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## **The Viability of an Office Automation on-line Channel in an Emerging Market**

### **Publication summary**

E-commerce is becoming an important alternative marketing channel and a viable option for on-line businesses in emerging markets. This research explores the viability of an Office Automation (OA) on-line business channel. A quantitative paradigm was applied to accumulate evidence from an extensive sample to determine this viability. The results indicated a high rate of adoption of e-commerce by individuals and businesses in the OA on-line channel and that there is a high rate of willingness to transact repeatedly given the prior on-line purchasing experience. A statistically significant association between management encouraging the use of the Internet for business purposes and a business utilising the Internet for the purchase of OA products were determined. The availability of product information on a website and ease of use of the website were highlighted as the two main factors affecting the on-line shopping experience positively. Despite the reported failures of on-line business channels in emerging markets, the study showed that this could be a viable option if aligned to selected market segments and channel management.

### **Abstract**

The Internet has become an integral part of the success and globalisation of businesses and has empowered businesses of all sizes to promote their products and services using e-commerce. Research indicates that businesses in emerging markets have been slow to adopt e-commerce and highlight the fact that previous studies identified technological, social, cultural, legal and institutional constraints as major inhibitors of e-commerce adoption. The study investigates the use of e-commerce as an alternative business channel for office supplies in an emerging market and the customers' preparedness to purchase goods and services through an e-commerce channel. The findings indicated that an e-commerce solution does present a viable alternative e-commerce on-line channel for the OA industry in an emerging market.

**Key words: e-commerce, emerging markets, office automation.**

### **1. Introduction and objectives**

E-commerce generally refers to different forms of commercial transactions that involve individuals and an organisation based on the electronic processing of data. It is the process of e-commerce trading utilising the Internet (Jobodwana 2009). Businesses enter into e-commerce with the objective of increasing revenue by reaching markets that they previously would not easily have had access to and in the process reducing costs. Findings by Doherty and Ellis-Chadwick (2010) indicate that a retailer's overall financial and strategic performance could be positively affected by the addition of an Internet based channel. In a study conducted by De Klerk and Kroon (2005), the most important reasons for e-commerce and international trade included profit (86 percent), access to strategic markets (64 percent) and international association by means of relationships (61 percent).

Businesses in emerging markets have increasingly implemented e-commerce solutions as an alternative marketing and trading channel. However initially there is a consensus that businesses in emerging markets have been slow to adopt e-commerce (Molla & Licker 2005). In an article by Pather, Remenyi and De La Harpe (2006) it is highlighted that South Africa was not immune to the e-commerce hype and according to the Department of Trade and Industry, expectations that the Internet would boost South Africa's economy and revolutionise the market by allowing small firms to compete equally with larger rivals, did not materialise. This failure of e-commerce in South Africa is echoed by Molla and Heeks (2007) whose findings about the benefits of e-commerce for businesses in South Africa suggest that, by and large, the potential for e-commerce in emerging markets is not being realised.

Research indicates that the characteristics of the business, including the product they sell and the market they serve need to be taken into consideration. This study investigates the customers' preparedness to purchase office automation (OA) products through an e-commerce channel; the reasons for adoption of e-commerce and the demographics of customers, including their industry and business size. A brick-and-mortar office automation business with 14000 customers was identified and used as a case study. The main research objective was to investigate the viability of developing and implementing a website in order to sell OA products as an alternative marketing channel.

## **2. Conceptual framework and literature review**

Previous studies of e-commerce in emerging markets (Humphrey, Mansell, Paré and Schmitz 2003; Molla and Licker 2005) identified technological, social, cultural, legal and institutional constraints as major inhibitors of e-commerce adoption as well as the appropriateness of the channel for the product and the target market. From a technological point of view, world indicators can be used in determining South Africa's position regarding e-readiness development. The average world indicators for telephone mainlines, 157,3 per 1000 people and the availability of personal computers, 68,3 per 1000 people, are much higher than the South African indicators of 125 available telephone mainlines per 1000 people and 54,7 personal computers available for every 1000 people (De Klerk & Kroon 2005). Further to these statistics it was also reported by Wei (2005) that developed countries had Internet penetration rates above 37.7%. Africa has a penetration rate of 13.6%. South Africa has the 5th highest number of Internet users in Africa with a total of 8.5 million users with a penetration rate of 17.4% (Internet World Stats 2012; WEF 2013). This information highlights the fact that should a South African business wish to enter the e-commerce market, selling to South African consumers, they will need to carefully look at their target market and assess the level of e-readiness within that market.

Molla and Heeks (2007) indicate that the reality of e-commerce benefits in an emerging market appear to contrast sharply with some of the dominant theoretical perspectives and the more optimistic literature that seems rooted in potentiality rather than actuality. They believe that expectations should be muted about what e-commerce can deliver for emerging market businesses. This is not to suggest that practitioners - business staff, consultants, business advisors or even policymakers - should turn against e-commerce. However, they do need to stay aware of its opportunity costs and see it as one business improvement initiative among a number of options, rather than as "the solution".

Jobodwana (2009) reported that wider access to broadband, ADSL and 3G/4G have boosted Internet connectivity, with the number of South African Internet browsers increasing by 121 percent

in two years, from 1.8 million in May 2005 to 3.8 million in May 2007. The number of Internet users in 2012 is reported to be 8.5 million (Internet World Stat 2012).

One of the largest infrastructure improvements over the last few years was the completion of the Eastern Africa Submarine Cable System (EASSy). On 5th August 2010 Dr. Angus Hay, CTO of Neotel announced, on behalf of the EASSy Cable Management Committee, that the EASSy system has entered commercial service on 30th July 2010 (EASSy 2010a). The World Bank Group (2011) describes EASSy as an initiative to construct and operate a submarine fiber optic cable along the east coast of Africa to connect eight coastal countries and island nations to each other and to the rest of the world. EASSy is expected to significantly increase the supply of high quality reliable broadband capacity while simultaneously reducing wholesale bandwidth costs and supporting a parallel reduction in end-user prices for telecommunications service which will boost regional competitiveness and enable Africa to participate more fully in the global information economy. According to the WEF (2012) with regard to ICT usage, South Africa ranked 33rd for business usage but only 81st for individual usage and 102nd for government usage out of 144 countries measured (WEF 2012).

Mobile commerce or M-commerce is emerging in Africa and South Africa especially as either a complement or an alternative to e-commerce as originally conceived, though there are arguments that mobile telephone technology “m-commerce” will surpass “e-commerce” as the method of choice for digital commerce transactions (Doherty and Ellis-Chadwick 2010). SA has 45 million active mobile phones (population 49 million) – ranking in the top 5 globally in terms of mobile phone coverage. The mobile devices allow increased access to the Internet and e-commerce.

The literature indicates a number of prerequisites to be in place in order to ensure a successful e-commerce venture. The three major prerequisites are management support, customer needs and business operations.

### **Management support**

A company that successfully engages in using technology, such as an e-commerce initiative, needs the top management of the company to be supportive (enthusiastic) and the people in the company to have ongoing experience with current technology and technology trends (Karakaya and Shea 2008). The success of e-commerce businesses will mainly depend on management support even as it e-commerce application is enabled in technology. Molla and Licker (2005) point out that once a business adopts on-line e-commerce systems, the commitment of its managers, especially executive management, will determine how fast the business will move up the maturity ladder of e-commerce. E-commerce must further be driven as a strategic initiative by management.

### **Consumer needs**

In terms of what consumers want to see in on-line stores, 64 percent say product details are important, 60 percent said incentives were an important feature, followed by easy site navigation (46%) and product reviews (42%) (Megna 2009). In a B2C e-commerce context, customer service and trust in an online vendor are of the utmost importance. It stands to reason therefore that service quality and trust are two additional dimensions to consider in addition to the traditional dimensions of system quality, information quality, user satisfaction, perceived usefulness and use/intentions to use. Given the variety of products and services on offer to e-commerce consumers, using frequency of use as a general measure of e-commerce success is problematic. Frequency of use is also dependent on the nature of products and services being purchased. Assessing customer intentions to

continue using an e-commerce system is perhaps a better measure of success, as it reflects repeat business regardless of product/service. It also treats behavioural intentions as a post-adoption phenomenon, as is required for evaluating success of a system (Brown & Jayakody 2008).

### **Business operations**

According to the study conducted by Pather, Remenyi and De La Harpe (2006) the following four areas of business operations are deemed to be critical to the success of the e-commerce business:

- Availability - At all costs the electronic shop-front must be kept open and active 24/7/365 – this includes ensuring the availability of a hot-site. Site under construction notices and other distractions by which the shop-front is not available are extremely counter-productive to the business. The electronic shop-front needs to be as attractive as possible and have as wide an appeal as possible;
- Agility and flexibility - the IS infrastructure must allow for the business to be agile in responding to product updates to the web-site, advertising of specials etc. Changes have to be made immediately. Any substantial lead-time involved represents lost revenues;
- Product database - An effective, efficient, database infrastructure is essential for a successful online retailing business. An on-line shop lives by its twin databases. These are the product database which represents the inventory in the shop front and needs to be both up-to-date and error free and the client database which represents the main market opportunities. The product database needs to be seamlessly connected to the procurement and delivery systems to ensure that the correct items are delivered on time;
- Inter-departmental collaboration - IT and business stakeholders need to think and collaborate and engage in joint decision making across all areas of business – including “non-IT” issues. The integration of IT, logistics and marketing is of utmost importance.

Pather, et al. (2006) highlight a number of large South African organisations whose participation in e-commerce experienced problems forcing them to close. Doherty and Ellis-Chadwick (2010) point out that if one thing has become very clear in the first years of Internet retailing, it is that there is always the opportunity for the innovative and dynamic company, that has read the market well and has an effective business model, to make a strong impact and in so doing, grow very big and powerful, very quickly. The Internet can prove to be a very fertile environment if businesses have good ideas, supported by an appropriate set of core competencies and capabilities. It has become clear that there are certain market segments, such as travel, consumer electronics, hobby goods and media goods, in which Internet retailing has really made a very significant impact (Doherty & Ellis-Chadwick, 2010). Eppright and Hawkins (2009) agree that the online medium is better suited for some product sales than others. The e-readiness of the business's target market and their willingness to transact in an e-commerce environment is also a defining factor in determining whether or not a venture into the e-commerce market would be of benefit to the business.

### **3. Methodology**

In this study the viability of an office automation (OA) on-line channel in an emerging market was investigated. A brick-and-mortar business operating in South Africa with 14000 customers was identified and used as a case study. The OA business operates primarily in the business-to-business (B2B) environment and currently makes significant use of information and communications technology (ICT) in the form of emails, both for communication and marketing, as well as having a web-site that serves as an information portal for current and prospective customers. From a financial point of view, it makes use of Internet banking for all out payments to suppliers, as well as

for debit order collections from customers. The challenge now is to take this one step further and implement a system that would allow customers to purchase goods on line, without having to contact a sales consultant to assist them. The business trades in the office automation industry, with a focus in four primary segments, namely:

- the sale of hardware – this includes PABX systems, printers, photocopiers and multi-functional machines;
- the sale of consumables – this includes paper and printer cartridges;
- technical support – the servicing of equipment sold; and
- rental finance – the financing of equipment sold.

Data were obtained through self-administered questionnaires. The questionnaire included 30 questions. The majority of the questions made use of 5 point Likert scales or yes/no responses in an attempt to speed up the time required by respondents to complete the questionnaire. A pilot study was conducted in order to determine the reliability and validity of the research instrument. The customer survey questionnaire focused on collecting data in four areas namely:

- Demographic data relating to the individual;
- Demographic data relating to the business;
- Individuals use of e-commerce; and
- Business use of e-commerce.

The sample for the customer survey was extracted from the database of customers of the office automation business, who had been identified as either a hardware or consumable contact for the business. This database contained in the region of fourteen thousand (14,000) businesses and individuals that could potentially be surveyed. Convenience sampling was used to select a sample of 7500. Given that the database has industries listed, the sample included respondents from a variety of different industries. These hardware or consumable respondents were the people responsible for procurement within the businesses for which they worked. The sample created resulted in 7764 people being surveyed. A total of 276 questionnaires were completed within a two week period. Although this only represents a response rate of just fewer than 4% it was felt that the responses received would be sufficient to perform the required statistical analysis.

The respondents were requested to indicate their gender and age (n=276). The results indicated that the respondents were 59% female and 41% male, combined with the fact that no one age group accounted for more than 17% of the respondents it is felt that the data is a good representation of gender and age. This information was used later to test the findings of the literature study regarding the demographics of adopters of e-commerce. There was a good representation of businesses across all economic sectors with no one sector accounting for more than 12% of the respondents. Government and public services (12%), retail and consumer (11%) and engineering and construction (9%) were the top three industries represented.

52% of the businesses surveyed employed less than 25 people, with 24% employing more than 100 people. The size of the businesses was, in addition to the number of people employed, assessed by means of their spend on office automation consumables in a month. 27% of the respondents indicated a monthly spend of less than R1,000.00 (\$100) and 25% indicated a spend of over R7,500.00 (\$750) per month. The mean for the monthly spend amounted to R3,517.77 (\$351) per business which equates to a total monthly spend of R953,315.50 (\$95,331) for the 276 businesses represented.

#### **4. Research findings**

Univariate analysis was used to explore the data from individual variables using frequency distributions. Bivariate analysis was used to explore the relationships between the variables: Chi-Square Test for independence and homogeneity and Cramér's V to determine strengths of association after chi-square has determined significance. The study found that there is a high rate of adoption of e-commerce by individuals and businesses in the target area. This was highlighted by the fact that 80% of respondents had used the Internet for purchasing goods and services for personal use and 59% had used the Internet for the purchasing goods for business use. Once the Internet has been used for the purchase of goods for business use there is a high rate of willingness to transact again given the prior experience. The bivariate analysis showed this relationship to be statistically significant and with a Cramér's V score of 0.56 indicating a strong association and large effect size. The bivariate analysis showed that there is a statistically significant association between management encouraging the use the Internet for business purposes and a firm using the Internet for the purchase of goods and services for business use. The Cramér's V score of 0.31 indicated a moderate association and medium effect size.

The demographics of users of e-commerce, particularly with regard to age of the individual and size or type of entity have no impact on whether or not they will transact via e-commerce. The bivariate analysis highlighted that there was not a statistically significant association between the age of individuals, the size of the entity or the type of entity and whether the firm had used the Internet to purchase goods. The availability of product information on a website and ease of use of the website were highlighted as the two main factors affecting the on-line shopping experience. The availability of product information was rated as very important by 71.98% of respondents and ease of use was rated as very important by 70.31% of the respondents when assessing their impact on the on-line shopping experience for personal use. The results for business use were similar.

#### **5. Discussion**

The data for personal use indicated a high frequency of prior use, with 80% of respondents indicating that they had previously used the Internet for the purchasing of goods and services. This coupled with the fact that 81% of the respondents perception is that online shopping for personal use is either good or very good and that 91% of respondents indicated that they would use the Internet again given their prior experiences, points to a high level of acceptance of e-commerce as a means to purchase goods. The research findings relating to business use, whilst still significantly high, were not as high as those for personal use. 59% of respondents indicated that their firms have used the Internet for the purchase of goods. 80% had a perception that online shopping for business use is at a high level, being either good or very good. 80% of respondents indicated that they would use the Internet again, given prior experience, for the purchase of goods and services for business use.

The main points that were raised as to the failure by individuals and businesses to adopt e-commerce as a means to purchase goods and services were:

- A lack of trust;
- The need for a personal shopping experience; and
- No perceived need to use e-commerce.

Regarding the factors resulting in adoption, it is noted that encouragement by management to use the Internet for business purposes has an impact on the actual use of e-commerce solutions by

businesses. Further to this, the ease of use and site navigation, as well as the product information availability rate highest as factors impacting on the e-commerce experience. The negative factors will have to be further investigated to find the most effective means of overcoming these objections to the use of e-commerce. Both the negative and positive factors highlighted above should receive serious consideration when it comes to the design of any e-commerce solution. The research interestingly highlighted the fact that demographics have very little impact in separating the users from the non-users. There was no clear demographic profile that could be determined using the individuals age, the industry within which the entity operates, the size of the entity or the type of legal entity.

The significance of this is that in this sector, all consumers can be effectively targeted with an e-commerce solution and the effectiveness of such an e-commerce solution will not be impacted on by the demographic make-up of this target market. The majority (66%) of the respondents indicated that they would be likely or very likely to consider buying office automation consumables on-line, compared with the 45% who indicated that they would be prepared to buy office automation equipment on-line. In addition to this the mean of the maximum spend, worked out at R 2,143.67 (\$241). This is too low for equipment purchases and would point towards consumables being suitable.

Based on these findings it is suggested that the e-commerce solution be developed primarily with the sale of office automation consumables in mind. The website could provide information and contact details for the sale of equipment. This study confirms the findings of Humphrey, Mansell, Paré and Schmitz (2003) that the main effect of B2B e-commerce in emerging markets is to enhance the relationships between existing trading partners. The main research objective of the study was to investigate the viability of an OA on-line channel in an emerging market. The results clearly indicated that an e-commerce system should be implemented.

## **6. Limitations of the study**

The limitations that have become apparent are:

- People are skeptical about following links and are obviously tired of receiving a large amount of spam emails, the aim of which are to get personal information. This “fatigue” could be responsible for the low response rate;
- The fact that only those with email addresses were surveyed could mean that the adoption rates are skewed. By targeting those with emails the likelihood is that the level of non-adoption has been under reported;
- It is estimated that the business in this study only commands 10% of the market share in the area studied. This study has therefore been focused on a small section of the market and this could affect the results.
- Another limitation is that these results cannot be generalised to all businesses.

## **7. Further research**

As this study focused primarily on assessing the willingness and ability of consumers in a particular area of office automation products it is felt that the following areas would still need to be researched and could be included in future research studies:

- The cost of implementing an e-commerce solution and the availability of suitable resources to facilitate the implementation;

- Operational factors critical in ensuring the success of an e-commerce solution implementation; and
- Assessment of the level of e-commerce adoption by the competitors within the office automation industry in South Africa.

## 8. Managerial implications

The literature and the results of the study indicate that the adoption or failure to adopt e-commerce as an element of their growth strategy into the future will have a significant impact on their future development. The results of this study indicate that this business automation company should proceed with an assessment of the cost implications of implementing an e-commerce solution and consider the following with regard to implementation. The business must have a clear strategy for what it is trying to achieve, with a strong business case for e-business development, careful planning and understanding of customer needs and a sharing of information with all involved. The issues of cost, time, staff and support need to be considered. The speed of order receipt and order fulfilment needs to be considered.

The success of an on-line initiative will be realised from understanding that is not just about selling to customers, but about harnessing the technology to interact more effectively up and down the supply chain and internally as well as understanding what your customers want and see whether working online will create advantages. E-commerce is a reality and businesses who fail to embrace the new technology could find themselves losing competitive advantage. This study, even with the limitations highlighted, indicates that there is a significant adoption of e-commerce by consumers in emerging markets. It is important that suppliers ensure that they are in a position to offer the customers, not only the products they want, but also the distribution model that best suits them.

## Bibliography

- Brown, I. and Jayakody, R. (2008), B2C e-Commerce Success: a Test and Validation of a Revised Conceptual Model. *Electronic Journal of Information Systems Evaluation*, 11 (3), 167-184.
- Chambers, S., Johnston, R., Phihlela, K., Pycraft, M., Singh, H. and Slack, N. (2010), *Operations Management*. (2nd ed). Cape Town: Pearson Education South Africa (Pty) Ltd.
- De Klerk, S. and Kroon, J. (2005), E-commerce adoption in South African businesses. *South African Journal of Business Management*, 36 (1), 33-40.
- Doherty, N. F., and Ellis-Chadwick, F. (2010), Internet retailing: the past, the present and the future. *International Journal of Retail & Distribution Management*, 38 (11/12), 943-965.
- EASSy. (2010a), EASSY Enters Commercial Service, [online] Available at: <<http://www.eassy.org/>> [Accessed 29 May 2011].
- EASSy. (2010b), EASSy Announces System Upgrade, [online] Available at: <<http://www.eassy.org/>> [Accessed 29 May 2011].
- Eppright D. R. and Hawkins R. R. (2009), Determinants of Emerging e-Commerce Markets: A Developmental Perspective. *Journal of Internet Commerce*, 8, 113–134.
- Grey, W., Olavson, T. and Shi, D. (2005), *The role of e-marketplaces in relationship-based supply chains: A survey*. *IBM SYSTEMS JOURNAL*, 44(1), 109-123.
- Internet World Stats. (2012), [online] Available at: <<http://www.internetworldstats.com>> [Accessed 2 August 2013].
- Humphrey, J., Mansell, R., Paré ,D. and Schmitz,H. (2003), *The Reality of E-commerce with Developing Countries*. London, LSE.



- Jobodwana, Z. N. (2009), E-Commerce and Mobile Commerce in South Africa: Regulatory Challenges. *Journal of International Commercial Law and Technology*, 4 (4), 287-298.
- Karakaya F. and Shea T. (2008), Underlying Motivations for Establishing E-Commerce Business and Their Relationship to E-Commerce Success. *Journal of Internet Commerce*, 7(2).
- Martins, M. F. and Oliveira, T. (2010), *Firms Patterns of E-Business Adoption: Evidence for the European Union-27* Proceedings of the European Conference on Information Management and Evaluation: pp.371 – 379. [Online] available from: <[http://www.ejise.com/volume-13/volume13-issue1/Oliveira\\_and\\_Martins.pdf](http://www.ejise.com/volume-13/volume13-issue1/Oliveira_and_Martins.pdf)> [Accessed 21 May 2010].
- Megna, M. (2009), Mobile Commerce, Twitter to Save E-Comm Sales? [online] Available at: <[http://www.Internetnews.com/ec-news/article.php/10793\\_3820481\\_2](http://www.Internetnews.com/ec-news/article.php/10793_3820481_2)> [Accessed 13 February 2011].
- Molla, A. and Licker, P.S. (2005), *Perceived E-Readiness Factors in E-Commerce Adoption: An Empirical Investigation in a Developing Country*. *International Journal of Electronic Commerce*, 10 (1), 83-110.
- Pather, S., Remenyi, D. and De La Harpe, A. (2006), *Evaluating e-Commerce Success -- A Case Study*. *Electronic Journal of Information Systems Evaluation*, 9 (1), 15-26.
- Wei, J. (2005), Internet Penetration Analysis: The Impact on Global E-Commerce. *Journal of Global Competitiveness*, 13 (1/2), 9-24.
- World Economic Forum. (2013), *Global IT Report 2013*.