

Understanding ICT Adoption from the SME User-Centred Perspective: Views from the Boutique Fashion SMEs & the Australian Government

Youngmi Choi

(E-mail: youngmi.choi@rmit.edu.au ; phone: 61-3-9925-1492)

Research Associate, User-Centred-Design Group, Smart Internet Technology CRC¹,
Research & Development Unit, Faculty of Business, RMIT University

Abstract

The adoption of information and communication technologies (ICTs) by the Clothing Industry, particularly the Boutique Fashion Industry, stands at an important crossroad. Triggered by the increasing competitiveness in the domestic and international markets, the Australian Government and the Australian Boutique Fashion Industry have explored the benefits of adopting ICTs and have encouraged their further adoption. E-commerce, in particular, has been seen as providing a new perspective to improving their competitiveness.

This paper looks into the Government's policy documents for the further adoption of ICTs by the Clothing Industry, and compares them with the ICT use by the SMEs. With a particular focus on the Boutique Fashion Designer-Owned SMEs in Melbourne, this paper compares the views on ICT adoption displayed in Government documents with the actual use by the Boutique Fashion SMEs.

Based on open-ended interviews with 15 designer-owned Boutique Fashion SMEs in Melbourne, the paper places the Boutique Fashion designers and their activities at the centre of the study and explores how their activities fit with information and communication technologies.

The findings confirm the differences in how the Government and the SME users perceive the usefulness of technologies for their business activities and goals. The study also uncovers the importance of the owner's philosophical approach to their adoption of ICTs together with the type and size of the business. The interviewed designers with a focus on artistic endeavours over business success, for example, showed a reluctance in utilising technologies that could replace their clothing design by hand. The diversity in the business activities and size was also seen as something influencing SMEs' adoption. For instance, the use of EDI (Electronic Data Interchange), POS (Point-of-Sale) system and the Bar Coding system was dependent on the type of business choosing to adopt these technologies.

In conclusion, the paper claims a need for understanding SME users and their specific attitudes towards ICTs, and utilise this understanding for developing a tailored approach to promoting technologies suitable for the designers with SMEs and their social, business and design activities.

1. Introduction

The Australian Clothing Industry —of which the Boutique Fashion businesses are a part— is one of the oldest industry sectors and provides an important source of employment. The Textile, Clothing, Footwear and Leather (TCFL) Industries — including the Clothing, Footwear and

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Textile Industries — generated in excess of A\$9.1 billion turn-over between 1996 and 1997. The Clothing Industry alone employed 42,739 people by 5,142 businesses and generated almost A\$4.6 billion turn-over during the same period (DISR 1999).

The ever-increasing competition in the domestic and global market, however, presents a critical need for the Clothing Industry to achieve and maintain its competitiveness, particularly against the price-competitive imports in the domestic market. The TCFL Industries, including the Clothing Industry, have experienced shifts in the Government's Industry policies from self-sufficiency and employment creation to building a globally competitive Industry. In the 1980s, Australian industries moved away from economic nationalism and industry protection to market openness embracing a new growth strategy. During this time, the domestic TCFL Industries became more speciality-focused (Waller 2000; Singleton 1997). This was mainly due to the tariff liberalisation of TCFL goods in the early 1990s — implemented 15 years before the World Trade Organization's Agreement on Textile and Clothing in 2005 — that sped up the Government intervention focusing on structural adjustment during 1993 and 1998 (DISR 1999). This changing environment of the TCF Industries continues to pressure the businesses and the Government. The recently released 'Position Paper' (2003) by the Productivity Commission explores preliminary options for assisting the Australian Industries beyond the 2005 zero tariff environment. This pressure has led the Industry and the Government to consider ways to adopt and effectively use information and communication technologies (ICTs) (DISR 1999).

In this paper, I compared the Australian Government's views towards ICT adoption and those of SMEs (Small and Medium sized Enterprises) in the Clothing Industry. It is based on a qualitative study using open-ended interviews with 15 Boutique Fashion Designer-Owned SMEs in Melbourne. This is a user-centred study of ICT use by placing designers owning SMEs and their activities at the centre of the inquiry.

2. The Clothing Industry, the Boutique Fashion Businesses and SMEs

The Australian Clothing Industry is the largest sector of the Textile, Clothing, Footwear and Leather (TCFL) Industries and consists of many and diverse SMEs. It comprises many small businesses — only five per cent of total TCFL industry establishments are large (Industry Commission 1997).

The Industry is diverse and includes design, wholesale, retail and manufacturing and embraces a diverse range of products in terms of price. Loosely based on the quality, prices and production volume of the final garments, the Industry has many sub-sectors and not all of them regard themselves as part of one industry (Arthur Andersen Business Consulting 1997; DISR 2000; AEGIS: University of Western Sydney 1999).

As part of the Clothing Industry, the Boutique Fashion business is not a well-defined term, though the term is widely used by the people in the Fashion Industry. In this paper, the Boutique Fashion business is defined as follows:

'Boutique Fashion' businesses are smaller and less well known than 'Couture' (Burns & Bryant 1997), produce design focused clothing in low volume and distribute them through exclusive boutiques and particular retail channels.

The Australian Boutique Fashion businesses tend to have a lower price-range and social status compared with those of 'High Fashion' or 'Couture' (Sproles & Burns 1994). The number of Boutique Fashion businesses in Australia is not attainable however it seems the case that a majority of the Boutique Fashion businesses in Melbourne are small. This is because of the nature of their production scale and the pathways to becoming a boutique fashion designer, which accompanies some difficulties in managing their businesses.

The Boutique Fashion businesses tend to produce small volumes of each design using high quality materials. Producing each design in small volumes means that the Boutique Fashion

businesses can charge a higher price for their garments. However, small volume production can be disadvantageous for the designers when seeking local manufacturers. Due to the flood of imported clothes and availability of overseas cheap labour since the late 1980s and the early 1990s (DISR 1999), the local manufacturing base has dramatically weakened and many manufacturers have closed down (DISR 1999; Scruby & Raymond 1995). While businesses prefer using local manufacturers for reasons including ease of communication and saving time, the manufacturers place a priority on large volume production to maximise their income. This means that small orders by the Boutique Fashion designers often go to the bottom of manufacturers' lists making it hard for the designers to release their garments on time for the seasonal changes (Scruby & Raymond 1995). This tendency leads to an increase in the use of homeworkers in the Boutique Fashion businesses, which makes possible elaborate manual work such as fine beading on clothes. Consequently, the benefits of being small businesses not only complements the nature of Boutique Fashion businesses but also contributes to the 'boutiqueness' of the business under the current Australian trade environment.

3. Clothing Industry's ICT Adoption: Views from the Australian Government

Triggered by the changing trade environment, the Government's Clothing Industry policy has started addressing the Industries' competitiveness. This includes a range of enterprise improvement programs, other measures under the TCF 2000 Development package, and the TCF & L Action Agenda discussions. In the discussions with industry players, the Government sought to encourage productivity improvements, export market development and improvement of the Industries' competitiveness in the global market (DISR 1999; Productivity Commission 2003). Through the Action Agenda discussions, the use of information and communication technologies was seen as particularly critical for achieving further competitiveness of the TCFL Industries.

In regard to the use of technologies, the Clothing Industry has been proactive in adopting certain technologies. By using labour saving machineries, the Clothing Industry took a leading part in the Industrial revolution (Dickerson 1995). Starting from the early industrial machines that revolutionized textile production, technologies played an important role in the development of the Clothing Industry. For instance, some of the examples of the technology use by the Industry include: the mechanization of spinning the yarn and weaving of cloth (Burns & Bryant 1997), the use of steam power for large-scale production (Dickerson 1995), and the development of the sewing machine that contributed to the growth of ready-to-wear clothing (Burns & Bryant 1997). The growing need for achieving competitiveness during the 1970s and the 1980s led the Industry to discover and adopt technological solutions (Winchester 1994). This included the adoption of a QR strategy and technologies, and their associated technologies such as EDI (Electronic Data Interchange), CAD (Computer-Aided-Design) and POS (Point of Sale) systems.

According to the Government report, the Australian Clothing Industry has been slow to adopt ICTs. The most recent Government report (DISR 2000) suggests that the Industry seems to be investing less in IT compared with its overseas counterparts, while the possible IT uses in the Industry have grown considerably. While the Industry demonstrated fast adoption of technologies during the industrialisation of garment production, it has been slow in its take-up of new information and communication technologies, including Web services and e-commerce. A report, *'Getting Business Online'* (1998) by the Department of Industry Science and Tourism presents some case studies of the successful use of e-commerce by the TCFL businesses. Also the recent case studies of small businesses adopting e-commerce by NOIE (2002) include a small number of textile and clothing businesses.

The publicly available data suggests a low usage of the Web by the Australian Clothing Industry. While some reports identified the number of clothing purchases online (ABS 2000; PriceWaterhouse Coopers 2000; 2001; Taylor Nelson Sofre 2000; 2001), some information proved to be unattainable such as the number of SME clothing businesses with Web access and/or

homepages. A study by CIRCIT (1999) describes that even obtaining the data that indicates the use of ICTs within the Clothing Industry, including a number of homepages by the Industry, have proved unattainable. The only indication found from the existing literature is that only a small number of the TCFL businesses were identifiable as having a homepage on the Web and to operate electronic commerce, showing only 11 TCFL related web sites in 1998 (Street & Aeuckens 1998).

Similarly, the implementation of EDI in Australia was slow, particularly with small businesses in the Clothing Industry. A study by AEGIS: University of Western Sydney (1999) suggests that the technological and management system changes had not affected manufacturer and supplier relations as much as those with retailers. The study reports that no suppliers seem to use EDI and most small firms in the Clothing Industry have barely got up to the level of adopting a fax machine. Similar suggestions were found in the CIRCIT report (1999).

CAD and CAM are the first areas to impact the design technologies for the Clothing Industry. They are part of a system that can incorporate computer applications from the designer's desk and the cloth cutting room to the factory (Byne 2000). The main roles of the CAD/CAM system in the Clothing Industry are for grading and marker making, pattern design systems and computer integrated manufacturing. Grading and marker making activities have long adopted CAD/CAM technology as a standard. Most large garment manufacturers have some form of a CAD/CAM grading and marking system in use whilst the adoption by SMEs is relatively low (Scruby & Raymond 1995).

Predictions about the future directions of the TCFL Industries' use of the World Wide Web (WWW) as a sales channel—electronic commerce (e-commerce) or online sales—vary from extreme optimism to pessimism. While the adoption of ICTs was also seen to lead to greater efficiency of the Australian industries, particularly via business-to-business e-commerce (NOIE 2000), the adoption of e-commerce has not been altogether easy, particularly for the Australian Clothing Industry. For example, a study by Arthur Andersen Business Consulting (1997) identified that electronic ordering is still an unfamiliar concept for the Australian apparel sector. Another study suggests that, although achieving small but important changes, the use of the technologies by the Industry is limited (CIRCIT 1999).

The Australian Government predicted that by the year 2002 the Web might be used for more than A\$300 billion worth of commerce between businesses worldwide (NOIE 1999; DFAT 1997). Although the Web was seen as being significant for SMEs in the Clothing Industry and for their competitiveness, the government has identified barriers in the use of the Web for online sales. These barriers include: Australia's lack of mail order history, derived from the experience of buying clothing as a social occasion and difficulties in presenting the garments' quality on the PC screen (DFAT 1999). Notably, Australians' lack of the catalogue shopping experience was perceived as the main barrier for online shopping.

On the other hand, apparel is the most popular domestic item for online shopping. According to NOIE (2002), almost 52 per cent of Australian households were online in September 2001, and almost seven per cent of the Australian users purchased goods or services over the Web. Another study by an International research group identifies that about seven per cent of the Australian Internet users purchased clothing online in 2001 (Taylor Nelson Sofres 2002).

3. Adoption of ICTs: Views from the Boutique Fashion SME Designers

This section presents the analysis of my interviews with 15 Boutique Fashion designer-owned SMEs in Melbourne. The face-to-face open-ended interviews with the designers, employing a recursive model of interviewing, were recorded and then analysed based on grounded theory analysis.

The level of technology adoption varied amongst the interviewed designers. Of those 15 designers interviewed, 13 had a PC and access to the Web, and six designers had homepages. Only one designer used a digital camera and PhotoShop for his design work. Only one other designer indicated regular use of a PC for business communication and management. This was because, via e-mail, she could communicate with her business partners even when she was working at her second job. The ICT use by the interviewed designers with SMEs is presented in the following sections of four user (the designer) activities: communications, business management, design and online sales.

3.1 SME Designers' Business Philosophy & Their ICT Adoptions

Analysing the interview data led to classifying the interviewed designers into three groups based on their philosophical approach to managing their business. The three groups include: the Artisan designers, the Business designers and the Intermediate designer Group.

Initial analysis of the data found two very distinctive approaches in their business philosophy. Out of the 15 interviewed for this study, nine designers indicated the significance they place on artistic values in their design work. The designers in this group referred to themselves as artists, rather than business owners. They believed their work to be an artistic process and that their final products –designed garments – were the result of their artistic endeavour. Sometimes, running a business seemed a mere outlet for their artistic creativity. The designers with such a view also showed a degree of reluctance in utilising or replacing certain technologies with traditional techniques for clothing design and production.

Along with this group of designers, there exists another group of designers named the 'Business designers' who specifically emphasised the importance of business growth. This group of designers believes that the deployment of technologically innovative technologies is useful or may even be necessary for the purpose of business success. The designers with the Business approach frequently commented on their business productivity, efficiency and business decision making that relate to cost savings and effective management. Some designers with an Artisan approach mentioned the importance of an innovative design that does not always seek popularity from the public. By contrast, they prefer to achieve recognition from the Industry experts.

The analysis of the different philosophical approaches to managing a business amongst the designers was to some extent prevalent amongst all interviewed designers. While the use of communication technologies across the two groups of designers was similar, the differences were seen from their use of technologies for business management, design, retail and online sales.

A number of designers from both the Artisan and Business groups showed some differences in their technology adoption from the rest of the designers with the same philosophical approaches. These designers showing differences in technology adoption were named as 'Artisan/Business designers.'

3.2 ICTs for Communications

For the purpose of communications, the designers were utilizing a diverse range of communication channels. For all 15 designers, however, face-to-face communication and telephone were the most popular communication channels for communicating with their business partners. Two designers had neither a fax machine nor a PC at work and the rest of the 13 designers had access to the Web and an e-mail service. E-mail was a popular communication channel amongst the 13 designers with access to Internet services. However, only six designers used e-mail regularly – using it at least once a week or more both for business and private communication. E-mail was most popular for distance communication— particularly with international business partners, and for sending and receiving images.

The designers interviewed indicated that communicating face-to-face or via telephone with business partners gives a more personal nature to the relationship. This is particularly the case

when the designers try to communicate with local businesses such as suppliers and garment producers — whether the producers are manufacturers or individual subcontractors sewing garments from home. From the designers' point of view, using those two channels— face-to-face communication and telephone—was seen to be particularly important when communicating with local manufacturers or subcontractors in regard to garment production. The designers have a feeling of reliability and a 'personal touch' towards face-to-face and telephone communications:

- 1) Designers feel reluctant to maintaining a good relationship with manufacturers under the circumstance of a shrunken local manufacturing base, and
- 2) In order to minimize the cost and time, designers want to minimize potential mistakes during the process of transforming designs into final garments.

A small number of locally established manufacturers have resulted in severe competition, particularly for Boutique Fashion SMEs, to identify and successfully contract with good manufacturers. This is because manufacturers with a reputation for producing garments on time—with minimal mistakes— prefer to work on large volume orders first. Since Boutique Fashion designers commonly order small volumes of garment production, their orders can be the last priority of manufacturers regardless of the time of the order. In turn, this threatens the designers' seasonal deadline for retail supply. These two factors seem to pose special challenges especially to the designers who prefer the local manufacturing base (Scruby & Raymond 1995). The advantage of efficient and reliable local manufacturing is beyond doubt in the Boutique Fashion Industry where seasonal deadlines are critically important.

3.3 ICTs for Business Management

This section presents how PC's and other retail technologies are used for managing the designers' businesses. Among the 15 businesses interviewed, 13 businesses with a PC either had more than one PC at work and/or owned a PC at home. Those 13 businesses with a PC also had Web access. This corresponds with the findings of the Yellow Pages Business Index July 2001 survey (2001), which indicates that almost 90 per cent of small businesses had computers and 75 per cent were connected to the Web at the time of the survey.

The PC was perceived and used as an administrative tool assisting the designers with writing documents and saving the contact details of their clients and business partners. Only two businesses did not have a PC at their work places. Other technologies used by the designers for managing their businesses included EDI (Electronic Data Interchange), POS (Point-of-Sale) system and the Bar Code system. Three designers out of 15 interviewed (all from the Business designer group), have already adopted these three technologies.

The technologies such as EDI and POS seem popular amongst the retail focused businesses and this is because the primary benefits of EDI and POS are to provide an effective control of existing stock levels that is suitable for retail businesses. It is also likely the case that the businesses with their own retail shops will not have greater benefits from these technologies unless there exists developed trust and share of the cost amongst supply chain partners. The cost for installing those technologies is likely to be higher than purchasing a PC and paying for a monthly Web access fee. In relation to business size, the bigger the businesses are the more likely they are to have EDI and POS.

3.4 Use of ICTs for Design

This section discusses the use of ICTs by the interviewed designers. Among the 15 interviewed, there was only one designer who used CAD although six had opportunities to learn how to use it.

In terms of the designers' career pathway, they often started their career as pattern makers after graduating. This means the designers with a tertiary qualification do know how to use CAD, which was the case with my interviewed designers: they possess well-developed skills and knowledge to interpret the details provided by the designers. However, all interviewed designers,

except one, did not find CAD useful. This indicates that the expertise and the awareness do not seem to influence the designers' use of CAD.

The interviews with the 15 designers revealed that the use of a PC for creative purposes such as producing designs was considered to be rather inappropriate by the designers, particularly those taking the Artisan approach to their business management. These designers perceived the CAD system as being useful for presentation and technical drawings while the Boutique Fashion designers use the sketch drawings more often than other types of drawings. CAD is seen to be effective when the design process can be directly followed by manufacturing processes that can be influenced or manipulated by the system.

Another reason for this lack of CAD use by the interviewed designers is that they commonly make pattern pieces themselves or outsource them. The outsourcing of pattern making eliminates the need for working drawings for pattern makers or presentation drawings (Taylor 1990). This means that the fashion drawings by the Boutique Fashion designers would be for generating ideas for themselves rather than communicating their ideas with pattern makers or manufacturers.

In short, while CAD is effective for interpreting the design for the manufacturing process, the interviewed designers were using their sketches to communicate the design to the pattern makers employed either by the manufacturing firm or by the designers. This was often on a contract basis. This difference in the way the interviewed Boutique Fashion designers communicate their design with manufacturing reduces the usefulness of CAD to the designers.

3.5 Use of ICTs for Online Sales

This section addresses the designers' use of ICTs for selling their products. It explores the differences in the content of six designers' homepages. Six designers among the 15 interviewed had homepages. Among them, one designer used her homepage for online catalogues, and two designers had sales information on their homepages. The remaining three designers had simple homepages illustrating their philosophy and backgrounds. The latter three designers were from the Artisan designer group whereas the former three designers with online catalogue and sales information were from the Business designer group.

One of the most significant differences between Artisan designers and Business designers was their Web content. The Web content is different between the designers with the Artisan and the Business approach. Designers with the Artisan approach tend to provide information on their homepages about their design philosophy and the kind of aesthetic outcomes they would like to pursue. Information about the prices of the products available, for example, was not to be found from the Artisan designers' web sites. On the other hand, the designers with the Business approach had information related to or that could lead to promotion and sale of their current products

That is, the Web content of the designers with the Business approach was geared towards sales/transaction related activities. All three designers with the Web sites in the business group—Matt, Sam and Lisa— had information about how to order and/or where to find their retail outlets. They presented photos of their up-to-date seasonal products and their prices.

Commonalities found in homepages of both designers with the Artisan and the Business approach were phone and fax numbers and e-mail addresses. Both groups' homepages also included at least one picture of their best-known dresses. However, none of the designers presented a photo of themselves at the time of this investigation.

4. Conclusion & Recommendations

The findings show the differences between the use of ICTs by the Boutique Fashion designers, the projected ICT use and their potential benefits shown in the Government documents. Through exploring the SME users' different attitudes towards ICTs and their implications on business

philosophies, this paper presents how one particular segment of the clothing industry views and adopts the technologies differently from the rest of the Industry and other sectors. It also illustrates the differences in the way the Government and the Clothing Industry SMEs perceive the use of technologies. Consequently the findings present a few recommendations for the government to consider in terms of designing future ICT policy:

- *There is a need for conducting further studies identifying the different sub-sectors of the Clothing Industry:*

Currently there exist difficulties in obtaining clothing Industry data. ANZSIC (Australian and New Zealand Standard Industry Classifications), for example, only encompasses the manufacturing businesses while the concept of apparel production includes suppliers and distributors (retailers). Government publications including policy documents and surveys also commonly, if not always, bundle the four industries (TCFL) together. Understanding the Clothing Industry, therefore, requires careful consideration since Clothing Industry data is often presented as part of the manufacturing, wholesale or retail industries. This breeds not only the difficulties in understanding the diversity and differences amongst the sub-sectors of the Clothing Industry but also inhibits the development of future studies in this area that could inform the government and the wider community.

- *There exists a need for policy initiatives assisting further adoption of ICTs specifically designed for SMEs in the Clothing Industry.*

It is only through these types of policy initiatives the government can identify technologies and policy initiatives that meet the needs of SMEs and their activities. For instance, the government may establish a funding scheme to support the broadband uptake and tablet PC purchase for the boutique fashion designers that could benefit the designers' use of PCs and potentially digitising their design activities.

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