Internet Futures: Unlocking user bottlenecks

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Abstract
The notion of ‘bottlenecks’ for Internet users emerged as a useful umbrella concept to categorise a range of impediments to the uptake of Internet based transaction services in Australia. This paper reports the results of a study of barriers influencing Internet consumers, Internet providers views of what consumers want/need, and factors associated with potential up-take of new forms of mobile phone commercial transactions. The methodology was focus groups and in-depth interviews. Trust emerged as an important predictor of consumer behaviour, for both Internet and potential m-commerce users. The perception that users have of the (lack of) security of their transactions on the Internet is a major inhibiting factor to the growth of on-line services. While trust was also an issue for mobile phone users who might consider m-commerce, a mitigating factor against risk perception was the perception of the mobile phone as an extension of self (and therefore somehow more trustworthy). Interestingly, providers did not see the complex issues of trust in the same light as users. They drew a distinction between the consumer sense of trusting the Internet as a medium of communications as opposed to the ‘trusted’ brand reputation of the merchants. Implications for Internet futures are discussed.

Introduction
The primary focus of this research, entitled ‘Internet futures: Unlocking user bottlenecks’ was to understand how consumers and providers perceive the risks associated with Internet transactions, and what factors inhibit on-line consumers. There were three principal strands of research within this project, managed across three Australian Universities - Swinburne University, RMIT (Network Insight) and CTIN (Adelaide University). Each of these groups employed different but complementary methodologies. In the case of the work undertaken at Swinburne and Adelaide Universities focus groups were the prime methodology employed to elicit the views of users about their interaction with the Internet. Adelaide based research focused on user responses to possible new mobile commerce services. In the case of RMIT (Network Insight) the investigation was conducted from the viewpoint of some of the providers (strategists) through in-depth interviews. This paper integrates the findings of these three segments.

In summary, this research project examined the complex social and behavioural issues relating to the way Australian men and women interact with the Internet in transactional contexts. The investigation was conducted from both the viewpoint of end users and the providers of transactional services.

Background literature
Past research on the uptake of e-commerce is mostly US based and concerns Internet shopping, rather than encompassing the broader range of Internet transactions such as share purchasing, banking and negotiating home loans. Nevertheless the role of trust has been identified in many of these earlier studies.

Jarvenpaa, Tractinsky and Saarinen (1999) showed that across three different countries, perceived merchant reputation and to a lesser extent perceived merchant size were important predictors of consumer trust, while more general personal factors like shopping enjoyment, attitudes toward computers and web-shopping risk beliefs (for example about security) had little effect on intentions to buy on the Internet.

Swaminathan, Lepkowska-White and Roa (1999) found personal characteristics of the shopper more influential than consumer confidence or trust in the medium. In their American study using a non-random e-mail survey to approximately 400 participants, they found that convenience as a shopping motive was a more important predictor of on-line shopping than vendor characteristics, although vendor reputation, and perceived security, were also predictors.

Using an on-line survey of US Internet users, Hairong, Kuo and Russell (1999) tested the role of a comprehensive range of factors in predicting on-line buying. Significant predictors were distribution utility, accessibility, channel knowledge, experiential orientation, convenience
orientation, and higher levels of education. These factors together accounted for 27% of the variance in Internet users’ on-line buying behaviour.

Smith and Swinyard (2001) analysed the factors which online shopping households disliked about Internet shopping by distributing 4,000 questionnaires to on line shoppers in 50 US states. They concluded that key factors were shipping charges, reluctance to use credit cards on the Internet, problems with the quality of the merchandise and difficulties associated with returning merchandise.

The four survey studies reported above showed somewhat different patterns of results, with Jarvenpaa et al. emphasising merchant trust, Swaminathan et al. emphasising consumer characteristics, Hairong et al. emphasising channel knowledge, or web experience, and Smith and Swinyard emphasising the fears of Internet shoppers as the most important factors predicting on-line buying. The variables used the studies were overlapping but different, as were analyses used, so the studies are not directly comparable.

The most significant Australian work in this area began with Singh’s Connecting Customers and Providers: A focus on Electronic Money (1997). This concluded that ‘recognition of trust as an important factor of use came only during a late stage of analysis… trust had not been central to the questions asked in the interviews…once the question was redefined, it became clear there was a big hole in the collection and initial analysis of data…. The issues of trust lay wholly in the background.’ (Singh, 1997: 10) Subsequent related work, based on a qualitative study of 47 people, came to the principal conclusion that ‘people are more likely to use a form of payment they trust.’ (Singh & Slegers 1997: 3) This work also drew upon US research in suggesting that ‘hard trust’ deals with issues of authenticity, encryption and security of transactions and ‘soft trust’ clusters around control, comfort and caring. We need to rethink this framework since it implies that the complex issues concerning consumers’ sense of trust in Internet trading may be easier to resolve than the technology security issues.

For the purpose of this study we explored, within an Australian context, the perceived reliability and integrity of the Internet as a communications medium by consumers in the context of commercial transactions. We focussed on trust, or lack of perceived trust, as an overarching ‘bottleneck’ in Internet transactions but we also explored a range of other possible barriers to commercial Internet transactions from several perspectives. While there has been much written about m-commerce, the literature summary report done for Telstra (Arnold and Associates 2001) showed there is very little about users and prospective users related to m-commerce, so this aspect of Internet transactions was a special focus of one segment of the study.

Methodology

Each segment of this project established its own methodologies, as described below.

Victorian research (Swinburne)

This section of the study was conducted by Barr, Knowles and Moore. A qualitative methodology was adopted, designed to increase understanding of the bottlenecks/barriers to Internet transactions and to explore the cognitive, emotional and behavioural consumer processes that surround them. The project was based around targeted focus groups with Internet users and non-users of both genders, from a range of age, geographic and socio-economic groups. A threshold qualification for inclusion was that people used the Internet; people who did not use the Internet were excluded. Those who used it less than once a week were rated low channel knowledge; those who used it for e-mail and occasionally for other purposes up to three times a week were rated medium channel knowledge, and those who used it for e-mail and other purposes on most days were rated high channel knowledge.

Five focus groups each made up of eight respondents were interviewed in Melbourne (4) and Warrnambool (1) in March 2002. The groups recruited contained males and females, with no more than five of one gender in a group of eight. There were three groups of medium channel knowledge participants (two ‘white-collar’, one ‘blue collar’), one in which channel knowledge was low and one in which it was high. Two of the groups represented the ‘under 30s’ age group, two were 30-54, and one group was 55 years and above. Thus groups reflected different levels of channel knowledge, gender, age, education/socio-economic status and the rural/urban variable.

Questions were asked about reasons they used the Internet, major usage areas, experiences (both good and bad), of buying goods and services on the Internet, concerns and issues about credit card usage, experiences using the Internet for banking, buying shares or negotiating home loans, beliefs about the security and convenience of the Internet, relative importance of trust in comparison with other potential barriers/facilitators in Internet transactions, and how the Internet could work better. Discussions were audio-taped.

New South Wales research (RMIT)

This segment of the project (conducted by Armstrong) examined the views of on-line merchants and service providers about bottlenecks which can affect consumer use of the Internet. The
researchers at Network Insight interviewed a selection of CEOs, senior executives and partners from eleven major companies which use the Internet for service provision. These individuals were termed ‘strategists’ or ‘providers’.

Each interview lasted about 90 minutes, based on a standard list of prompts, but deliberately open-ended so as to discover what these providers thought was important about the future Internet. The focus was on better ways to cement merchant-consumer agreement, and on current and future bottlenecks. Interviews were taped and transcribed, and major themes isolated, particularly those themes relating to trust.

**South Australian research (Adelaide University)**

This section of the study was conducted by Coutts and Coutts. The objective of this phase was to gauge user reaction to the prospect of a new platform for e-commerce, namely a mobile device (termed m-commerce). This study was constructed as a two stage process with an initial market survey of a random sample of 400 adults to gauge general reaction and experience of e-commerce and first reactions to the prospect of m-commerce. The results indicated the strong potential of m-commerce for banking, suggesting that this would be worth further investigation. The survey provided the data base from which to identify individuals who were mobile users, to participate in three focus groups. One focus group was of e-commerce users, one was of m-commerce sceptics and one of non-users favourably disposed toward m-commerce.

Assessing user reaction to new technology such as m-commerce is a current unsolved dilemma (Christenson 1997, Coutts 1998, Tashner, 1999, Christensen et al. 2000), because people are not reliable reporters of whether they will use new or possible (as yet untried) technologies. Therefore, a key strategy for the focus groups in this segment of the project was the use of a multi-stage approach moving from gauging reactions to a service concept to engagement with a technologist who showed actual mobile devices will be marketed to support m-commerce applications.

This strategy was designed to elicit clearer reactions to the new services envisaged by m-commerce. The focus group process had three components: (i) questioning and discussion led by the facilitator; (ii) a ‘hands on’ demonstration of 3 user devices by a communications engineer followed by an interactive discussion; and (iii) an exploration of responses led by the facilitator.

After an introduction, participants were taken through a discussion about their use of mobile phones, their experience of e-commerce including enablers and barriers, other ways that they conduct transactions (particularly banking transactions); their response to the concept of m-commerce, and the issues of protocols for mobile phone use. The focus group facilitator then left the room and a communications research engineer conducted a demonstration of next generation mobile Internet communications technology. Three new styles of terminal devices were introduced and their functionality explained and demonstrated. Two devices were personal digital assistants (PDAs) (the Palm Pilot- a common popular PDA and the Compaq iPaq palm top computer), and one was a third generation (3G) mobile terminal. While these devices overlap in functionality to some degree the iPaq has more processing power, a better display with the potential to shows film clips. The 3G terminal is a “smart” mobile telephone and a palm top computer and could demonstrate 64kbit/s video telephony. Not all groups were able to see all technologies.

**Results**

These are discussed as themes arising from each of the segments of the study.

**(a) Focus groups on Internet transactions**

The major theme here was the isolation of the various factors which mitigated against trust in Internet transactions.

**Trust comes in Many Guises**

Trust emerged from the focus group work in Victoria as a highly significant factor in people’s attitudes to buying goods and services on the Internet. Trust came in many guises:

- Can I trust the Internet to protect the security of my credit card? This includes illegal passing-on of credit card details, fraudulent use of credit card numbers and theft of credit card information by hacking.
- Can I trust the Internet to protect the security of my personal information?

For example:

*With the Internet it’s almost like a black hole. You can’t kind of put your hand in – it’s not tangible. It could be anywhere, anything could kind of disappear.*

*Personally I wouldn’t do it (give credit card details on the Internet). I know people that I work for have also got reservations about it for all the reasons R was saying; it’s just giving away those credit card details and where are they going to end up?*

*… you’re giving over your details and anybody could get hold of them.*

*Can I trust the Internet to protect the security of my personal information?*

*I use the Internet to search what I want but I wouldn’t exchange all my details over the Internet and do the actual transaction, because of the privacy thing, the security.*
Can I trust this merchant to deal fairly and reliably with me? Will he deliver the merchandise I have paid for and will it be in good condition? ...you can’t see the product before you get it.

Who can I hold accountable?

Yeah if it turns up damaged, what course do you take?

What about after-sales service?

If you buy something over the Internet and the goods come but they’re not the quality they should be: what happens then?

How do I know this is not a fly-by-night operator?

...it would depend on who it was. If it was someone who you knew you could trust like a major big organisation you’re going to, someone like Telstra, as opposed to a name that you’ve never heard of which could be, you know, some little garage in Thailand somewhere.

If we’re going to purchase over the Internet, go for a well-known company because you trust that a company that’s large has adequate protection for what we’re doing. They know the risks and they know what the obligations they are under and they can’t really afford not to have what they need.

These concerns were compounded by widespread lack of knowledge about who is ultimately liable if a transaction goes wrong: is it the consumer, the merchant, the bank?

This pilot study essentially unravelled a range of factors about consumers’ perceived lack of trust, but did not attempt to quantify the variables. In summary the main factors were fears of credit card fraud, hackers, and invasion of privacy (worries about security), concerns about the merchant’s reliability, delivery of goods, after sales service and accountability if things went wrong. To a large extent, ‘trust’ was seen as a problem with the Internet as a vehicle for transactions, rather than conceptualised as a problem of merchant reputation (although this was referred to by some users).

If you buy something over the Internet, the more people are generally used to the Internet, the more likely they were to use it for banking purposes.

**Channel knowledge and Internet banking**

The focus groups indicated that people appear reluctant to go into Internet banking without first thoroughly educating themselves in the procedures and the safeguards, and they put this off as likely to be time-consuming. Trust in the security of the Internet against credit card fraud and unauthorised disclosure of personal information appeared to be of an issue in relation to Internet banking than other commercial transactions because most people seem to believe that banks are good at security. There appeared to be a connection between level of channel knowledge and sense of consumer confidence with Internet banking: the more people were generally used to the Internet, the more likely they were to use it for banking purposes.

**Interviews with strategists**

The major themes here were that trust is built on brands/merchant reputation, on-line transactions are based on user-merchant relationships; the transaction interface must be simple.

Trust built on reputation

Providers offered a different perspective to that which emerged about trust in the user focus groups. For them, the user’s trust and confidence came from outside the on-line experience. Their perspective was that even if users do not have positive feelings about a particular corporation, at least they think it has a reputation to maintain; so if something goes wrong the perception is that the corporation will fix the problem. While this idea was reflected to some extent in users’ comments, it was viewed as highly important by providers, more so than concerns about credit card security, privacy, hackers and the like.

Strategists also discussed forms of third party reassurance for consumers - the logos and certifications of bodies such as VeriSign and TRUSTe. Potentially, they can assure consumers that they are dealing with a site which will protect their data, or adhere to a particular privacy regime. The strategists did not consider that the logos or certification of these systems had much value for building consumer trust, despite their potential as the Internet develops. This negative view about consumer reassurance was despite the actual functionality of VeriSign-type systems, which encrypt data to and from the consumer so that PINs, personal data etc cannot be intercepted. Consciously or not, the strategists argue that users base their strategies on predicting the behaviour of the merchant (what it has to lose), rather than on technology. They also argued that consumers rarely understand or even read these certifications.

Strategists acknowledged that people had been frightened about using cards online, but thought that the tide was turning. Nearly all believed that Australian consumers were readily entering card details on-line and that ‘market research does not seem to reflect the reality of consumer behaviour’. They argued that ‘users appear less conservative in practice than what they tell market researchers’. Strategists were not sure how to account for the difference. One reported on his on-line ticketing experience in the US:
Call centres set up to take credit card details to close a transaction simply do not get the traffic. It seems to me that users, once they have committed think: ‘yes I do really want that airline ticket and to get it I have to enter my credit card, so, OK I will’

Another said:

Clients tell me that customer resistance to giving credit card details has decreased significantly over the past two years and they put that down to a better understanding of the protection that use of a credit card affords them through the credit company terms. I think a lot of consumers are aware now that if you use a credit card on the Internet you effectively have the credit company standing behind you.

A 2000-2001 ACNielsen Australia survey of 1.5 million users across 12 Asia-Pacific countries, including Australia, found this also (Lugo, 2002). Financial security, or concerns about the safety of using credit cards online, dropped to sixth in the list of concerns about Internet use, down from third just a year earlier. Fears of viruses, the cost of access, slow response times and spam were all rated as more serious.

**On-line transactions are based on relationships**

These were the strategists’ three most-used images of a how Internet transactions happen:

(i) An online conversation with the user, with some exchange of information

(ii) A sequence of permission-giving by the user, who provides more input as the merchant makes it clear why the user should move on to the next step

(iii) A quid pro quo deal, in which the user is offered an incentive to take up merchant offers.

Behind each of these images is respect for the intelligence or ‘savvy’ of the user. None of the strategists suggested that users will just grab an offer because it is there, or because it looks attractive. There was a widespread view that the merchant has to justify to the user why he or she should click further into the site, or sign up, or provide more information. Even where the transaction is a small one, such as subscribing to an information service or agreeing to receive e-mails, it is rarely a single moment. Nearly all the strategists said that an effective site is designed around an interactive process, so that the user will take the next step, which might be only providing an e-mail address, postcode or telephone number, or disclosing the user’s income bracket.

Users baulk as soon as they feel confronted by requests for personal information or commitment before some kind of relationship is built, based on familiarity, comfort or trust. The challenge for the merchant is increased because users are also intolerant of time-wasting. The relationship-building might take less than a minute, but it still has the same character. Strategists pointed out that consumers are intelligent, both about how much time they invest in a site, and also in deciding about the value proposition. The more useful or sought-after the product, the less likely it is that users will lie or withhold their personal information. For example:

*How much they tell you depends on what you are giving them in return. If it is something they value they’ll hand over their details and they will make sure they’re accurate.* With subscriptions – where people genuinely want the product arriving on their doorstep – we have about 99-100 percent accuracy. So it’s not really about tricking them, it’s about giving them something in return.

Strategists pointed out that in on-line transactions, ‘consumers hold the cards’. That is one reason why ‘trust’ is so fragile on line. Somehow, the merchant must have a way to maintain trust from second to second, for fear that the consumer will disappear. That is why so many of the strategists had been refining their sites, to ensure that the consumer could see a reason for taking the next step towards completion. The slightest distraction or frustration can be terminal.

…the more information they ask you for, the greater the chance that you will drop out.

**Simplicity of the interface**

The need for simplicity was one of the dominant themes to come out of the interviews. Strategists recalled the glamorous and glossy pages with multiple links offered during the dotcom boom as expensive, slow and ineffective, with between a five and 10 per cent success rate at converting visits into transactions or information aggregation. Most agreed that if a site is not simple it still has the same character. Strategists pointed out that consumers are intelligent, both about how much time they invest in a site, and also in deciding about the value proposition. The more useful or sought-after the product, the less likely it is that users will lie or withhold their personal information. For example:

*The rule of thumb is that people don’t read on the Internet, they skim. Everything needs to be reasonably blocky and if you can’t get the message out in 200 words, don’t bother.*

Strategists said that it is difficult to project from the current Web experience to the future, because most users are still learning to use the Internet. Some made the point that the Internet as a retail channel is only about three years old, and should be seen as in its experimental stage. Some had noticed that users had learned more about how to transact on the Internet in the last two years. For example, travellers had come to understand what sort of tickets they were buying, whereas initially they had been more confused. There was some speculation that users would become slightly better at reading the text on a site or device. But this did not detract from the overwhelming commercial experience that simplicity is still the key.

(c) Focus groups discussing m-commerce
Mobile – the personal friend

Mobile users constitute a larger percentage of the Australian population than computer/ e-commerce users. It may be more realistic to postulate the migration of new m-commerce applications from present mobile telephony than the more often assumed evolution of m-commerce applications from the e-commerce market. It appears more likely that mobile users who are not currently e-commerce users see the transition to m-commerce as natural or inevitable, especially when presented with attractive new m-commerce applications. Mobile phone users become attached to their phones in ways that are not reflected by the comments of computer users. For example:

*I would prefer to use that (new mobile device) than a computer at home because it is like a little friend*

The mobile phone (and the future m-commerce platform) was viewed by users in a very personal sense as an extension of themselves enabling them to control their communications in a unique way. This very personal relationship with a communications device which in a sense “augments” the person is unique. It impacts on how users adopt and use mobile services in a way which is distinctive from the computer or TV. This aspect of the perception of a mobile phone as an extension of the person has been a subject of social science research but has never been captured in any research into adoption and practice of such devices.

However, although the mobile devices were popular among the focus groups, and they expressed fewer barriers toward using them for transactions than the focus groups discussing computer-based Internet transactions, the strategists were somewhat sceptical about these devices as a platform for transactions.

*You have to ask, ‘Is the [mobile] telephone a serious business thing or is it this fun lifestyle device?’ My kids use it for SMS but is it really something you use to transact? The usability world is still struggling about how I can get an 800x600 right, with the right information in there, with the right level of detail; so the entertainment stuff might happen within the next decade but for the transaction stuff, I don’t think so.*

Conclusions

e-commerce has many advantages for both the consumer and the merchant, but barriers to trust in this medium for transacting are many and complex. The perceptions of different groups, reflected through the qualitative methodologies of focus groups and in-depth interviews, help to shed light on the various dimensions of these complexities and how they differ according to the groups targeted and the particular type of Internet transaction being discussed. Large scale surveys are now needed to explore the relative importance of the different kinds of barriers and the extent to which they play a causal role in limiting Internet transactions.

References


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