methodology/approach – A process-oriented approach comparing the two service channels (in-branch vs e-mortgage) was conducted in two study phases. Data from the e-mortgage process were collected using protocol analysis with 12 first-time buyers (FTBs) applying on a website belonging either to a hybrid or to an internet-only bank. Results of the e-mortgage process were mapped on to stages of the in-branch process, which was captured by observation of six FTB mortgage interviews to determine the level of correspondence and emergent issues.

Findings – Support for the FTB in the e-mortgage process was problematic and service provision was found to be product- rather than consumer-oriented.

Practical implications – The study highlights the importance of design issues in the electronic service environment for creating confidence in the online advice and information available on home mortgages for FTBs.

Originality/value – The paper promotes increased understanding by financial service providers of the characteristics that support the consultative selling process for complex products such as mortgages and inform multichannel retailing.

Keywords Electronic commerce, Information retrieval, Communications, Mortgage companies

Paper type Research paper

Introduction

The internet has transformed traditional business processes in providing interactive services for customers, with e-commerce activity being highest within the retail finance sector (Zwass, 2003). In the recent past, however, the global financial crisis has brought consumer confidence to an all-time low, which has been felt acutely in the housing market (Murphy, 2008). One contributory factor in the credit crunch could be the product-centric approach taken by the financial services industry, where mortgages were sold to customers who were unlikely to be able to maintain their repayments (Farquhar and Meidan, 2010). The focus of media attention in relation to mortgages during the credit crunch has been on first-time buyers (FTBs), with reports that numbers in the UK have hit a 20-year low (*The Guardian*, 2010). Notwithstanding the many socio-economic reasons that have prevented FTBs from entering the market (e.g.

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affordability), adverse changes in the economic climate affect consumers' attitudes to financial services and particularly levels of trust in relation to financial advice.

Given that FTBs are integral to a buoyant housing market, there is an imperative to understand more fully the consumption process – especially for mortgages as one example of a complex financial product where consumer knowledge is low and uncertainty is high. Moreover, there is a paucity of research that specifically focuses on FTBs and their decision-making in relation to different service channels. In this context, mortgage products are particularly important to study as they have been found to present distinct challenges for selling remotely (i.e. using the internet as the channel for e-commerce or digital selling, rather than selling face-to-face or over the phone) even when market conditions have been considerably more stable (Vroomen *et al.*, 2005; Stanford, 2002).

Website design has been shown to be influential in whether a customer will use the electronic channel for financial services, where the provision of personal advice is integral to finding the best financial solution to meet customers' requirements (Ahonen *et al.*, 2006). Whilst these complex services can benefit from the electronic environment, the main advantage in the online channel is the accessibility and quality of the information and advice provided (Briggs *et al.*, 2002). This can influence the consumer positively in their decision to buy, although access to the sales advisor is the driver of channel choice (Frambach *et al.*, 2007).

Given the dependence on face-to-face contact with a sales person/adviser when buying complex products and services, a key issue in the design of electronic service environments is how the online process can complement the offline process, whilst taking advantage of the flexibility afforded by web systems and their influence on consumer's behavioural intention (Chiu *et al.*, 2005). Yet an understanding of the relationship between the real-life physical "brick", as opposed to the virtual web "click", buying process has not been well-explored within e-commerce research (Browne *et al.*, 2004). This is despite the fact that a wide range of products are sold online and that consumers' relationships with sellers vary with different goods and service types, depending on the way in which are supported in their purchasing decisions (Hseih *et al.*, 2005).

The specific focus of the inquiry in this paper is on mortgages and the FTB, which provides a useful case example for studying offline and online service channels for three noteworthy reasons:

(1) traditional branch banking has been increasingly displaced by the online delivery of products and services and this movement of financial services online is an ongoing area of research, with a focus on issues such as trust and the usefulness of the web (Aldas-Manzano *et al.*, 2009, Jayawardhena and Foley, 2000);

(2) studies of FTBs are rare, but they have been found to be less likely to purchase a mortgage online (Vroomen *et al.*, 2005); and

(3) relationship management in complex services is particularly important because of the level of risk and the lack of consumer knowledge associated with this product type, and so understanding consumption behaviour is necessary for developing delivery channels and improving service quality (Guenzi and Georges, 2010; Lymperopoulos *et al.*, 2006).

The paper is organised as follows. The next section provides the theoretical background to the study, reviewing the product classification literature with respect to complex products and services and consumption behaviour, which leads to two research questions. The methodology is then described, where the in-branch mortgage process is compared to the e-mortgage process in order to understand the characteristics that help or hinder customers in using services and providing them with a positive experience. The findings in relation to the two research questions are then presented, along with the implications of the work for understanding FTBs and how they can be supported in the purchase of complex products within an electronic service environment.

Related literature

Mortgages are an example of complex services, defined more specifically by Vroomen *et al.* (2005, p. 38) as:

> Services that consist of many attribute values per attribute, which are often tailor-made, infrequently purchased, more difficult to comprehend, and require in general assistance during the decision-making process.

Complex services which are transferred to the electronic service channel may be even more difficult for customers to understand because of the reduction of human assistance during the process. Services of this type will also entail a strong sense of "involvement" for customers, where the personal consequences, the expense, and the level of complexity will be high in terms of extensive problem-solving for products associated with this category of service (Cox and Brittain, 2000).

In addition, the purchase of these products will involve extensive information search and product evaluation (e.g. Guttman *et al.*, 1998), which feature as two of the five stages of the consumer buying process model (see Engel *et al.*, 1995):

(1) Need recognition.
(2) Information search.
(3) Evaluation of alternatives.
(4) Purchase decision.
(5) Post-purchase behaviour.

These stages have been found to apply equally well to web-based consumption activity as to traditional store-based consumption, and are useful for understanding how the online process is transforming consumer behaviour (Cole *et al.*, 2000). The stages in the consumer buying process are dynamic as the nature of the process will change according to the type of product being bought, for example, which in turn will affect the ease with which the process can be moved online (Klein, 2003).

Traditionally, mortgage applications have been conducted in-branch as communication-rich face-to-face interviews. In contrast, e-mortgages – which allow customers to make their mortgage application online, using a web-based system to take them through the information capture and decision-making process around product type and suitability – implicitly promise customers an ease of dealing with many issues with the service that can be confusing, time consuming and stressful. The difficulties of e-mortgages have been cited in the popular press where it is strongly

suggested that the advantages of web-based banking have failed to translate to mortgages (Lewis, 2002).

Despite the many advantages that the internet can offer, the traditional mode of branch banking still predominates in mortgage lending, given that security issues, a lack of human contact, and the need for face-to-face discussions with an advisor remain concerns to the potential borrower (Durkin and O'Donnell, 2005; Willis *et al.*, 2001). This is the case even in the USA, where e-mortgages have a more established history (Baghai and Cobert, 2000). The continued reliance on the in-branch application model may arise because it is not clear how well the face-to-face process of a consumer interacting with a seller translates to online. For example, the mortgage process poses an interesting set of issues to online retailers as it also encapsulates a strong advisory component, where trained financial advisors consult face-to-face with their customers to problem-solve and find the best financial solution to meet their customers' property purchase requirements (Verhallen *et al.*, 1997). The concerns with replacing face-to-face interaction with an online e-mortgage process are likely to be even more acute for FTBs given their lack of experience of the mortgage consumption process.

Extensive research has found that product type has an important influence on consumer behaviour and particularly information search and evaluation (Girard *et al.*, 2003). Indeed, products that require knowledge, experience and personal interaction with a salesperson are less likely to be considered when shopping online (Levin *et al.*, 2003). This is owing to the fact that with complex products, such as mortgages, the electronic service environment can exacerbate information asymmetries between buyer and seller. These asymmetries are associated with the differences in knowledge about the product domain, which are not as easily bridged in online service provision because there is no real-time, expert human advice/support. The buyer's experience of, and competence in, using the online channel is also likely to play a part as lack of confidence in using computers and web services will limit a user's willingness to interact with the online system (Ramaswami *et al.*, 2000). As has been noted by Farquhar and Meidan (2010) information asymmetries between financial providers and their customers may have contributed to the product-centric approach to selling that played a part in the credit crunch.

One way to (at least partially) address these asymmetries is through the design of the website that shapes the customer's experience of the online channel. Such websites must effectively support consumers in their search for product information, reducing the uncertainty that they face and helping them to evaluate the options to make a purchase decision (Pavlou *et al.*, 2007; Venkatesh and Agarwal, 2006; Spiekermann, 2004). This way forward seems to fit well with the service-dominant logic view that has emerged in the literature (Lausch *et al.*, 2008). Here, the customer's interaction with the product becomes the focus, with mortgages (as a form of complex service) being seen as processes during which knowledge and skills are applied by one party for the benefit of another in a collaborative process of value creation. This movement towards the customer as the focus, with respect to mortgages, means co-creating a product that has value for both parties – an appropriate mortgage product where the customer is able to meet their mortgage repayments to the provider across its duration.

Previous work by Lymperopoulos *et al.* (2006) has shown that mortgages belong to a special category that comprise both service and product attributes, where consumers expect the financial service provider to be responsive of their requirements and

effectively communicate financial advice on features of the products. To this end, various classifications of product types exist, although, as Ekelund *et al.* (1995) point out, there are no universally-accepted classification schemes for goods and services – a claim that a review of the contemporary literature still upholds. The earliest categorisation of product type, and one that informs many consumer shopping studies today, was by Nelson (1970) on the basis of search and experience characteristics. Where dependent on the ease of information search and evaluation, "search" goods (e.g. books) are easy to evaluate and sell online (Elliot and Fowell, 2000) and "experience" goods (e.g. tangible products such as cars or services such as insurance or pet-sitting) are difficult to evaluate until partially consumed (i.e. through test-drives or trial periods). Such "experience" goods therefore exhibit a lower level of channel switching, since the need for direct experience with the product and face-to-face interaction is, for most people, preferable to dealing with online retailers (Gupta *et al.*, 2004).

Since its introduction, Nelson's (1970) search-experience framework has been both extended and challenged. Notably, Darby and Karni (1973) added "credence" goods to the existing classification – products/services sold within relationships characterised by high levels of information asymmetry, where the seller determines the customer's requirements. Later work by Burke (2002) established differences between product categories when shopping online and in-store with respect to product information. Access to detailed product information in the case of durable goods (e.g. major appliances) was found to be far greater than that for frequently purchased goods, such as groceries. For these goods, when shopping online the importance of product specifications and expert ratings of quality were clear, when shopping in-store, the level of information was equivalent and provided by knowledgeable sales assistants and information kiosks.

Within the search-experience-credence (SEC) framework debate exists on the allocation of products to categories, particularly those ones that are considered complex, such as financial products. For example, Howden and Pressey (2008) and Hseih *et al.* (2005) both classified insurance as a "credence" good, whereas (Animesh *et al.*, 2005) categorised (auto) insurance as an "experience" good. Other researchers have sought improvements and suggested refinements to the framework. Peterson *et al.* (1997) were among the first to call for revisions to the framework in light of the internet's capabilities and introduce some other aspects to describe complex products such as value proposition (e.g. tangibility – clothing versus insurance). Lowengart and Tractinsky (2001) presented a simpler categorisation relevant to complex products based on risk (low/high), and Hahn and Kauffman (2002) proposed a classification based on the level of information-seeking required or level of involvement (low/high) and frequency of purchase. Using elements of existing categorisations, such as tangibility and cost, Wijnhoven (2002) has pointed out that there is little work in the literature into "intangible" goods – where Vijayasarathy (2003) classified a mortgage as a "high cost-intangible product" – despite the fact that the product type will make a difference to e-commerce process models. The lack of consistency across existing classifications adds to the debate over theoretical frameworks for buying complex services and may lend some support to the service-dominant logic model as it suggests a need to highlight other characteristics that better differentiate between products and the nature of the accompanying consumption behaviour at different stages of the process (see Lindberg and Nordin, 2008).

One way to investigate the design of the electronic service environment and FTB buying behaviour of complex goods is to take an explicit process-oriented approach, in line with previous work (Schmid and Rossi, 2004). This approach can investigate how the online service channel relates to the traditional buying process with human sellers, and whether and how it offers added value over traditional methods of delivering products and services. There are few studies that have explicitly focused on a particular (and comparably complex) product within financial services. A notable exception is Harrison's *et al.* (2006) study on pensions and the purchase decision process, which found that participants exhibited confusion and doubt within the stages of the consumption process. Later work examining pension and investment products found that whilst consumers may change channels for information searches, they tended to opt for face-to-face interaction with an independent financial adviser (Gough and Nurullah, 2009).

Notwithstanding the importance of other consumer variables such as satisfaction on purchase behaviour (Makarem and Mudambi, 2009) and sophistication or "savviness" in the interaction with technology based in part on increased competencies in searching for and evaluating product information (Macdonald and Uncles, 2007), the present study can be positioned against recent work that focuses on understanding characteristics of the product and the information required for consumers to make a purchasing decision (Axelsson, 2008). Within this scope, we aim to understand the purchase/consumption process of a complex product through traditional and electronic service environments and the consumer experience as they move through this process.

Research questions

Given the lack of research into the mortgage consumption process and an understanding of decision making involved, the study presents an exploratory and qualitative inquiry that identifies the interaction issues at the different stages of the process. Central to this are two key research questions:

(1) How does the traditional mortgage consumption process differ from the e-mortgage process? Prevailing evidence suggests that design problems manifest when business processes are moved online; the study will examine the similarities and differences between stages of the traditional process in relation to the online version.

(2) What are the problems with the e-mortgage consumption process with respect to supporting FTBs' information search and product evaluation? This research question specifically relates to stages 2 (information search) and 3 (evaluation of alternatives) of the consumer buyer process model of Engel *et al.* (1995), which have been found to be critical to the problem solving aspects of buying complex products such as mortgages.

Methodology

The study gathered qualitative data in a small-scale exploratory investigation into the in-branch and e-mortgage process in order to undertake a comparative analysis, which was carried out in two phases: phase I investigated the traditional in-branch process and phase II the e-mortgage process.

Phase I: identifying stages of the in-branch mortgage process

In order to identify the stages involved in the in-branch mortgage process, a field study was conducted with a high street bank, and a major lender in the UK. Data on the mortgage process was collected as part of a three-month period in the field, which included direct observation of mortgage advisors' interviews with clients in three different branches and mortgage advisor training sessions. The mortgage interviews (scheduled in hourly slots) were conducted using a point-of-sale system, which is a customer-facing system that guides the interview and captures customer data. Observation of the training sessions allowed for first-hand experience with the mortgage process as delivered by the system. Observation of the mortgage advisors' interviews with clients focused on how FTBs experience the in-branch mortgage process. Over the course of the field work, six mortgage interviews were observed; this number was dependent on mortgage appointments by FTBs being made and the clients' permission for an observer to be present.

Phase II: identifying stages in the e-mortgage process

A leading internet directory for UK financial websites was searched in order to identify Internet banks that could be used for comparative purposes with respect to the stages of the mortgage application process identified in phase I. From a directory that contained a list of the "Top 10 most popular mortgage lenders" websites, only two banks offered a full mortgage application facility for FTBs and could therefore be selected for evaluation. These were a hybrid (possessing both a physical and online presence) and an internet-only bank; both banks were award-winning for their online mortgages and lending services.

Participants

In order to identify the issues related to the e-mortgage process, user trials were conducted. Since the focus was on problems in the consumption process when services/products are delivered via the online channel, participants were recruited on the basis of two key criteria that were controlling variables. First, participants had to be frequent, or "savvy", internet users (at least 15 hours per week). This criterion aimed to ensure that participants were confident and experienced enough to buy a product online any that any problems identified would be unlikely to be related to concerns of technology use. Second, participants had to have no history of mortgage applications. This criterion aimed to ensure that participants would be representative of a FTB in having little prior knowledge of mortgage products, thus relying heavily on the website to support them through the consumption process. A total of 12 participants (six males and six females) ranging in age from 24 to 35 were recruited; since the study was exploratory and highly-focused on gathering qualitative data, this sample size was seen as sufficient to reach data saturation. The 12 participants were split into two groups of six to walk through the e-mortgage process with the hybrid and internet-only bank.

Data collection

The data were collected using protocol analysis, which is a common research technique in studying users' interaction with a website and requires participants to think aloud and provide continuous verbal reports of their actions and thoughts (e.g. Benbunan-Fich, 2001; e.g. Li *et al.*, 2001). A pilot study to test the technique demonstrated that the participants understood the instructions and produced short verbal protocols, which were easily recordable in note form on printed screen shots of

the mortgage application and were uttered when a problem with the website was identified. These utterances took the form of user quotes that provided a verbal explanation for the actions performed along with any observed behaviour that accompanied the utterance (e.g. smiling, shrugging, etc.). The researcher also prompted participants into verbalising an action should they "mouse click" without explanation. To start, participants were briefed on their task (applying for a mortgage online) and provided with all of the information necessary to complete the application in the form of a "dummy customer" profile. This prevented them from having to reveal their own personal details and the need to return to the application at a later date. At the end of the session, the participant was asked by the researcher if they would have submitted the form had the application been genuine.

Data analysis

Coding of the protocols from the user study was conducted manually in a three-stage process and followed an inductive approach to allow patterns and themes to emerge from the data, which is in keeping with exploratory and qualitative research conducted in similar study contexts such as retail banking channels (Farquahar *et al.*, 2008). The first stage involved examining the 157 utterances gathered in total – 88 utterances for the hybrid bank and 69 utterances for the internet-only bank. Two of the authors coded each utterance independently by attaching a content label that summarised the unit of thought within the utterance to develop a broad coding scheme. For example, the utterance: "there's too much information to take in" contains a reference to information and a reference to the excess amount and was labelled as excessive information, a term which would be refined in the next round of coding. In the second stage, the authors collaborated (as part of an interpretive data coding approach) to refine and confirm the coding scheme and assign the content labels to themes. The results of this iterative process produced eight themes that were developed and agreed during this stage. For example, the content label: excessive information was assigned to the theme of "overloading". In the third stage, the authors reflected in more depth on the themes drawn from the data in a process that suggested a grouping of the eight themes into two overarching themes: information and process.

Findings

The findings from the two-phased study (observational and protocol analysis) to identify stages of the in-branch and e-mortgage process respectively are framed according to the two research questions as follows.

How does the in-branch mortgage consumption process differ from the e-mortgage process?

The in-branch mortgage process comprised eight stages of which stages 4 and 5 specifically relate to information search and evaluation of alternatives, as defined in the consumer buying process model outlined previously (see Table I).

The eight stages of the in-branch process were validated by discussion with the mortgage advisors to establish the distinct stages of the mortgage process as part of the field study. The content of the stages in the process are also supported by Verhallen *et al.* (1997), which is a rare example of work that explicitly examines the mortgage process, and which focused on 20 content categories (as opposed to stages) of the

Stage	Description
1. Client introduction	Data collection concerning the client's personal details
2. Bank introduction	Information regarding the mortgage provider and explanation of the level of advice and code of mortgage lending guidelines
3. Financial assessment	Data collection determining credit history (e.g. savings, loans and bankruptcy claims)
4. Explanation of mortgage products	Information regarding the various mortgage products on offer
5. Establish customer preference	Data collection determining clients' wishes
6. Explanation of mortgage payment options	Information explaining aspects of the mortgage product (e.g. mortgage payments)
7. Property assessment	Information explaining valuation and insurance options
8. Save details and print quote	Close of interview and discussion of the offer

Table I.
Stages of the in-branch mortgage consumption process

mortgage interview. This may have been owing to the fact that a computer system (such as the point-of-sale system in the present study) may not have been used to structure the interview. However, the current field study generated the same content information suggesting that the core information exchanged is common, and that there is a normative process in traditional consumption of mortgage products. These eight stages of the in-branch process are used to map the stages of the e-mortgage process for the hybrid and internet-only bank, as shown in Table II, so that correspondence between stages in the in-branch and on-line processes can be clearly seen.

On average, the participants required 52 minutes to complete the application for the hybrid bank and 32 minutes to complete the application for the internet-only bank. As Table II shows, whilst a normative process has been established for the in-branch process, the online mortgage process shows considerable variation for the two online banks under study. In the hybrid bank, the e-mortgage process has been divided into three stages, where the majority of the application is completed in stage 3. In the internet-only bank, the e-mortgage process consists of 12 stages, with the application activities being fairly evenly distributed across all stages. Furthermore, the sequencing of the stages of the mortgage process from the hybrid and Internet-only banks matches neither the in-branch stages nor each other. In fact, the e-mortgage stages are out of sequence with the in-branch version and stages of the in-branch process are missed out altogether (e.g. stages 2 and 4). Having established inconsistencies in the consumption process between the in-branch and e-mortgage service channel for different business models (hybrid and internet-only), the second part of the study investigates the effects of this in more depth and highlights the nature of the problems at each stage of the e-mortgage process to address research question 2.

What are the problems with the e-mortgage consumption process with respect to supporting FTBs' information search and product evaluation?

Table III shows the eight emergent themes from the stages of the e-mortgage consumption process – overloading, insufficiency, sufficiency, absence, confusion,

Stage	Description (and step)	Correspondence to in-branch stages							
		1	2	3	4	5	6	7	8
Hybrid									
1	Calculation (mortgage illustrations)				*v*	*v*	*v*	*v*	
2	Personal details	*v*							
3	Online application form (financial commitments)	*v*		*v*					*v*
Internet-only									
1	Type of mortgage					*v*			
2	Personal details	*v*							
3	Contact details	*v*							
4	Previous mortgage details								
5	Income and employment	*v*							
6	Financial commitments			*v*					
7	Property details							*v*	
8	Mortgage details							*v*	
9	Illustrations of mortgage						*v*		
10	Additional details								
11	Submit application								*v*
12	Application progress	*v*				*v*		*v*	

Table II.
Relationship of the in-branch to the e-mortgage stages in the consumption process

Stage	Description	Themes
Hybrid		
1	Calculation (mortgage illustrations)	Overloading Insufficiency Absence
2	Personal details	Confusion Structure
3	Online application form (financial commitments)	Sufficiency Progress Termination
Internet-only		
1	Type of mortgage	Insufficiency Absence Structure
2	Personal details	Sufficiency
3	Contact details	Progress
4	Previous mortgage details	Confusion
5	Income and employment	Sufficiency
6	Financial commitments	Sufficiency
7	Property details	Sufficiency
8	Mortgage details	Sufficiency
9	Illustrations of mortgage	Sufficiency
10	Additional details	Sufficiency
11	Submit application	Termination
12	Application progress	Sufficiency

Table III.
Themes corresponding to each stage of the consumption process for e-mortgages

structure, progress, and termination – which characterise the users' interaction experiences with the e-mortgage process.

Stage 1 of the e-mortgage process is the most problematic for both banks, as revealed by the negative themes identified; this is noteworthy because stage 1 is where the information gathering activities for the mortgage product occurs. It would appear that, for both banks, the stages that affected the buying process are the ones related to mortgage products and the type of mortgage required. According to Engel *et al.*'s (1995) consumer buyer decision model discussed earlier in the paper, this means that these e-mortgage applications disrupt the most important stages (2 and 3) that relate to information searching and the evaluation of alternatives, in which information relating to mortgage products is crucial.

The set of eight themes can be grouped into two distinct categories or overarching themes (as shown in Table IV):

(1) *information* – overloading, insufficiency, sufficiency, absence, confusion; and

(2) *process* – structure, progress, termination.

The overarching themes are put forward as two indicators of service quality with respect to online delivery of mortgage services. Given that the content themes are negatively framed, these are construed as clear gaps or weaknesses in the delivery of the service, which are exacerbated by the lack of a human element (Cox and Dale,

Theme	Problem	Representative FTB Utterance
Information		
Overloading	The FTB feels overwhelmed by the message (e.g. pages and pages of information that are not easy to read at-a-glance)	"There's too much information to take in" (hybrid) "There is a lot of information, is it necessary to read it?" (internet-only)
Insufficiency	The FTB cannot understand the message (e.g. clicking on some links provides users with little extra information)	"Oh no, I would need to speak to someone at this point, it's a big commitment and I don't feel confident" (hybrid) "It's not clear what to do. I want a quick quote but I have to register" (internet-only)
Sufficiency	The FTB feels confident that they can make an informed decision (e.g. a mortgage step is clearly explained)	"That was easy!" (hybrid) "Quick and easy!" (internet-only)
Absence	The FTB cannot see where to navigate to find information (e.g. products are introduced as inactive links which, however, require explanation)	"It's asking me to choose a product but I haven't been given any information about them" (hybrid) "Should there be something I should put in here?" (internet-only)
Confusion	The FTB is thrown by being asked for the same information that delays and reduces the quality of the message (e.g. continual repetition of requests for information)	"Oh, I thought I had already entered these details" (hybrid) "It was straightforward, but all I want is information about my mortgage. I keep having to enter my personal details" (internet-only)
Process		
Structure	The FTB needs the process to be transparent in order to understand the overall message (e.g. the poor sequencing of information that suggests inconsistency)	"The personal details bit keeps popping up in the middle of the application" (hybrid) "They should have indicated what information we needed before we start completing the application form" (internet-only)
Progress	The FTB ceases to find the message relevant if they cannot see a clear end (e.g. the number of stages of the application form is not made explicit from the start)	"How much longer will this take?" (hybrid) "How far through am I? – don't know – the information is not provided" (internet-only)
Termination	The FTB needs closure and will interrupt the process themselves if necessary (e.g. if the user interrupts or the interface naturally ends the process)	"So has this been sent to the bank then?" (hybrid) "Fine" (internet-only)

Table IV.
Grouping and description of themes, and representative FTB utterances

2001). The following discussion will illustrate and discuss the themes and use them to identify design recommendations that will be presented in the next section of the paper. These recommendations aim to address the gaps in the delivery of the service and are given identifiers for ease of reference.

With respect to the overarching theme of "information", concerned with the content of the message that the website sends to the FTB, the negative content themes point to the recurring problem of asymmetric information, where the financial provider

through the electronic service channel assumes a level of knowledge on the part of the consumer that he/she does not possess.

These asymmetries are found within the online service environment as well as between business to consumer. For example, diametrically opposed themes of "overloading" and "absence" were identified from the participant protocols, particularly with reference to details on the mortgage products (stage 1 for both banks). Participants experienced a huge cognitive overhead (theme: overloading) in trying to understand the information presented to them. They expressed this in terms of the quantity of information, typically stating that "there is too much information". In the first stage, both banks also failed to present any information (theme: absence) that the participant perceived as useful in making a decision at that stage of the process. They expressed this as a lack of information, typically saying: "I haven't been given any information". A design recommendation to cater for both overload and absence of information relevant to details on mortgage products will need to balance the amount of information provided (see gap 1: information – recommendation 1, in the following section).

At some stages of the process, participants felt that information was not completely overwhelming or lacking but that there was not enough information (theme: insufficiency); this could induce a lack of confidence or the need to speak to a human advisor. There were also occasions where participants felt that the information that was presented to them was not understandable (theme: confusing) and was contrary to their expectations, particularly when previously provided information was requested for a second time. The confusion felt within the electronic service environment had an emotive effect – a finding reflected in recent work that highlighted the resistance that customers exhibit in response to the level of information and guidance offered when banking online (Laukkanen *et al.*, 2009). This could, for example, be seen in instances where FTBs experienced illogical information (theme: confusion). In these cases, participants' accompanying physical behaviour was a clear indicator and emphasised their verbal utterance, for instance shaking their head – "no" – whilst squinting at the screen. The general consensus of participants was that there did not appear to be any logical sequence to the way that information was being provided, and observation of the FTBs found them selecting links within the on-line systems at random. Any design recommendation to cater for both insufficient and confusing information will need to attend to the navigational and presentational issues of the information (see gap 1: information – recommendation 2, in the following section).

The overarching theme of "process" is related to the ease of use with which services are provided in the online service environment. Significant problems can occur when the electronic environment is conceived and designed as more of a self-service process as this is unsuitable for a consumer such as a FTB who lacks knowledge of the complex domain associated with the service. At some stages of the process, the participants felt that there was a degree of inconsistency that jarred with them owing to the fact that the interaction with the website did not flow (theme: structure). For example, when FTBs did progress through the application, they expressed concern about the lack of feedback and whether or not the information that they had provided was correct. Indeed, the navigational freedom that FTBs had in directing the entire process appeared to make some of them feel uncomfortable and unsure that the process that they were following was correct. This was manifest in hesitation and periods of

inactivity, where some of the participants looked to the researcher for guidance on what to do (although none was given). A design recommendation to cater for these problems of structure of the process will need to attend to issues of transparency regarding the process in which the consumers engage (see gap 2: process – recommendation 3, in the following section).

The themes of progress and termination identified in relation to the process gap are qualitatively different from the other themes identified. They are, at least to some degree, product/service independent and could be seen to be related to e-commerce more generally, where consumers expect that the online medium will provide feedback on the current stage of the process. Complex services such as mortgages necessitate lengthy exchanges of question and answers, but FTBs who have no experience of the process require signposting with respect to the stage that has been reached. Participants' problems in this area were characterised by not knowing where they were in the process or whether their application had been sent. A design recommendation to address issues related to progress (and to allow for termination at any point) will need to stress the importance of providing information on the location of the user within the process, which is commonly signposted during a face-to-face interview (see gap 2: process – recommendation 4, in the following section).

From the study, one of the 12 FTBs abandoned the application in stage 1 (for the internet-only bank) as she was dissatisfied with the amount of information provided in order to proceed with the application. A total of 11 FTBs therefore completed the application, but all expressed a lack of confidence in the e-mortgage process and would not have proceeded with a purchase within the electronic service environment. This result is interesting as it could have some bearing on channels of service delivery. Despite the fact that the hybrid bank's high street presence would be extremely familiar to users, there were no qualitative differences between the communication experiences with the banks, and a greater proportion of the internet-only bank's application was easier to complete, illustrated by the recurrent theme in the data of "sufficiency" and satisfaction with the level of information provided.

Discussion and implications

The findings from the study are in keeping with recent work, which has found that the interfaces of electronic services essentially do not have the right service designs to deliver what the customer expects, are not structured to the customer's particular circumstances and tend to be product- rather than consumer-oriented – a position which people find difficult to understand and, furthermore, trust (Yap *et al.*, 2010; Salonen *et al.*, 2006). The process-based nature of this study, supplemented by the thematic findings, supports the view that there are problems in moving business processes online (Reinders *et al.*, 2008). The study also highlights the need to provide supporting elements for the customer, especially the FTB, during the service process given their traditional reliance on personal advice and face-to-face interaction.

The main conclusions of the study can be framed as a set of four recommendations to improve the design of electronic service environments. These are drawn from the analysis of the protocols presented in Table III with respect to the overarching themes of information and process, which are construed as service delivery gaps in relation to quality.

Gap 1: information

Recommendation 1: "provide relevant information to the FTB enquiry and not the transaction", which means that the electronic selling process needs to reflect the consumers' buying process. For example, forcing FTBs to select additional insurance products without explaining why they would need them only serves to satisfy the technicalities of the transaction and will not develop trust in the product that they are purchasing (content themes: overloading; absence).

Recommendation 2: "balance interaction between website and consumer navigation", which is important as FTBs do not feel comfortable in having complete control over a complex and high-cost intangible product-buying process. For example, some of the terms used in mortgage lending require explanation to help the FTB to understand exactly what a mortgage commitment involves. Process support at important decision-making steps (e.g. providing a clear set of options), in order to help information gathering stages and navigational freedom in others, would expedite the buying process (content themes: insufficiency; confusion).

Gap 2: process

Recommendation 3: "ensure the buying process flows naturally and is transparent to the FTB", as any disruptions will be difficult for the e-consumer to overcome without the presence of a sales advisor. For example, repeating a request for personal details during the process jars with the FTB as in human conversation terms this would appear as if the e-mortgage advisor was not "listening" to them (content theme: structure).

Recommendation 4: "locate the consumer within the service process", as these types of buying processes are complex and lengthy and the FTB needs to be aware of the structure of the process given the high level of involvement that they face in making the final decision. For example, neither of the two e-mortgage applications provided any indication as to the structure of the process, which can lead to poor first impressions and a lack of a "roadmap" against which the FTB can locate themselves as they carry out the process. For the FTB to grasp the process end-to-end it is vital to assure them that they are moving through the application in an efficient style and not just navigating through endless pages, which may impair the decision to buy (content themes: progress; termination).

Principally, this study has shown that, at a process level, there appears to be limited understanding of how FTBs buy products – that is, the consumption process is poorly understood. In a consultative selling process the buyer-seller relationship was weakened when the needs related to information search and evaluation were not met. The significance of this is two-fold: first, while designing e-mortgages is a challenging undertaking, it would be more likely to attract customers if it was successfully sold online; second, mortgage product types, by their nature, rely on strong buyer-seller relationships. Much of the evidence suggests that in retail finance consumers view these commercial relationships in the same way as personal relationships, which can influence buying behaviour positively or negatively (O'Donnell *et al.*, 2002).

Future work

In the current economic climate, where banks need to attract back first-time buyers, a deeper understanding of the consumption process for complex products such as

mortgages would be beneficial. This study has shown that focusing on the product and taking a process view is useful in explaining how users, such as FTBs, experience the consumption of complex services. There are several service-related issues arising from this study that are worthy of future work, in light of the findings from the protocols that have demonstrated that there are significant differences in application processes for e-mortgages.

First, the present study has put forward a set of design recommendations, related to gaps in service delivery, which could be used as heuristics to evaluate electronic banking service channels and refine and develop our understanding of delivering complex services for other products such as pensions and insurance. Second, developing a best practice and normative process for online mortgage applications would be prudent given the level of inconsistency with the offline process and the lack of available human advice-giving in the online customer experience. The consumer buyer behaviour model has proved a useful but generic basis from which to understand consumption, but future research should look in greater depth to understand the activities that constitute complex consumption for services such as mortgages and design around them so that that website supports the purchasing stages (Tan and Wei, 2006). Third, investigating the way in, and extent to, which user characteristics in relation to technology use (e.g. levels of technology familiarity or "savviness") and product/service provision (e.g. comfort with levels of perceived risk) influence the consumption process and have direct implications for product/service design (Mayer *et al.*, 2003). Focused research to address these issues may help mortgage providers to enhance the advisory aspects of the buyer-seller relationship online, close potential information and process gaps and promote the electronic service on offer.

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About the authors

Jane Coughlan is a Lecturer in the department of Information Systems and Computing at Brunel University. She received a BA (Hons) degree in Psychology, and a Master of Research (MRes), both from Manchester University. Her interests lie in user behaviour and the design and usability of multimedia and electronic environments. Jane Coughlan is the corresponding author and can be contacted at: jane-lisa.coughlan@brunel.ac.uk

Rob Macredie has over 15 years of research experience and has worked with a range of organisations, ranging from large, blue-chip companies, through small businesses, to government agencies. His key interest lies in the way in which people and organisations use technology, and his research aims to determine how work can be more effectively undertaken by improving the way we understand how people and technology interact in organisational (and social) settings. He is Professor of Interactive Systems at Brunel University.

Nayna Patel is currently a Lecturer in the department of Information Systems and Computing at Brunel University. She received a BSc (Hons) degree in Computer Science, an MSc in Information Systems and a PhD in the area of Knowledge Management, also from Brunel University. She has a wide range of research interests including: e-learning; interface design; education; business process re-engineering and modelling; and simulation modelling.