THE IMPACT OF INTERNET TECHNOLOGIES AND E-BUSINESS APPLICATIONS ON TOURISM ENTERPRISES: A CASE STUDY FROM CENTRAL VICTORIA, AUSTRALIA

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Abstract

This paper seeks to understand the application, usage and impact of information and communication technologies (ICT) in leveraging e-commerce by small tourism businesses in the Goldfields region of Central Victoria. The region accounts for 13% of tourism related businesses in regional Victoria and in 2005, contributing $A545 million and 4,301 direct tourism jobs. Specifically, this paper aims to identify attitudes to the current global economic crisis and identify issues of connectivity, ICT skill development, customer and supplier electronic interaction, marketing and sales exploitation of ICT and ICT impacts, drivers and inhibitors. This paper is based on in-depth interviews with nine selected businesses based on local industry recommendations and a balance of tourism industry sectors from the ANZSIC classification. As well as gathering in-depth information the interviews served to trial a wider survey of the region. The resulting analysis is expected to provide direction to regional, state and national policy makers, educators as well as the tourism and ICT industries, both regionally and beyond.

Keywords: ICT, e-commerce, torism enterprises, regional Victoria..

INTRODUCTION

Tourism is fundamental to the world economy both financially and in terms of employment with many rural and regional areas, in developed and under-developed countries, heavily reliant on the industry (Pease, 2007). Increasingly, Information and Communication Technologies (ICT) are no longer an option but mandatory for business and, in particular, tourism businesses. The rapid growth in e-Commerce makes it an imperative for individual businesses as well as regions to leverage the technology if they are to remain competitive. ICT offers the ability to foster improved competitive performance through network, clustering and the formation of alliances as well as providing the richness of content increasingly required by consumers (Braun, 2008a). Beyond buying, the integration of the buying experience, for example, connecting the presentation of physical facilities, delivery processes, finance, etc., as well as a presentation that reaches customer segments in various new media mobiles, for example, iPods, Facebook, is increasingly required (Alvarez and Sugijoto, 2010). Whether ICT can bring business change depends on how people think about and apply it (Serge, 2002).

A well developed tourist industry is characterised by consistency, safety, reliability, efficiency and value for money. In addition, appealing presentations of business products and travel destinations, "sophisticated visualization of tourism products, the consulting role of travel agents, the social interaction and information exchange between travellers, as well as the information richness of the Internet" are key features for successful tourism e-Business (Berger et al., 2006). Improved competitive advantage can be achieved by tourism managers who embrace new information technology and actively participate in the technology planning process to identify new uses and manage their development (Moutinho, 2002).

The internet revolution, rapid internationalisation of business and low cost airline travel, have impacted all business, especially tourism business, witnessing an increase from 682 to 880 million international arrivals between 2000 and 2009. Despite the slow down of 2008/099, international tourist arrivals are expected to grow of between 3% and 4% in 2010 according to UNWTO forecasts despite an economic environment where an estimated 12% drop in global exports has occurred (UNWTOa). For 2010, the UNWTO World Tourism Barometer believes prospects are close to the level of the boom years 2004-2007. Receipts for international tourism totalled US $733 billion in 2006 while it is generally understood that domestic tourism (holidaying within ones own country) is 4-5 times greater than international arrivals (UNWTOb).

In Victoria, tourism directly contributes $8.6 billion directly and $7.2 billion indirectly to the states' economy, in total $15.8 billion, and accounts for 3.2% directly and overall 5.9% of Gross State Product (GSP), flowing through many businesses beyond tourism enterprises. Its true contribution is measured by the Gross Value Added (GVA) which contributes and additional $6.8 billion making Tourism worth an additional $14 billion in total or 5.8% of total Victorian GVA. Accommodation contributes the largest share (12.5%) to GVA with additional contributions from retail

trade,(10.7%) air and water transport, (9.6%), education (9.4%), cafes, restaurants and food outlets (9.3%). For the year 2007 to 2008, the Tourism Industry provided employment for 184,800 people in Victoria (Tourism Victoria a).
The Goldfields region of Central Victoria, accounts for 13% of tourism related businesses in regional Victoria and the region has an 11% market share of all domestic visitors to regional Victoria. Of the visitor nights to the Goldfields region 69% were sourced from the intrastate market, 19% from interstate and 12% were from the international market. The tourism sector contributed $545 million to the Goldfields economy and generated 4,301 direct tourism jobs in 2005. While there has recently been some decline, (0.8% since 1999), the Goldfields region received approximately 33,200 international overnight visitors for the year ending December 2008, a decrease of 8.9% from 2007 to 2008. The region has an 11% market share of all international overnight visitors to regional Victoria (Tourism Victoria b).

This paper focuses on small and medium tourism enterprises (SMTE), most of which are micro-businesses, in the Goldfields region of central Victoria and their adoption and usage of information and communication technologies (ICT), and in particular their use of the Internet. Following analysis of the data from both interviews and a forthcoming survey, we intend to identify the stages or level of development among Goldfields region businesses through the impact of ICT applications on the business, both externally and internally. In addition, the paper discusses the SMTE business operator's views on the usefulness of ICT and how they see further development. In summary then, the paper aims to:

1. Identify attitudes to the current global financial crisis,
2. Understand levels of connectivity,
3. Identify ICT skill development with businesses,
4. Identify the extent of customer and supplier electronic interaction,
5. Identify marketing and sales exploitation of ICT technology, and
6. Understand ICT impacts, drivers and inhibitors.

The resulting analysis is expected to provide direction to regional, state and national policy makers, educators as well as the tourism and ICT industries, both regionally and beyond.

We believe the technology will unfold rapidly in the years ahead and that the demand for tourism information, in particular from an emerging generation, brought up with the internet as the basic information tool, together with an increasing interest in visiting regional Victoria, will mean that the region that moves to leverage the technology, may have a decisive advantage over other Victorian regions and other destinations. Following the above introduction, we review relevant literature, discuss our methodology and our findings before drawing conclusions to our paper.

LITERATURE REVIEW

Research into the engagement of small to medium enterprises, including micro-businesses, (SME's) in the adoption of e-Commerce has been a continuing theme, both nationally and internationally. Since the European, Bangemann Report (1994)

identified such engagement it has been seen as critical for an equitable into transition to the Information Age. The adoption of internet-based information and communications technology (ICT) by small and medium enterprises (SMEs) has been extensively researched around the world, (Beal, 2001; Fu et al., 2001; Vidgen et al., 2004; Alam et al., 2005; Kotelnikov, 2007; Balocco et al., 2009). Investments in ICT in tourism and hospitality have increased greatly in the past decade. (Cline and Warner, 1999; Sigala et al, 2000; Siguaw, 2000; Paraskevas and Buhalis, 2002).

The level of usage of ICT from basic technology - radio, fixed lines telephones and television - to more advanced technology – mobile phones, e-mail, e-commerce, and information processing systems, has been examined and explained. However, ICT tools and complexity required will vary between industry sectors and individual businesses (Kotelnikov, 2007). The complexity of adoption and usage will also vary between businesses with some taking incremental steps in developing and others immediately moving to more advanced applications (Tan et al., 2009). Driven by consumer demand, new forms of technology for business information flows and global access are emerging, for example, short message service, (SMS), voice over internet protocol (VOIP), multimedia messaging service (MMS), pod and video casts, as well as the use of social networking tools like Myspace, Facebook, Youtube and Twitter (McCutcheon, 2009).

In reviewing studies of the factors that determine the level of ICT adoption by small business in general, Fink (1998) identified organisation size and readiness, CEO attitude, innovativeness, knowledge of ICT and internal support, perceived benefits, financial resources, external factors including competitive pressure, consultant and vendor support and user participation.

However, many constraints inhibit SME development including: poor telecommunications infrastructure, limited ICT literacy, inability to integrate ICT into business processes, high costs of some ICT equipment, incomplete government regulations for e-commerce and poor understanding of the dynamics of the knowledge-economy (Khong Sin Tan et al., 2010). Additional constraints include lack of education and technical skills, limited government support, costs, risk, managerial leadership, security and legal issues, business complexity and skilled staff recruiting issues (Kogilah et al., 2008; Hashim, 2007).

Various benefits and barriers to the implementation of ICT applications have been identified. Among the most prevalent benefits of ICT adoption include:

- reduced operating cost in communicating with customers and suppliers;
- increased speed in the delivery of goods by suppliers through better communication;
- enhanced efficiency through better co-ordination of firms in the value chain;
- closer working relationship among trading partners;
- effective communication tool with customers;

- bigger market exposure which opens the enterprise to new business opportunities;
- enhanced access to market information and knowledge by means of improved information exchange with customers and suppliers; and
- as a future tool in terms of facilitating new ways of managing and organizing businesses.

Among the widely cited barriers to ICT adoption, include:

- unsuitability for business as SMEs are not convinced of the financial benefits to be attained;
- lack of qualified IT personnel to develop and maintain the e-commerce system of the enterprise;
- unavailability of a proper network infrastructure in the company;
- high cost of IT equipment and setup;
- expensive software prices;
- imbalance between investment costs and return on investment;
- uncertainty of legal issues surrounding ICT adoption; and
- fears and concerns over ICT security (Tan et al., 2009).

It is now widely accepted that ICT, "provides many potential benefits to organisations so as to make them more efficient, effective and competitive" (Fink and Disterer, 2006 pp609). Applying social actor theory and a case study approach, they found that ICT infusion into the business is low for micro businesses who may look to facilitate interactions with the outside while small enterprises used ICT to supplement personal contact but within organisational boundaries and with little environmental or affiliate links. ICT was more extensively used in medium sized enterprises for both internally and external interactions. They conclude that increased organisational competencies, improved ICT skills along with business skills, are needed to maximise the business benefits. They also believe business needs to take a strategic approach to compete and cooperate and ICT interaction facilitates this with customers, suppliers, alliances and network formation.

There has been extensive research interest in how ICT has impacted on rural tourism businesses (Mitchell and Clark, 1999; Grimes, 2000; Malecki, 2003; Braun, 2005a; Braun, 2005b; Braun, 2007), reducing "the tyranny of distance" (Drabenstott, 2001), providing stable employment and bringing tourist expenditures into the local economy (Buhalis and Main, 1998). Tourism, especially small tourism business, remains central to rural development (Briedenhann and Wickens, 2004).

The exponential growth of Internet users, globally, has critical implications for small to medium sized tourism enterprises (SMTE's), with various benefits for small business including value chain development and partnerships, increased productivity, enhanced efficiency, greater access to information and knowledge, information system capabilities and developing new clients (Kogilah et al, 2008; Hashim, 2007). However, there has also been concern expressed, where rural small to medium sized

tourism enterprises SMTE's are not exploiting ICT that a two tier rural economy may result (Mitchell and Clark, 1999).

In researching how ICT influences distance and business efficiency, Irvine and Anderson (2008) adopt 'supply and demand' models to explore ICT usage in small Scottish rural hospitality businesses. They focussed on ICT's relationship to reducing rural isolation by providing information, through Internet sales and marketing and in improving service quality. They concluded that there was "sound evidence" that ICT was "well imbedded" in smaller rural hospitality businesses who overall were, "sensible, informed and often quite sophisticated" in their ICT usage. However, while very attentive to the demand side, they also found, often these businesses were neglecting the supply side functions.

In a globalized economy, innovation, whether technical or organisational, has been viewed as critical to business success in tourism (Stamboulis and Skayannis, 2003; Buhalis, 2003; Matlay and Westhead, 2007). The concept E-innovation, the innovation of ICT and e-commerce, can enhance the performance of accommodation enterprises and assist in gaining competitive advantage, according to Milne et al. (2005). Other studies have focussed on ICT applications for better customer relations, (Martin, 2004), a more agile management and image improvement (Camison, 2000) and in supply chain issues (Cagliano et al., 2003). "Electronic commerce (e-commerce) innovating applications have posed novel technical, organizational and commercial challenges" to the stakeholders involved with any business – customers, suppliers and networks – and can have "critical impacts" (Jen-Her Wuand and Tzyh-Lih Hisa, 2004)

Productivity has been another focus for researcher interest (Gretzel and Fesenmaier, 2001; Productivity Commission, Australia, 2001/2; Collins et al., 2003), but investments in ICT alone do not guarantee improved productivity. Critical of the shortcomings of past studies, which were, "plagued with ambiguities and inconsistencies", Sigala (2003) proposes a new methodology for assessing ICT productivity which was tested in three star U.K. hotels. She found that only the full exploitation of ICT networking and "informalizational capabilities" are likely to bring productivity gains from ICT investments. This is particularly so when ICT is fully integrated into business processes and when informational and transformational capabilities along with an alignment of business strategy and operations are in place.

There has been substantial recent interest in social networking communication tools such as Twitter and Facebook by small businesses. A survey last year by a U.K. mobile-phone operator found that some 17% of Britain's small businesses were using Twitter. Many of the firms that responded said they were doing this to attract new customers. Some claimed they had been able to save up to £5,000 (over $US8,000) a year by cutting out other forms of marketing in favour of the networking service (o2 Telefonica). In another survey of 1,000 heavy users of social networks and other digital media (Razorfish, 2009), it was found that 44% of those following brands on Twitter said they did so because of the exclusive deals the firms offered to users. The

connections made possible by social networks are helping to create new businesses as well as promote existing ones (The Economist, 2010).

In 2008, a review of existing product marketing and booking channels used by both Queensland tourism operators and visitors was undertaken. The channels most commonly used by consumers to book attractions are at the front gate (49%) and via third party methods such as motoring associations (14%), booking desks (11%), travel agents (7%) and tourist information centres (6%). Prior to booking, personal contact, is important to many visitors to attractions, especially for international visitors and those visiting natural attractions (Tourism Queensland and Tourism Research Australia, QTRA, 2008).

Further, the review found that many tourism attractions expect to increase their marketing spend on at-destination channels such as street signage, local television, billboards and sponsorship, as well as through cooperative advertising. The internet is seen by attractions as an excellent pre-departure planning tool for customers and although not expected to overtake bookings at the destination, an opportunity does exists to grow this segment, especially if the booking system is linked to third parties. While most tourism businesses have a website, the review found, "there is a significantly lower number of attraction provider's websites with direct booking capability (29%) compared with other tourism sectors such as accommodation (90%)" (Tourism Queensland and Tourism Research Australia, QTRA, 2008).

A number of models have been developed to better understand the impact of ICT and e-commerce innovation and customer relations, for example, Ditto and Pille (1998) identified three levels of development (1) informational – a website based on one way provision of information, (2) transactional – enables customer communication through e-mails, telephone or post as well as photographs and "virtual tours", and (3) relational – where customer interactivity develops a continuous relationship with the internet as a key factor in enterprise management.

Another model of particular interest for the analysis in this study is that proposed by Demopoulos et al. (2008) where they provide a road map for ICT improvements through "a strategic approach to information technology spending and planned investments". Categorising current performance metrics and spending on ICT, they have adapted a model based on Maslow's hierarchy of needs (1993) and the work of Nicholas Carr (2004) to apply social science concepts to information technology and the classification of investments, resulting in a four level progression from necessary infrastructure and basic tools to innovative and strategic ICT investments to achieve business transformation.

METHODOLOGY

For this paper, nine interviews were undertaken with small to medium tourist enterprises, (SMTE's) across the Goldfields region in order to obtain a broad

understanding of a range of issues including current adoption, usefulness of applications and future intentions in developing ICT in the business. In addition, the respondents were asked to address four questions on the impact of the global economic crisis, as they viewed it, on their business.

In the Goldfields region there are twelve Tourist Information Centres (TICs) who are located across the region, according to the Goldfields Tourism Incorporated (2009). These are located at Avoca, Ballarat (two centres), Beaufort, Bendigo, Castlemaine, Maryborough, Daylesford, Heathcote, Wedderburn, Maldon and St Arnaud (See Map of the region below). All nine businesses interviewed promoted themselves through the TICs. The interviews were conducted with a selected group following discussions and identification with a number of Goldfields regional tourism organisations.

MAP OF GOLDFIELDS REGION IN CENTRAL VICTORIA, AUSTRALIA

The Survey Instrument and Delivery

The survey instrument was initially developed from a research undertaken by the European e-business W@tch in 2006 (e-business W@tch) and while keeping the key

areas to be addressed was re-adapted to local conditions in language, content and presentation following consultation with regional tourism bodies and industry consultants. The area of interoperability, contained in the European study, was omitted on the advice of various sources that believed it too technical for most SMTE operators and lacked relevance here. Below is a cross-referencing of the aims of the Study to the questions in the Survey questionnaire.

CROSS-REFERENCING OF STUDY AIMS TO QUESTIONNAIRE

	Aims of Study	**Questions addressing these aims**
1	The current level of usage of e-commerce and related applications	Q14 – 16; Q18 – 26; Q31 – 47; Q49 – 51; Q55 - 57;
2	The impact of various ICT applications and functions on the business	Q27; Q48; Q63
3	Business operators views on the current usefulness of the technology to business operations	Q52 – 55; Q59 - 61
4	How business operators see the further development of the technologies in their businesses	Q13; Q28 – 30; Q58 Q62
5	The types of technology and services that are most needed to improve business operations	To be determined following analysis of data
N.B.	Questions 1 to 12 are background to the business	
N.B.B.	Question 13 is concerned with attitudes to the global economic downturn	

The key areas maintained were, as follows:

1. Current usage of e-commerce and related business technologies
2. Perceived business impact by operators
3. Perceptions of usefulness of ICT by operators
4. Current perceptions for future ICT development within the business

The Interviews

Following consultations with regional tourism bodies and with industry consultants, a selection of tourism businesses was developed and invited by telephone to participate in a one hour face to face interview. A schedule of interviews was prepared and the interviews with nine businesses were conducted over two weeks from the 16th to the 27th November 2009. The selected businesses were representative of a range of industry categories identified by Australian and New Zealand Standard Industrial Classification (ANZSIC). These encompassed one Parks and Gardens Operation, two

Heritage Activities, two Scenic and Sightseeing Transport, two Accommodation and Food Services, one Amusement and Other Recreational Activities and one Creative and Performing Arts Activities. In addition, the selected businesses were from various regional locations; four in Bendigo, two in Ballarat, two in Castlemaine and one in Daylesford. Interviews were conducted with business owners or managers but in two cases, with the marketing manager. While limited in number the selected businesses encompassed a variety of locations and tourism business types.

The nine businesses interviewed as part of this Study and their principal business activities are, as follows:

Business A – Holiday Park – camping, caravans and cabins for on-site rental

Business B – Themed night-time walking tours

Business C – Historic icon, luxury boutique accommodation

Business D – Tour operations company - heritage steam train tours, heavily reliant on volunteers

Business E – Chinese Historical and Cultural Museum

Business F – Boutique luxury accommodation, restaurant and functions

Business G – Historic Home and Garden, heavily reliant on volunteers

Business H – Oversees several major tourism businesses

Business I – Performing Arts and function centre in historic building

Preliminary Comment on the Businesses Interviewed.

Before discussion of the findings we make four preliminary points. Firstly, while all are operating as a business, five of nine are reliant on volunteers for their operations (D, E, G, H & I). Of these, businesses (D & G) are heavily reliant on volunteers, with few part-time staff and some partly reliant businesses (E, H & I). Secondly, some are reliant on sponsorship and grant monies and therefore had limited finance to invest in ICT, sometimes operating with just basic computer equipment and with volunteers to maintain equipment, for example (D & G).

Thirdly, while it may be assumed larger businesses would be more advanced in their use of ICT's, at times small businesses were well in advance in their applications. For example**,** business (B) with just two full time employees and three casual employees operated as a virtual organisation with no office and interfacing both employees and customers with mobile telephone and a laptop.

Fourthly, a number of the businesses interviewed are associated with other organisations that, in some cases, drove their ICT uptake. For example, business (A)

is associated with the BIG4 network, who over 30 years, have become a well recognised national brand and network with a reputation for high standards, extensive facilities, a friendly atmosphere and international alliances (Big4 Holiday Parks). Another example is Business (I) whose ICT needs are supplied through the City of Greater Bendigo, the local government authority.

The sections below presents a summary of the overall responses of the nine tourism business operators interviewed in relation to the six sections of the questionnaire. These were:

1. Impact of the Global Economic Crisis (GEC)
2. Internet Connectivity
3. Skills Development and Outsourcing
4. Online Sourcing and Procurement
5. Online Marketing and Sales
6. ICT Impacts Drivers & Inhibitors

FINDINGS AND DISCUSSION

The findings and discussion are presented in the order noted above.

Impact of the Global Economic Crisis (GEC)

The sub-prime loan disaster of 2007 and the collapse of Lehman Brothers in late in 2008, in the United States, developed into a global economic crisis. Large European and American financial institutions had substantial difficulties with other financial institutions rapidly losing confidence. As a result, worldwide financial markets ceased functioning with credit worldwide increasingly unavailable (D'Arista and Erturk, 2010). Although some calm has slowly been restored to worldwide financial markets, recovery in the real economy has been weak, a new regulatory regime is yet to be established with differing views between the E.U. and the U.S.A. and, indeed, within members of the European Community (Schneider and Cho, 2010).

The interviews contained five questions related to the global economic crisis, the first dealing with impact on the business from 2007 to 2008, the second on the expected impact in the next twelve months, the third whether the global economic crisis was expected to last more than twelve months and the final question asked if business strategies to lessen any negative impacts had been developed. Respondents were asked to indicate their view on a scale of one to five with 1 for strongly disagree through to 5 for strongly agree.

The results indicated that there was variation in the views of the impact of the global economic crisis from 2007 to 2008, with four of the nine claiming to have experienced a downturn while others not so and one unsure. Respondents were not given any other option for a business down turn and it appears to be more a possible cause rather than having been clearly determined. Those experiencing a downturn

tended to be high-end market businesses, for example, luxury boutique hotels (C & F) and some tourist attractions (D & H) while others, usually iconic tourist destinations, (E & G) had not been effected. One business (A) as a low cost holiday destination had experienced a growth over this period. This may be caused by families bearing higher interest rates on household mortgages, having less discretionary income, a reduction in overseas travel by Australians in favour of domestic holiday travel and a focus on regional iconic tourist activities, for example, businesses (E & G).

For the twelve months ahead, four of nine respondents (A, C, E & H) did not expect any impact from global economic crisis to continue but several anticipate that it will do so with an impact up to the next three years (E, D & H), while one was uncertain (F). Most businesses had developed, to varying extents, business strategies to lessen any negative impacts (B, C, D, F, G, H & I) although two had not (A & E) with one of these believing the global economic crisis to be of little concern. These responses may reflect business attitudes across the Victorian community.

According to the National Australia Bank (NAB, 2010), currently business confidence strengthened again to the surprisingly strong levels of November 2009 and demand growth was of around 5% (annualised) over the last 6 months. The Victorian Employers Chamber of Commerce and Industry, reported in their VECCI-Commonwealth Bank Business Trends and Prospects Survey (VECCI, 2009), that in Victoria an increasing number of business owners believe that the economic crisis either will or has passed and confidence has improved but that business conditions which were mixed over the three months period with some issues, for example, the Reserve Bank of Australia (RBA) expected to raise rates to 4¾% by end 2010, uncertainty over climate change policies and over consumer confidence, remaining uncertain.

In the tourism sector, the most commonly identified factors constraining business growth over the November 2009 quarter were; environmental factors (including bushfire-related issues), wage costs, business taxes and government charges, and the cost and availability of insurance (VTIC, 2009).

Internet Connectivity

It is clear that access to broadband Internet and mobile telephony is not an issue for the tourism businesses interviewed (some choosing however not to use mobiles), who, it should be noted, are located in the two major regional cities and in the two major towns in the Goldfields region. This may not be the same result for those businesses which are located in more remote areas of the region.

While all businesses had broadband three did not have wireless connection, either for cost considerations or for security and privacy issues. A majority of businesses did not have remote access from outside the business to the business computer network with

just three providing this access for employees. While one respondent did not know if this was provided, another respondent saw it as essential, for example, so that diaries, bookings, rosters, etc could be shared with staff. All businesses interviewed had fixed line access and all except three (D, G & H) had mobile telephone connections, however, most businesses, six of the nine interviewed, did not use MMS, tools like pod & video casts or Virtual Private Networks (VPN) while one did not know of these technologies and one respondent stated, "they were not yet needed".

Only two respondents (B & C) used open source software. While open source software is a low cost alternative to proprietary software issues of security, service backup, staff trained on the system, the availability of system administrator tools and the number of version upgrades and patches issued by the developer serve to make most of these businesses avoid its use. However, open source software does have four key advantages: lower cost of ownership, reduced dependence on vendors, easily customised and an improving level of security. Despite these advantages many businesses do not see a significant value in adopting open source software (Computer Economics, 2005)

Voice over Internet Protocol (VoIP), for example, Skype, is a relatively new technology that allows your computer's network connection as a telephone service. It is growing in popularity with calls cheaper than the normal phone network, particularly for long distance and international numbers. Of the nine respondents two were using VoIP, two were uncertain and five were not using this technology. Concerns remain over the use of VoIP regarding call quality, overall cost, reliability and other issues, thus, to date there has been a limited uptake. Several of these concerns were expressed by respondents.

Social networking websites are beginning to have an impact on small businesses, perhaps more so than larger businesses, by giving entrepreneurs free access to their audience through services such as Twitter, Youtube and Facebook which can be readily accessed by instant messenger service, the web, as well as with mobile texting, plus other venues. While with Twitter, for example, users are limited to 140 characters in sending out a message, it helps individuals with service and product marketing, with social networking promoting website traffic to specific websites and in staying in touch with people. Perhaps not surprisingly then, many of the businesses interviewed (six of the nine) are currently using social networking tools like Facebook, Youtube and Twitter, some at an experimental stage and others who are already achieving a good response. Of those not using such networks they are exploring the possibilities or are constrained by costs or time (B, D & G).

The main disadvantage for small and medium size tourism enterprises (SMTE), like other SME, is that they tend to be time and resource poor, with their size being their main disadvantage with regard to ICT adoption (Werthner & Klein, 1999). A recent study on the nature of the change process when a regional tourism network seeks to adopt e-commerce, focuses on the nature of the network links. Applying an action-oriented methodology the study suggests a strong relationship between

diffusion of e-commerce and network positioning, both in terms of place (status and position in the network) and space (the geographic make-up of the network). It found diffusion hinged on network cohesion and participants trust in and engagement with the network (Braun, 2004). All businesses interviewed were connected to at least one and often more local, regional and state based tourism networks, with one (C) to international tourist networks, through their websites, thus recognising the importance of network engagement.

Skills Development and Outsourcing

The issues of access to expertise in ICT network architecture, security and maintenance had a varied response with two businesses (A & I) having affiliations which addressed these issues for them. Other respondents had varied views with two (B & D) finding such access very difficult, three (C, E & F) finding it difficult, while for others (G & H) it was not a problem engaging such expertise. Fink (1998) identified knowledge of ICT and consultant and vendor support along with user participation as among factors that determine the level of ICT adoption by small business in general. This issue is of particular concern, with five businesses responding negatively to accessing ICT expertise, having implications for ICT service companies, who perhaps need to review their marketing, costs, customer service and post-service provision.

Radio-frequency identification (RFID) is the use of an object (typically referred to as an RFID tag) applied to or incorporated into a product or person for the purpose of identification and tracking using radio waves. The technology can be used for transport, stocktaking and inventory, retail sales and for human identification. Some tags can be read from several meters away and beyond the line of sight of the reader. With regard to Radio Frequency Identification (RFID), one business met these needs through their affiliation with a larger organisation, one had personal expertise in this area, two had difficulty accessing expertise in this area while another did not, and two saw this issue as not applicable while two did not recognise the name of this technology. The wide variation here may be related to differences in the size, nature and needs of the business respondents.

Two businesses (A & I) have affiliations which addressed the issue of developing new business solutions for them, while most others found accessing this expertise difficult or very difficult (B, C, E, F, G & H), with only one (D) believing it was not a problem engaging such expertise. Again, two businesses (A & I) have affiliations which addressed the issue of ICT strategy and management for them while one (B) was able to address their own ICT strategy and management issues. Other respondents (C, D, E, F, G & H) finding such access to expertise in this area very difficult or difficult. Fink and Georg Disterer (2006), believe businesses need to take a strategic approach to compete and cooperate and ICT interaction facilitates this with customers, suppliers, alliance and network formation. Again there are implications for ICT service providers in these results.

Outsourcing considerations depends on the particular circumstances of the business involved and includes considerations of existing contractual arrangements with service providers, how well their current communication needs are being met, their assessment of their future needs, the size of the organisation and, of course, its priorities for the human and financial resources available. Outsourcing of ICT services in the past twelve (12) months had substantially increased for seven of the respondents, remained the same for the other two, (B) having the resources internally and (D) with financial concerns. This indicates a wide willingness to invest and develop ICT applications, though apparently, with extensive dissatisfaction with the expertise and services provided.

Regarding the issue of staff attending ICT e-learning programs, only two (E & I) sent their staff to such programs on a quarterly basis, while four (A, B, F & H) train staff via the Internet and intranet, and two (C & G) do not train staff at all but rely on volunteers or recruit staff with the required skills and leave training to be undertaken by the individual employee at their own cost. We can conclude that most businesses, where possible, understand the importance of keeping up with technology developments and are therefore committed to staff training in this area. This is pleasing as various researchers have concluded that constraints on further ICT development include lack of education and technical skills (Kogilah et al., 2008; Hashim, 2007), limited ICT literacy among employees (Khong Sin Tan et al, 2010) and the lack of qualified ITC personnel to develop and maintain the e-commerce system of the enterprise (Tan et al,. 2009).

An online booking system technology will display booking availability in real time on a website and on the selected distributors' websites, accept payments from customers without requiring human interaction, make your product bookable on a variety of the selected distributors' websites, update inventory on a website and also on the selected distributors' websites when a booking is made (The Australian Tourism Data Warehouse). Direct customer booking services were available electronically from all businesses interviewed but while most had the facility on their website, three businesses (D, E, & G), took bookings by e-mail only, two because of limited financial capacity to develop their website and one for security concerns. The respondents appear to have identified some of the most prevalent benefits of ICT adoption which, according to Tan et al. (2009), include reducing operating costs in communicating with customers, being an effective communication tool with customers and facilitating wider market exposure which opens the enterprise to new business opportunities.

While the front gate was found to be the most commonly used by consumers to book attractions at (49%) according to the (Tourism Queensland and Tourism Research Australia, QTRA, 2008), of the respondents to this study, the percentage of bookings undertaken electronically, either via website, mobile phone or e-mail, ranged from less than 5% (A), 20% to 30% (C) with five (D, E, F, H & I) reporting between 5% to 10% taken and one up to 50% (B), via this medium. For all small business, government research found received orders taken via the Internet or web were 23.3%

in 2006-2007 and increased to 23.7 in 2007-2008 (ABS, 2007-2008). The respondents to this survey appear to, on average, support the above figures. While the availability of online bookings appear mandatory, factors other than responding to customer demand, appear to drive this service.

Five of the businesses offered online payment methods to their customers (A, B, C, F, & I), with payment facilities available through third parties, (e.g. Travel Click and Tickets.com), or through in the case of (A) their network partner. This may reflect the increasing confidence of customers in online payment methods, according to the St. George Bank, and is reflected in the study by Furnell & Karweni (1999) who found that while consumer regarded security with "some concern", these "were outweighed by the merits offered by the medium". In a later study, further developing the Technology Acceptance Model (TAM), which focuses the ease of use and usefulness to consumers, consumer intention to use online shopping was explored which, in addition to ease of use and usefulness, considered compatibility, privacy, security, normative beliefs and self- efficacy. Collecting data from 281 consumers, the Study found compatibility, usefulness, ease of use, and security to be significant predictors of attitude towards on-line shopping. Privacy, however, was not. Attitude toward on-line shopping, normative beliefs, and self-efficacy were indicators of future intention to use on-line shopping (Vijayasarathy, 2004).

All of the respondents cited ICT spending as a proportion of their overall budget indicating an ongoing commitment to further development but with the majority not intending to expand that percentage of expenditure over the next four years beyond the current 5%. In the 2007-2008 period up to 5% of the business budget for six of the respondents was devoted to ICT while one spent between 5% and 10% and two between 10% and 30%, the later having undertaken major spending on ICT during the period.

Currently, less that 5% of the business budget was devoted to ICT by seven of the respondents while two respondents were spending between 10% and 30%. Of these two, one is a virtual business largely reliant on ICT while for the other it is 'critical' to the development of the business. In three (3) years time five respondents anticipated ICT spending to be up to 5% in with further investments, three believed spending to be between 5% and 10% and one to continue past spending at between 10% and 30%, although the actual dollar expenditure for all businesses is expected to increase.

Many tourism operators, despite reductions in cost, regard their operations as too small to afford the necessary equipment, service on-going maintenance and to meet regular upgrading. By contrast, these operators have most to gain from improved efficiency and reach provided by advanced electronic communications technologies. (Australian Regional Tourism Handbook, Industry Solutions, 2002).

Within the businesses, the level of ICT skills is described as high by two respondents and medium by five with two respondents describing these skills as low. Those

describing their skills as high were a virtual business and major historic boutique hotel (B & C), while the two reporting low skills were a business reliant on part-time and volunteer workers and the other, a major tour operator who do not provide for on-line bookings and or payments (G & H). For most small to medium businesses, employing an ICT professional is neither feasible nor necessary and skills required operating the business thus medium to low. Expanded outsourcing of more highly technical expertise, as above, has been the result. As noted above, Fink (1998) identified knowledge of ICT and support as determining the level of ICT adoption by small business while Khong Sin Tan et al. (2010), believed limited ICT literacy inhibits SME business development. Thus, based on the results found in this study, with only two respondents rating there skills high, there is certainly room for further improvement among most businesses interviewed.

For six of the respondents, further spending is seen as "*crucial"* in developing their business (A, B, C, G, H & I), while for two (E & F) spending is based on what is required to keep up with suppliers and customers. One respondent (D), although financially constrained, would spend more if *"someone could demonstrate how best to go about it"*. It appears that these operators understand the importance of ICT to their business development.

Technologies for collaboration, both internal and external, varied substantially between the various respondents. All had software to track sales, working hours and payroll or gather other metrics and used software, other than e-mail, to manage capacity or inventory. Eight of nine respondents could send and/or receive invoices electronically while just two of the business (A & F) uses a private intranet.

Software applications for knowledge management, enterprise document management and enterprise resource planning or decision making software again varied between respondents with three currently using none of these applications (A, D & H), three using knowledge management (B, C & I), four using enterprise document management, three using enterprise resource software (B, C & I) and just one (F) using planning/decision making software.

With all businesses interviewed having a website presence, all having booking facilities online (three by e-mail only) and five of the businesses offering online payment methods to their customers (A, B, C, F, & I) it would appear that these businesses are at the third level of development, based on the Ditto and Pille (1998), model, where customer interactivity develops a continuous relationship with the Internet as a key factor in enterprise management.

However, in the four levels ICT investment roadmap, proposed by Demopoulos et al. (2008), we may generalise to identify our participants being at level 2 - process and transaction optimization. At this level, ICT investments have sought to reduce expenses by automating key business processes and streamlining customer relations

but, in our sample, not supply side, which remains relatively static for most respondents, as discussed in the next section.

Online Sourcing and Procurement

In regard to procurement and supply issues, online orders as with some other areas of ICT adoption, varied between the businesses interviewed, reflecting a range of tourism business types, the level of financial capability and perhaps awareness of business benefits. Online orders then made up approximately 2% (H), 5% (D & F), 10% (A), 50% (B) and 80% for the two boutique hotels (C & F) of all orders, with one (G) where the ICT system is not used in dealing with suppliers in any capacity. For two businesses (B & E) orders are placed to international suppliers, six (A, C, E, F, H & I) placed orders to national suppliers and seven to regional suppliers. A preference for placing orders to regional suppliers was expressed by a number of the respondents.

Online ordering and e-sourcing activities have stayed the same for most businesses (C, D, E, F, H & I) while procurement activities have increased the number of different suppliers for two businesses (A & B) and, as above, one business (G) is not linked to any suppliers. Only one business (A) is linked directly to an ICT supplier, who is a partner organisation, while no other businesses interviewed are directly linked to a supplier.

The findings above appear to concur with the findings of Irvine & Anderson (2008), who found in smaller rural hospitality businesses, "sound evidence" that ICT adoption was "well imbedded", but that while very attentive to the demand side, often businesses were neglecting the supply side functions.

Online Marketing and Sales

There was some variation in the extent to which the businesses interviewed received customer bookings via their website although all but three businesses (D, H & G) (the least financial, relying on volunteers, etc), having this application available. However, there was substantial variation in the percentage of orders taken from customers, one stating less than 5% (A) , two, between 5% and 10% (F & I), two (C & E) between 11% and 25% with just one (B), a virtual business, between 26% and 50%. While all businesses could take bookings by e-mail, three (D, G & H) could only take bookings by this medium. In comparison, the Sensis e-Business Report (2009a) of Australian small to medium businesses found 56% of all businesses took orders over the Internet and of these just over half (52%) took ten or less percent of their total orders/bookings in this manner. The figures from this research may also reflect the attitudes of customers who may want to speak directly to a person when making a booking.

While these variations indicate different levels of adoption of ICT and of electronic interaction with customers, they indicate that most businesses are exploiting the benefits identified by Tan et al. (2009), more effective communication with customers, reduced operating cost, enhanced efficiency, bigger market exposure opening new business opportunities and with improved information exchange with customers, enhanced access to market information and knowledge.

With regard to the origin of customer bookings, seven businesses reported receiving orders mainly local and regional customers, five (B, C, D, E & H), from national customers (two mainly from this source) and just three (C, F & H) from international customers but only one business offered website based translation and real time money exchange rates for international customers who are making transactions. For the year ending December 2009, Tourism Victoria (2010) reported international overnight visitor estimates to regional Victoria had increased by 1.5% to 319,300. Thus, it appears businesses interviewed in this study may not be making enough effort to attract the potential international tourist especially since the Goldfields region did not appear in the top six Victorian regional destinations for this cohort.

All businesses interviewed said their business website supports marketing and sales processes, provides information and visuals to customers and publish website offers to customers, while only four businesses are accessing business to business (B2B) and/or business to consumer (B2C) marketplaces (A, C, E & H). Almost all businesses are not linked to customers (A, B, C, E, F, G, H & I) with only one (D), so linked. This may indicate an immaturity and lack of full exploitation of the potential of using business to business (B2B) and/or business to consumer (B2C) marketplaces and the development of more sophisticated customer relationships.

While seven of the nine businesses interviewed currently use customer relationship management (CRM) software to organise data about customers (B, C, D, E, F, G & I), two do not (A & H), although one of these is currently developing this facility with its nation-wide partner. Those using CRM were asked to rate its benefits as very helpful, helpful or insignificant. Five businesses (B, C, E, F & I) found CRM "*very helpful"* with effectiveness for marketing, development of products and services and improving customer service, while two (D & G) agreed CRM was very helpful in marketing effectiveness, e.g. basic mail merges, helpful in improving customer service but insignificant in the development of products and services.

In general, use of the CRM application indicates a focus on ICT applications for better customer relations (Martin, 2004) and a level of development and sophistication of businesses processes for this purpose. The complexity of adoption and usage will also vary between businesses with some taking incremental steps in developing and others immediately moving to more advanced applications (Tan et al., 2009).

ICT Impacts Drivers & Inhibitors

For business (B), e-Business is critical to their operations because as a virtual business it relies substantially on ICT, while business (D) thought ICT very significant of business operations. All other businesses saw e-Business as significant to in business operations (A, C, E, F, G, H, & I). This commitment reflects the "strong increases…(in) SMEs that have taken up e-commerce in the past year" (Sensis e-Business Report, 2009b).

For four of the respondents (C, E, F & H) ICT adoption was driven by competitors, customers, suppliers and for government tendering purposes and likewise for businesses (A, B & I) except for government or other tendering activities. However, for two businesses (D & G) ICT adoption is driven only by customer demand. It would appear that from our sample, many sections of the tourism business environment are exerting pressure to drive ICT development.

The issue of security remained the major concern for Australian SME's during the 2000 to 2009 period (49% expressing concern in 2006), while legal issues were not identified as an issue of concern (Sensis e-Business Report, 2009c). Almost all respondents (A, B, C, D, F, G, H & I) believed neither security nor privacy issues are considered an impediment for practicing e-Business with unresolved legal issues viewed likewise. However, legal issues around ICT, nationally and internationally, were viewed as of limited concern and only one business (E) who expressed concerns about security, privacy and legal issues which were considered an impediment for practicing e-Business.
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To the question of ICT influence on the business, five of the nine businesses believed it to be a positive influence on revenue growth, efficiency of business processes, procurement costs, the quality of products services on customer service and internal work organisation. However, some businesses believed there was no influence on quality of products services (D, F & G), no influence on procurement costs (D, F, G & H) and finally, no influence on work organisation (A).

All businesses believed ICT to be a positive influence on the productivity of the business. However, none were able to explain why they had this perception. This may be explained by methods of assessing ICT productivity being," plagued with ambiguities and inconsistencies" (Sigala, 2003) whose study found productivity gains from ICT investments are only likely when full exploitation of ICT through networking and "informalizational capabilities" are aligned with business strategy and operations.

For three respondents, ICT was believed to have a very important influence on competition in the sector (C, D, & H), the business organisational structure (D & H) task and job descriptions (D & I) and for the education and training of employees and the out-sourcing decisions (I). Four others saw it as an important influence on competition in the sector (A, B, E & F) and the business organizational structure (A,

B, E, & F), on education and training of employees (B, C, E, & F), on task and job descriptions (C, E, & F) and finally, on out-sourcing of decisions (F). For several businesses interviewed, ICT had less importance for education and training of employees (A & D) and the out-sourcing of decisions (A, B, C & D), task and job descriptions (B) and on business organisation structure (C & I). Other businesses, however, saw no impact from ICT on task and job descriptions (A & H), the education and training of employees and the out-sourcing decisions (D & H). However, one business (G) saw ICT as having no influence on all areas, competition in the sector, the business organisational structure and task and job descriptions, on education and training of employees and the out-sourcing of decisions. Clearly all but one respondent, whose ICT usage is limited, saw ICT as having an important influence, to varying degrees, on their business operations.

With regard to business functions, ICT was perceived as having a high impact on management and controlling (C, E, H & I), on administration and accounting (A, B, C, E, F, H & I), on research and development, (A, B, E, H & I), on marketing & sales (A, B, C, E, F, H & I), on customer support (A, E, F, H & I) and for logistics and inventory (E & H & I). ICT was believed to have a medium impact on management and controlling (F), administration and accounting (D), research and development (C, D & F), customer support (C) and logistics and inventory (C, D, & F). ICT was also believed to have a low impact on management and controlling (D & A), logistics and inventory (A), customer support (B) and for business (G) it was perceived as having a low impact on management and controlling, administration and accounting, research and development, marketing and sales and customer support nor on logistics and inventory. Others perceived ICT as having no impact on logistics and inventory issues (I) and not relevant to marketing and sales and customer support (D). In the view of respondents the positive impact of ICT was felt on business functional areas to varying degrees across all businesses with just two exceptions, one constrained financially and the other having non-electronic logistics and inventory tracking methods.

As well as facilitating innovation in various functional areas, e-Commerce is itself an innovation usually involving a cluster of separate innovative steps. Daniel, Wilson and Myers (2002) found four stages of e-Commerce innovation in small businesses of varying context and industry. The first cluster are where a business is currently developing their first e-commerce services; the second where the business are using e-mail to communicate with customers, suppliers and employees and at the third information-based are websites operating and are developing on-line ordering facilities are available. At level four, advanced adopters have on-line ordering in operation and are developing online payment capabilities.

Over the past 12 months, various businesses interviewed believed ICT was directly related to a variety of innovative activities: for example, new or improved products or services, (A, B, E, & I), new or improved business processes (A, B, E, H & I), improved productivity (A, B, F H & I) with leveraging cooperation with industry and tourism networks (A, B, E, & F), helping to meet customer expectations (A, B, D, F, H & I), supplier relations (E, I) and business impact on international markets (E, F &

H). Others strongly agreed, over the past 12 months ICT had assisted in the development of new or improved products or services (C & G), new or improved business processes (C & F), leveraged cooperation with industry and tourism networks (C & I), helping meet customer expectations through on-line information and services (C & G), facilitating new and/or improved customer service (B, F & G), in improving supplier relations (B & G) and for (B & C) impacting on international markets was uncertain.

Substantial agreement was also found that ICT had facilitated new and/or improved customer service and supplier relations (A), new or improved products or services (A, D & F), assisted new or improved business processes (A & D), improved productivity (A, D & E), leveraged cooperation with industry and tourism networks (A, D, G & H), helped meet customer expectations through on-line information and services (A & E), facilitated new and/or improved customer service (D & H) and improved supplier relations (D & H). Finally, in five businesses, ICT was seen to have had little or no impact on new or improved business processes (G) and no impact on productivity (G), on accessing international markets (A, G, D, & I) or on new or improved products or services (H).

CONCLUSIONS

At this point, we are able to draw a number of conclusions. However, we are currently in the process of collation and analysis of the second part of this research, an electronic survey of 477 SMTE from across the region. However, for this part of the study, we believe we have met our specific aims and achieved a better understanding of the ICT issues, and concerns regarding the current global economic crisis. Following the introduction where the study's scope and importance are outlined, we have reviewed some of the key literature concerning the issues under consideration and noted the models on which we intend to apply in analysis for a deeper understanding of our findings. Further, we have outlined the methodology for gathering our data with which we have presented the findings from the nine interviews and made some preliminary discussion.

However, through our nine interviews, we now have a better understanding of Goldfields regional business attitudes to the current global economic crisis (GEC) which, while varied, as with the wider Victorian business community, show considerable concern, as evidenced by seven of our nine respondents having prepared business strategies to lessen any negative impacts of the GEC. Both internet, broadband and mobile telephony were accessible and exploited to varying degrees by all our respondents who, as noted above, are located in major regional cities and towns of the region. This may not be the same result for those businesses which are located in more remote areas of the region which we anticipate determining from our wider electronic survey of the region. While the use of various technologies varied among respondents, all had websites and it was particularly pleasing to find both awareness and exploitation of social networking tools to promote their business and interact with customers.

Regarding the critical nature of the level of ICT knowledge and skill to business success, only two respondents described these as high, five respondents as medium and two as low. This is of some concern, as while there appeared to be a strong commitment to training and e-learning of staff, both through internal and external provision, reliance on service providers and outsourcing of ICT needs had substantially increased for seven on the nine respondents. In addition to any cost issues, a majority of respondents (5 of 9) found access to expertise in ICT difficult or very difficult. All respondents to varying degrees expressed a commitment to further development of their ICT capability evidenced in their current and intended spending on ICT. Finally, in relation to the Ditto and Pille (1998) model of ICT development five of nine respondents are at the highest level where the internet plays a key role in a continuous relationship with customers. In addition, in the ICT investment roadmap, (Demopoulos et al., 2008), we may generalise to identify our participants being at level 2 - process and transaction optimization where ICT investments reduce expenses by automating key business processes and streamlining customer relations.

All businesses interviewed had electronic customer booking services with most (6 of 9) via their website and the other three e-mail interaction. The percentage of bookings approximated on average the comparable national figures. This demonstrates a clear commitment to meeting customer demand which is anticipated to continue to increase. However, supplier electronic ordering varied widely reflecting differing levels of financial capability and perhaps awareness of business benefits. Largely online orders were placed with national suppliers and regional suppliers with few ordering internationally. Essentially however, this area appears underdeveloped as there has been no growth in online procurement for most businesses (6 of 9) and only one business linked directly to an ICT supplier. Thus, supplier interaction remains very limited and there is extensive scope for developing supply side functions.

We have identified extensive exploitation of ICT marketing and sales technology, with extensive information for customers, use of online booking and payment services, special offers and wide use (7 of 9 respondents) of CRM technologies, which were described as "*very helpful"* by most respondents in a range of business activities. However, only one business was directly linked to customers. Few of the respondents were engaged in business to business (B2B) and/or business to consumer (B2C) marketplaces which may indicate an immaturity and lack of full exploitation of the potential offered. Further training and awareness are required. We may anticipate that this area will develop in future.

Various ICT impacts have been identified as positive including the general impact of ICT on revenue, growth, efficiency procurement customer service, internal work organisation and productivity. In addition, ICT is perceived as an important influence on competition, organisation, education and training and outsourcing as well as having a high impact on a range of management functions.

Customers were seen as the main drivers of ICT uptake and development with competitors, suppliers also driving uptake while few businesses interviewed appeared to recognise to potential of government or other tendering activities. ICT was also perceived as driving innovation in various business activities both internal and external. There was only limited concern for ICT security and privacy issues by the businesses interviewed who, likewise, did not see legal issues as inhibiting their e-commerce adoption.

In sum, most participants are highly aware of and can identify the benefits of ICT and have developed various technologies and processes and making an on-going commitment to further ICT development. Areas needing further attention by all businesses interviewed include procurement and supply issues, accessing B2B and B2C marketplaces, delivery of supporting services and consultancies and raising the internal ICT skills. While we believe this paper has met our objectives and assisted in our identification of various areas, we acknowledge that further research is required. Further we believe that the survey findings, yet to be finalised, will give us a much clearer vision of the regions tourism ICT development.

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