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E-TOURISM: A SURVEY OF E-BUSINESS AMONG SOUTH AFRICAN TOUR OPERATORS

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ABSTRACT: This contribution presents the results of a pilot project on ICT usage by South African SMMEs in the tourism industry. The Electronic Business Survey (EBS) methodology which was tested for applicability in a developing country, in this case South Africa, uses qualitative indicators and quantitative estimations to measure the impacts of e-business practices. The results, based on 40 face-to-face interviews, were substantive and showed that the adapted OECD methodology could be used successfully. In the South African tourism industry, ICT significantly improves the performance of these businesses. Although ICT adoption represents a significant operational cost for the interviewed firms, it also substantially contributes to increased revenue and improved labour productivity. On balance the results are extremely positive: 44.7% of firms report increased profitability, whereas for 50% it remained the same as three years ago. Of the firms that reported increased profitability, 75% indicated ICT as a contributing factor, and 31% considered ICT as the main contributing factor. The most positive effects are attributed to the usage of the Internet to improve customer relations in conjunction with creative product offerings (customisation, product-service bundling). Findings are consistent with research applying the same methodology in Western and Eastern Europe. This includes the finding that positive effects of ICT tend to be bigger for industries in transition, supporting businesses to become internationally competitive.

Tourism has been identified as one of the priority sectors in the South African Government's Micro-Economic Reform Strategy (MERS) of 2002 and continues to be one of the sectors that has shown substantial growth in terms of job creation and its contribution to GDP. The South African tourism industry is however characterised by a predominance of SMMEs, with the established firms largely white-owned and emerging small firms generally black-owned. Only a handful of large operators exist. Corrective Black Economic Empowerment (BEE) strategies have been introduced but the lack of concrete databases and paucity of data on tourism SMMEs means that little information is available to assist decision-making in business or in policy development by the Government. A preliminary study on ICT diffusion in cultural tourism,[1] and the only one which has been carried out to date in the South African tourism sector, provides evidence that access to ICTs is problematic due to the high costs of telecommunications and ICT equipment, with generally low levels of understanding of ICTs. The growth of international tourism to South Africa was seen as a major tourism opportunity, particularly with European and North American tourists contributing up to 40% of total revenue.

1 E Kruger-Cloete, PE Esselaar, AG James, J Miller and G Sibthorpe, Final Sectoral Report: Cultural Tourism Sector (ICT Diffusion and Applications). June 2002. Department of Trade and Industry Policy Support Programme, South Africa

Against this backdrop, the Electronic Business Survey (EBS) was launched as a collaborative initiative between South African and European researchers and the South African Department of Communications, to test whether the EBS methodology can be applied in South Africa. The aim of EBS is to inform industrialists, policy-makers and decision-makers in business development support agencies about how changes are occurring in business practice and how much these changes mean in terms of economic performance (productivity, competitiveness, employment, innovation). EBS uses qualitative indicators and quantitative estimations to measure the impacts of actual and emerging e-business practices.

The need for this type of research has arisen from various sources in South Africa – key Government officials, consultants, various national and provincial ICT initiatives, research studies, and more recently from the lack of available data to support the Presidential National Growth and Development Strategy. These discussions have lead to the following conclusions:

- no definitive and comprehensive dataset exists on emerging South African e-business practices and information flows;
- we do not understand the role of ICTs in leveraging specific industries (particularly SMMEs) and need better data to ensure that ICT investments are directed where they provide the best leverage;
- data on e-business practices requires a collaborative approach between the various Government departments – only in this way can a solid data set, based on new primary research, be established; and
- no common indicators exist for e-business practices – this is needed by a number of Government departments to support improved decision-making on the diffusion and uptake of ICTs.

The EBS survey methodology is based on an original study carried out in 2001 for the OECD in 17 sectors and 11 countries.[2] A second iteration of the methodology was tested in 2003 in a Belgian study.[3] The third iteration of the EBS methodology was customised for the South African context and a similar approach is also being applied in a World Bank study of 620 firms in five Eastern European countries.[4] This will allow comparability across countries and continents, as well as sectors.

The South African pilot study focused on tour operators, with particular emphasis on SMMEs and emerging operators. The decision to select tourism was based on the premise that this is a priority growth sector in South Africa and also one in which many black emerging players are finding business opportunities. It is also a part of the tourism value chain that has many upstream and downstream linkages. The survey was conducted from March to July 2005 and the full data analysis was completed in January 2006. After a brief overview of the methodology used, this contribution presents selected findings of the pilot study (Modules C and D of the EBS questionnaire, see Box 1 overleaf).

Methodology

The EBS methodology allows data collection at the firm level, and places the application and utilisation of ICT within its proper context in the firm and within different sectors. In contrast, many existing studies of the impact of ICT have looked at national, regional or sectoral impacts as their units of analysis. However, such studies have often limited themselves to the role of ICT *per se*, and failed to capture the critical role and complexity of the utilisation of ICT as a determining factor in shaping the impact on economic outcomes.

The methodology for this project has, in part, been designed to address some of the weaknesses of existing studies, such as to enable us to gain a more comprehensive understanding of the processes that shape the application and utilisation of ICT, and the subsequent effects on innovation and economic growth. A key objective of the study

2 P Verhoest, R Hawkins, P Desruelle *et al*, Electronic Business Networks: An assessment of the dynamics of business-to-business electronic business in 11 OECD countries: A Summary Report of the e-Business Impacts Project (EBIS). Seville: IPTS, 2003. (also available on-line: http://www.jrc.es/home/publications/publications.html)

3 P Verhoest, C Huveneers and R Hawkins, E-business and enterprise's performances. Paper for the eChallenges e-2004 conference sponsored by the European Commission, Vienna 27-29 October 2004 (http://www.echallenges.org/2004/). Preliminary findings presented at the OECD's Working Party on the Information Economy, Paris 5-6 May 2003. Main findings discussed at an OECD Workshop on 3 December 2003.

4 P Verhoest *et al*, ICT, Innovation and Economic Growth in Transition Economies: A Multi-Country Study of Poland, Russia and the Baltic countries. Submitted to InfoDev on 6 January 2006.

was to analyse and assess the diffusion and effects of ICT at the firm level in relation to labour productivity, profitability, competitiveness and innovation.

To show where and how actual performance gains occur within firms as a result of ICT adoption, it is important to identify adoption rationales at business process level. Furthermore, as these variables are subject to various other forces, it is important to determine the extent to which the effects are substantially or uniquely attributable to ICT. Therefore, parameters and benchmarks can vary not only from country to country or from industry to industry, but also from firm to firm.

Box 1: Summary of the EBS Methodology

Summary of the EBS methodology

In order to be able to answer the question of how ICT take-up and usage relate to competitiveness and economic performance, six sub-questions are addressed in the different modules of the survey:

– Module A: What are the characteristics of the enterprise?

– Module B: Which ICT applications are available in the enterprise?

– Module C: How are these applications being used in distinct business processes?

– Module D: To what effect are these ICT applications being used?

– Module E: How does the usage of these applications relate to the enterprise's business environment?

– Module F: How does the usage of ICT applications relate to the enterprise's political and regulatory environment?

Module A serves to identify a number of basic characteristics of the enterprise and its position in the market. These 'calibration data' are important to assess the enterprise's capacity to adopt and use ICT business applications and/or their capacity to influence the ICT usage of other enterprises in their market.

Module B examines which technologies are available in the enterprise and is similar to that of most ICT diffusion studies. This part of the survey questionnaire is largely based on existing procedures used by the European Commission and/or the OECD in order to allow international comparison.

Module C examines the effects of ICT usage as well as other factors on productivity, competitiveness and innovation. In addition it investigates how ICT usage and other factors relate to each other in increasing or decreasing the firms' performance and in this context an indication of the additionality of ICT is provided.

Module D assesses the contribution of ICTs to the enterprise's performance. The aim of this module is to establish the causal relationship between the usage of certain technologies in certain business processes to their effects – both positive and negative. Unlike most surveys, the EBS methodology produces these estimations in a quantified and comparative way.

Module E on the relationship between the enterprise and its environment aims at identifying so-called strategic issues, which are not easily quantified. Questions relate to the relationship between the enterprise and its business environment, in particular the value chain(s) in which the enterprise is active.

Module F relates to the policy, regulatory and business environment in which firms operate. A specific approach, tested in the EBS survey, is used to weigh the relative importance of incentives and obstacles to the usage of ICT applications.

Our study was aimed at small tour operators in the Gauteng province of South Africa, with fulltime staff numbers ranging between one and 14 and an average of four to five staff members over the past three years. In total 40 SMMEs were interviewed. Two interviews were invalid because they did not comply with our definition of SMMEs (enterprises employing fewer than 200 people). The number of interviews may seem small, but since our survey focussed only on pro-active users and on only a small segment of the tourism value chain, we believe that the sample is reflective of realities, particularly among small emerging black entrepreneurs. The pilot sample was selected based on those using ICT intensively, successfully and for a minimum period of time of three years, as compared to other firms in the same sector. Our study includes interviews with successful early adopters and therefore is representative of trends that are likely to affect the industry or sector in the foreseeable future.

Brief Technology Usage Profile

All of the surveyed enterprises used one or more computers during the past three years. 100% of the firms in our sample used a connection to the Internet during the last three years. Connections to the Internet varied. Approximately one-third of all enterprises interviewed use an analogue modem via a standard (fixed) phone line, about one-third use an ISDN connection and the last third DSL. All of the surveyed enterprises used email. In addition to the Internet, mobile applications were very popular amongst the interviewed firms. Almost 87% also used SMS or MMS.

Internet is the most popular medium for sales with more than 76% of firms, followed by email (58%) and SMS/MMS (32%). The communication tools email (58%) and SMS/MMS (42%) are more frequently used to place orders. Fewer firms use Internet for the placement of orders (47%) than the receipt thereof.

Table 1: Use of Internet for sales and purchases

Sales and purchases: a comparison	Sales: firms receiving orders	Purchases: firms placing orders
Internet	76.32%	47.37%
Email	57.89%	57.89%
SMS/MMS	31.58%	42.11%

Of the firms receiving orders via Internet, 58% did so by means of a pre-structured email link on their website. 24% of the firms received their orders via a more advanced on-line ordering facility and 34% of the firms sold their products through third party websites such as specialised Internet market places.

Advertising is the most popular use of computer networks by firms, followed by selling goods and services, providing customer services, finance and finally the distribution and sharing of information. Most significantly, ICT is by far a more popular sales channel than it is a tool for purchasing and procurement.

Table 2: Top five uses of computer networks

Advertising	97.37%
Selling goods and services	92.11%
Customer service	89.47%
Finance	78.95%
Sharing and distribution of information or data	76.32%

Selected Performance Indicators

This section reports on four performance indicators used in our survey: the evolution of labour productivity, operational costs, sales revenues and profitability. For each of these indicators, firms were asked to assess the importance in ICT usage in provoking observed changes. The estimates produced by our respondents allow a first general assessment of the relative importance of ICT in relation to other factors that affect the performance of firms. It is also important to re-emphasise that our figures are not static, but relate to ongoing trends for the last three years. Percentages used in the sections do not contain the optional responses of "don't know", "not applicable", and "refusal". This allows for more transparent internal comparisons between usage patterns and performance indicators than if "disturbances" which vary per question, are included.

Labour Productivity

A vast majority (62.2%) of all responding enterprises in our sample report a labour productivity increase compared to three years ago and only 5.4% state that output per employee decreased over the past three years. Moreover, the reported productivity increases are substantial. More than 80% of firms with improvements in productivity report increases of more than 10%.

Table 3: Output per employee

How are outputs per employee different from what they were three years ago?		With what percentage have outputs per employee increased/decreased compared to three years ago?							
		0-10%	10-25%	25-50%	50-75%	75-100%	100-150%	> 150 %	TOTAL
Lower	% of Total		100.00						100.00
Higher	% of Total	18.20	36.40	22.70	4.50	13.60	0.00	4.50	100.00

75% of firms report that ICT is a contributing factor to productivity, with a proportion of 12.5% even stating that ICT was the main reason for productivity gains over the past three years and 62.5% stating that it was ICT along with other factors. In order of importance these factors are investment in equipment, organisational change, staff training, and new marketing strategies. The importance of these other factors, with or without connection to ICT usage, indicates that as a contributing factor to productivity, ICT usage is important but has generally to be looked at in the context of a more generic set of measures and efforts to increase productivity.

Table 4: Factors influencing changes in output per employee

How are outputs per employee different from what they were three years ago?		Change in the output per employee of the business is due to:			
		Mainly ICT	ICT and other	Mainly other	Total
Lower	% of Total	14.29	85.71		100.00
Higher	% of Total	12.50	62.50	25.00	100.00

Operational costs

Almost 65% of all firms declare that average operational costs per unit of output have increased whereas little more than 5% experienced a decrease compared to three years ago. For almost 30% operational costs remained about equal. 75% of firms state that increases in productivity costs are above 10%. However, on average, increases in operational costs are lower than productivity gains.

Table 5: Operational costs per unit of output

How are average operational costs per unit of output different from three years ago?		With what percentage have your operational costs per unit of output increased/decreased compared to three years ago?							TOTAL
		0-10%	10-25%	25-50%	50-75%	75-100%	100-150%	> 150 %	
Lower	% of Total		100.00						100.00
Higher	% of Total	15.00	55.00	10.00	15.00	5.00			100.00

ICT appears to be a very important factor in explaining increasing operational costs. Almost 83% of firms mention it as a factor that has increased costs. ICT also ranks higher than the other factors, of which new marketing strategies is the most important factor, followed by investment in equipment.

Table 6: Factors influencing operational costs

How are your average operational costs per unit of output different from three years ago?		Change in operational costs per unit of output is due to:			TOTAL
		Mainly ICT	ICT and other	Mainly other	
Lower	% of Total			100.00	100.00
Higher	% of Total	8.70	73.90	17.40	100.00

The observation that ICT contributes to increasing operational costs is not at all surprising. Particularly for small and micro businesses, ICT represents a significant investment. Moreover, the possibilities to reduce business process costs through economies of scale and scope are much more limited than in large corporations. As is also demonstrated in other questions relating the usage of ICT to changes in performance, ICT is rarely a stand-alone factor. ICT is critical in that it is the single most cited factor of change in our survey, but most often its effects are related to other factors.

Revenues from sales

The number of firms that report revenue increases is rather low, compared to the number that reports productivity increases. 46% of the firms indicate revenues from sales to be higher than three years ago. Almost 38% report equal revenues and 16% of the firms report lower revenues. As with operational costs, 75% of firms report revenue increases above 10%, but on average, the magnitude of revenue increases does not compensate for the increased operational costs.

Table 7: Revenue trends

How are total revenues from sales different from three years ago?		With what percentage have total revenues from sales increased/decreased compared to three years ago?							
		0-10%	10-25%	25-50%	50-75%	75-100%	100-150%	> 150 %	TOTAL
Lower	% of Total	60.00	40.00						100.00
Higher	% of Total	25.00	62.50	12.50					100.00

Slightly more than 82% of firms report that ICT contributes to increasing revenue. Thus, whilst ICT is an important cause of cost increases, it is also an important instrument for increasing revenue, although on average, the amount of increase does not fully compensate for the costs.

Table 8: Factors influencing revenue

How are revenues from sales different from three years ago?		Change in the output per employee of the business is due to:			
		Mainly ICT	ICT and other	Mainly other	TOTAL
Lower	% of Total		33.30	66.67	100.00
Higher	% of Total	5.90	76.50	17.60	100.00

The three most important "other" factors for bringing about changes in revenue are new marketing strategies, followed by the exchange rate of the South African rand and capital investment in equipment.

Profitability

Very few firms report decreasing profitability over the past three years (about 5%). However, the number of firms that report increasing revenues (45%) is surpassed by the proportion of firms stating that it is more or less equal (50%). Two factors

explain this relative stagnation. Firstly, although about 80% of the firms that report higher profitability mention increases of more than 10%, the magnitude of these increases on average is less than for productivity. This indicates that for many firms, productivity improvements don't make up for increased operational costs: Secondly, on the revenue side, many firms report that the strengthening South African Rand during this period against major currencies has had a negative effect on revenues.

TABLE 9: PROFITABILITY TRENDS

How is profit from sales different from three years ago?		With what percentage have profits from sales increased/decreased compared to three years ago?							
		0-10%	10-25%	25-50%	50-75%	75-100%	100-150%	> 150 %	TOTAL
Lower	% of Total		50.00		50.00				100.00
Higher	% of Total	20.00	46.7	6.7	6.7	6.7	6.7	6.7	100.00

Around 75% of firms mention ICT as one of the contributing factors to increasing profitability. 44% of firms attribute these effects to ICT along with other factors. Capital investment in equipment is mentioned most frequently, followed by new marketing strategies. This means that more than 31% considers ICT to be the main factor contributing to increased profitability. This is surprisingly higher than other reported direct effects of ICT on performance. It demonstrates that ICT can be a critical, if not decisive factor for firms to increase profitability and this despite increasing costs and external factors negatively influencing revenues. It also suggests that there are more appropriate ways to use ICT to increase firms' performance than others.

TABLE 10: FACTORS INFLUENCING PROFITABILITY

How is profit from sales different from three years ago?		With what percentage have profits from sales increased/decreased compared to three years ago?			
		Mainly ICT	ICT and other	Mainly other	TOTAL
Lower	% of Total	50.00		50.00	100.00
Higher	% of Total	31,20	43.80	25.00	100.00

Innovative Effects at Businesses Process Level

Thus far, our survey has provided estimates of "how much" ICT is contributing towards improving the performance of the tour operators studied. It left unanswered the question of "how" these enterprises obtained these results, if any. Our survey addresses this issue by investigating the effects of different types of innovation at business process level. These types are process innovation, product innovation and relational innovation.

Process and product innovation are well-known concepts, but the concept of relational innovation may require some explanation. The concept of relational innovation indicates the way firms innovate in the way they are conducting business with suppliers and customers and more specifically the transactional aspects of these relations. It is narrower than the concept of strategic innovation, which is sometimes used to indicate the way firms reposition themselves *vis-à-vis* other players in the field, including for example Government.

Process Innovation

In areas such as task automation and organisational change, improvements were moderate and the contribution of ICT limited or even marginal. These findings are consistent with the nature of the businesses under scrutiny. Internal processes are of limited complexity and magnitude and do not necessarily require ICT solutions to be handled effectively.

However, firms managed to increase the speed and reliability of business processes significantly, they performed better in information management, and ICT played a determining role in achieving these improvements. Again, the nature of the businesses helps to understand this finding, in particular the need of tour operators to bridge distances, to improve on mobility and time-management and to access suppliers such as hotels, airlines, tourist attractions, holiday resorts and so forth.

Product and Relational Innovation

Some significant effects were also found in the area of product innovation. Product innovation concerns possibilities created for new product offerings, customisation of products and service bundling. For example, the Internet enables the flexible offerings of a wider range of services, allowing customers to select between different options and providing additional "external" services to the initial offer, such as car rental or insurance. Effects of ICT on product innovation were

observed mostly in conjunction with new marketing strategies and improving customer service levels.

The relationship between ICT, product innovation, new marketing strategies and customer services levels ties it to the realm of relational innovation, in particular the (creative) use of the Internet as a sales channel. Positive effects in terms of relational innovation concern the number of customers or suppliers, the value of sales or purchases per customer or supplier, the number of repeat customers or suppliers and the value of sales per repeat customer or supplier. Positive effects were found mostly in customer relations.

Conclusions

Comparison of the findings of this survey with other studies using the EBS approach suggests that the contribution of ICT to business performance tends to be proportionally larger in less mature industries or markets. Figures are not conclusive but the argument can be defended theoretically on the grounds that the contribution of ICT usage to business performance will tend to be more marginal in industries that are already highly performing and/or have already integrated advanced ICT solutions to that effect.

Viewed from the perspective of an economy in transition, this also pre-supposes that the necessary human, financial and technical resources for the effective take-up and usage of ICT are available. Any observer of the South African economy will agree that many problems in this area remain to be solved. For example, this study shows that despite significant advances in mobile technology (broadband), Internet is required for an industry such as tourism to compete internationally and a lot of progress remains to be made in this area. It is also encouraging to see that SMMEs seem to be able to appropriate the benefits of ICT, but it is very questionable whether this conclusion applies to the entire population of small tourism enterprises and start-ups. SMMEs should be informed that while ICT can have a significant impact on increased profitability, ICT investment should be very focussed; for example, in this pilot study usage of the Internet to improve customer relations in conjunction with creative product offerings (customisation, product-service bundling) was the most effective.

The findings of this pilot study should not be generalised, at this stage, to the tourism industry, or to other industries. The study aimed to test a European-based methodology in a developing country and focussed on a small part of the tourism value chain. The pilot study would have to be expanded to include more

components of the value chain in order to understand more fully what industry specific and environmental factors will be most beneficial at a certain stage in its evolution. Equally, as is amply demonstrated in our European studies, sector differences are important in understanding the potential effects and benefits of ICT usage. Innovation policies and industry strategies that mobilise scarce resources to stimulate ICT usage will be most effective if they take these factors into account. ❑

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