

# **The Use of Hosted Enterprise Applications by SMEs: A User Perspective**

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## **Abstract**

This paper seeks to deepen our understanding of the engagement of small to medium-sized enterprises (SMEs) in hosted enterprise applications (high complexity e-business applications) in the UK by investigating the relevance of organisational and technical factors through conducting interviews with SME users of hosted applications. The emergence and development of the application service provider (ASP) sector has attracted much interest and highly optimistic forecasts for revenues. Of particular interest in this paper is the emergence of service offerings targeted specifically at SMEs. The paper starts by considering information technology (IT) adoption by SMEs in general before reviewing the provision of hosted enterprise applications in the US and UK. The empirical data collected from SME users of hosted enterprise applications is then analysed in order to produce the key findings and conclusions. From an SME user perspective the key findings to emerge from the study include: i) confirmation that ICT infrastructure was no longer a barrier to adoption, ii) the pragmatic approach taken to security issues, iii) the use of both multiple information systems (hosted and resident) and service providers, iv) the attractiveness of the rental cost model and v) the intention to continue or extend their use of hosted applications within the enterprise. The early promise of the ASP sector appears not to have been generally realised for SMEs in the UK. This study explores the experience of early adopters of this new IT related innovation and identifies some significant business gains experienced by SME users. It also highlights the opportunity for gaining competitive advantage by using hosted enterprise applications to reduce costs. There are very few empirical studies of hosted applications which take a deliberately SME user perspective and this paper make an important contribution in this emerging field.

**Keywords:** SMEs; e-business, application service provision, IT adoption, IS strategy.

## **Introduction**

The broad relationship between small and medium sized enterprises (SMEs) and their use of information and communication technologies (ICT) is problematic. On the one hand the most recent survey by the EC E-Business Watch, which tracks e-business engagement across 15 industry sectors throughout all EU member states, concludes that access to ICT is no longer a barrier to e-business uptake by small businesses with connectivity at 84 percent. Simple applications such as email and Web access are virtually ubiquitous (EC, 2005). On the other hand, however, usage by SMEs of higher complexity applications, such as integrated financial ledgers, supply chain applications, and customer relationship management (CRM) applications is much lower (DTI, 2004). It is against this background that our paper reports some current research, which aims to deepen our understanding of the factors that are relevant to the adoption of these higher complexity applications by UK SMEs. This research is characterised in three ways. Firstly, it focuses on hosted applications since this mode of provision is growing and is potentially of significant interest to SMEs. Secondly, of special interest is the emergence of service offerings targeted specifically at SMEs such as Netsuite, ePeachtree and QuickenBooksOnline in the US. And finally, the research adopts an explicit user perspective, rather than that of the provider. This latter distinction is important and is revisited later in the paper.

The presentation and interpretation of the research is structured into four main sections. The paper starts by considering the nature of a hosted applications environment and within this context explores ICT adoption by SMEs in general, and the importance of application complexity in particular. The methodology and the empirical design are detailed in section two. In the third section a market perspective on the provision of hosted services is summarised. Finally, section four brings together the data analysis and its interpretation to produce the key findings and conclusions.

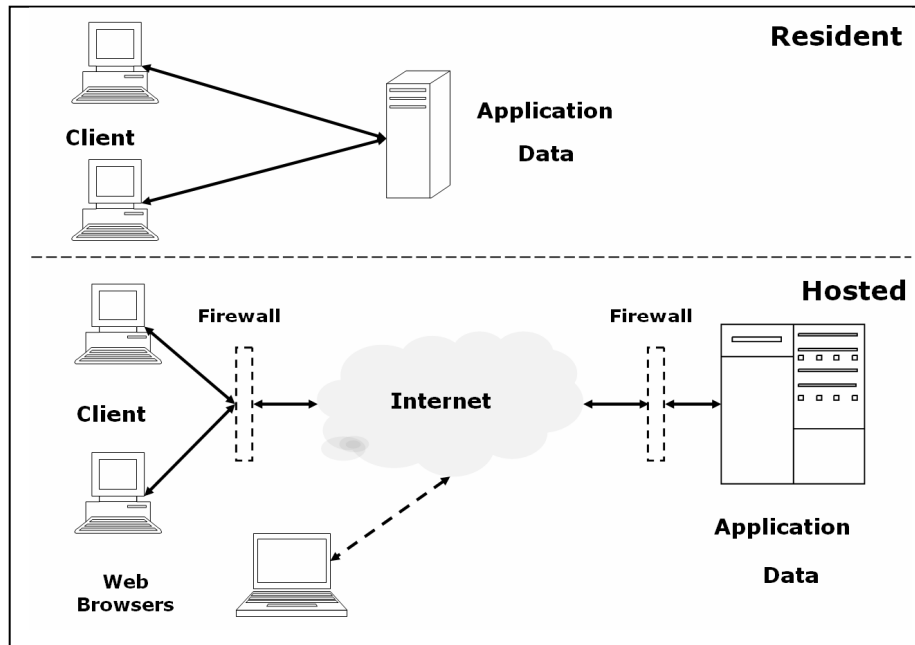
## **Hosted applications, ICT adoption and complexity**

As IT functionality and capabilities have changed profoundly and dramatically as a result of new technologies like the Internet and 3G mobile, all firms need more flexibility and adaptability of processes and systems to respond to emerging challenges and opportunities. Increasingly internal information system (IS) development is moving to an external development and provision model (outsourcing), driven by the need for lower costs, faster implementation, easier-to-use applications and effective use of scarce resources (Ward and Peppard, 2002). The emergence of hosted e-business enterprise applications is a prime example of a profound change deriving directly from the availability of a low cost, ubiquitous electronic communication network - the Internet. Here e-business is defined as: "the use of electronic communication networks to transact, process and collaborate in business markets." Hence in this definition e-business incorporates e-commerce (Lockett and Brown, 2006). These hosted applications provide e-business functionality ranging from email to contact management and from sales order entry to financial ledgers with report generators. Telecommunication, technology and service companies have emerged or evolved to provide a range of Web services or hosted applications designed to exploit existing communication infrastructures. Typically these companies are known as application service providers (ASPs) and variously defined as a "third-party entities that manage and distribute software-based services and solutions to customers across a wide area network from a central data facility." (Webopedia 2005).

The technologies used by ASPs to deliver services relies on 'thin-client' application server products, such as Microsoft's terminal server and Citrix's WinFrame applications addressing client devices, such as Web browsers (MS Internet Explorer and FireFox). The use of Web browser technologies on the client devices both reduces the sophistication of the client device (thus reducing purchase and support costs resulting in a lower total cost of ownership) and increases the interoperability of devices (as more devices incorporate Web browsers). Whilst ASPs are external to organisations, larger enterprises can use these technologies to provide 'in-house' hosted services, which effectively moves applications off PCs on to application servers resulting in central control over application cost, usage and support. The provision of hosted applications, by ASPs, on a rented basis is viewed as of particular relevance to SMEs. The new *hosted* applications that facilitate e-business are very different from traditional *resident* applications in one main regard, namely that the user interface, application software, data processing and data storage can be located on different and multiple software and hardware platforms, and can be provided and supported by different entities, Figure 1.

ASPs form part of the wider service provider (xSP) sector, which includes, storage service providers (SSP), content service providers (CSP), wireless ASPs (WASP) and others. The ASPs themselves fall into two main categories – vertical and horizontal. About 12 percent of ASPs are involved in service provision and support to specific industries and are defined as vertical; the dominant balance is horizontal ASPs capable of offering services across multiple industries (Currie et al, 2004). In this research it is the horizontal ASPs that provide the focus.

Figure 1. Architecture for e-business applications



Hosted ASP applications are in essence online services accessed by the user via a simple interface, such as a Web browser, over electronic communication networks, such as the Internet. This is a fundamental change in the relationship between user, hardware and software and presents opportunities for new business models for service provision. Typically these hosted applications are offered on a rental or fee basis, rather than the traditional purchase model. The fee typically includes the use of the software and the provision of the processing and storage platforms, but not the provision of the electronic communication networks. Importantly, these electronic communication networks are increasingly being considered as ubiquitous and are rapidly evolving from the public Internet through virtual private networks to grid computing and 3G mobile platforms. They provide the communication platforms on which ASPs can deliver hosted services. The ASP model has a particular potential for SMEs that do not have their own in-house IT development capability or the necessary level of computing infrastructure.

To begin to understand the issues involved in e-business engagement we need to classify hosted applications, as there are significant differences between e-mail and e-marketplace applications both in terms of complexity and added value, Table 1.

Classification	Examples	Complexity
Communication	E-Mail, web access	Very Low
Marketing	Website	Low
Productivity	Microsoft Office, intranet	Low
E-Commerce	Buying & selling online	Medium
Collaborative	Extranet	Medium
<b>Enterprise</b>	<b>Financials, payroll, vertical applications</b>	<b>High</b>
Marketplace	E-Marketplaces	High
Collaborative enterprise	Supply chain management, CRM	Very High
Collaborative platform	Emerging platforms	Very High

Table 1. Classification of application complexity after Gillian et al 1999 (Lockett and Brown, 2001)

Importantly this classification of application complexity stresses the roles of collaboration and interaction as key features of e-business applications, and recognises the resultant increase in complexity. This taxonomy of e-business complexity incorporates both technical and organisational factors. For example, both the security technology issues underpinning higher complexity hosted applications, and the perceived commercial risk of storing sensitive client information in third party data centres, increases with higher complexity. In this way application complexity provides a meaningful framework in which to consider, compare and analyse e-business engagement. The introduction of the EC E-Business Watch synthesis report represented an important move towards tracking e-business engagement (EC, 2005). It stated the use of e-mail and the www has become nearly ubiquitous in the business world. However this indicates an oversimplification evidenced by the tendency to equate e-business with e-mail usage and Web access. The use of hosted enterprise applications can be viewed as a significant increase in complexity from low complexity applications such as e-mail.

The empirical study of IT adoption, particularly the Internet, by SMEs is increasing but very little of this concerned with the use of hosted applications. Most of the research focuses on the drivers and barriers to ICT adoption and some on the strategy or adoption models. This early research on ICT adoption by SMEs is epitomised by Mehrtens et al (2001) which states that perceived benefits, organizational readiness, and external pressure are major factors. Indeed, these three factors had been adapted from an earlier study of electronic data interchange (EDI) adoption in SMEs by Iacovou et al (1995). Perceived benefit was also cited as a supporting factor of the adoption in the study of SME use of the Internet by Poon and Swatman (1997). Other influencing factors are business sector and nature (Poon and Swatman, 1999; Fillis et al., 2004; Windrum and Berranger, 2002), owner's enthusiasm and growth ambition (Cragg and King, 1993; Poon and Swatman, 1999; Fillis et al., 2004), and location (Windrum and Berranger, 2002). Theoretically the role of the intermediary as a means of facilitating the diffusion of complex ICT has been observed by a number of other authors (Swan and Newell, 1995; Newall et al., 2000; Lockett and Brown, 2005 and 2006). A recent study by Levy and Powell (2003) proposed a contingent model of the Internet adoption. Their research reviewed these factors along with the e-business adoption stage model, Levy and Powell (2003) questioned the idea that small firms progress through a stage model (linear) of growth in their use of the Internet. They investigated 12 case studies to identify the reasons for SME Internet adoption. The case analysis confirmed the results of previous studies that perceived benefit and owner's attitude to business growth are major factor affection the adoption decisions. Furthermore, the contingent model was developed according to these factors, as Levy and Powell believed that the stage of Internet adoption is in fact dependent on the level of business value of the Internet and business growth variables. The contingent model contains four groupings: brochureware, business opportunity, business support, and business development. It confirmed that owner's attitude to business growth affects adoption and SMEs with no plan to grow are not enthusiastic to adopt any complex technologies and are likely to use only email and website hosting. The contingent model is supported by adoption factors reported in various studies (e.g. Cragg and King, 1993; Poon and Swatman, 1999; Fillis et al., 2004), and the business development grouping in the contingent model confirms that a full integration, the highest stage of Internet adoption proposed by Poon and Swatman (1997), and e-business adoption, the last stage of growth model proposed by Willcocks et al. (2000), can only be happened when firms have high perceived benefits and good knowledge of IT opportunities. Clearly more research across business sectors and across countries are needed to substantiate these results.

In the main the above literature is viewed from a user perspective. In the case of SMEs the provider perspective is also important since the delivery of high complexity e-business applications can prove unprofitable for providers and many choose not to supply (Brown and Lockett, 2004). In the specific context of ASPs the business model underpinning horizontal ASPs is more robust than vertical industry specific applications, since the same applications, such as accounts, are available to a wide range of businesses. Even though these applications can be customised they are effectively generic.

## Research method

A case study (Yin, 2003) based research approach was undertaken in two phases, namely a review of the service offerings (market review) from ASPs, both in the US and UK (May 2005) and semi-structured interviews with senior managers in a range of SMEs using hosted applications from two different UK based ASPs (June and July 2005). Companies selected for the market review were either already known to the researchers or identified by Internet searches. The purpose of the market review was to determine the nature of service offerings, functionality and price, and any evidence of uptake by SMEs. Analysis took the form of reviewing company Web pages and downloadable documents and industry publications available online. It is acknowledged that there was an inherent bias to the data collected. The qualitative data from interviews covered a range of factors considered to be of potential importance to the firm's decision to use hosted enterprise applications and their subsequent experience. Companies were selected by respondents to an email from a senior company manager from both ASPs asking their respective customers to participate in the research project. This resulted in nine telephone interviews with senior managers in a range of eight SMEs using hosted applications, Table 2.

Firm	ASP	Age (years)	Turnover (Euro)	Employees	Interviewee's role
1. Animal feeds supplier	A	100+	Not given	56	Financial Director
2. Timber and building supplies	A	200+	Not given	44	Financial Director
3. Healthcare distribution	A	5	10.0m	51	Financial Director
4. Promotional merchandise	B	2	2.0m	9	Financial Manager
5. Events management	B	11	3.0m	10	Managing Director
6. IT services	B	Not given	Not given	none	Managing Director
7. Corporate uniform supplier	B	5	2.7m	15	General Manager
8. Sporting club	B	25	Not given	Not given	General Manager
9. Healthcare distribution	B	5	10.0m	51	Operations Manager

Table 2. Characteristics of enterprises

All interviews were recorded and resulted in 358 minutes of audio files. These audio files were codified using HyperResearch ([www.researchware.com](http://www.researchware.com)). The purpose of the analysis was to support explanation building (Yin, 2003) which facilitates the identification of key findings. This explanation building is a special type of pattern matching, which is a more difficult procedure, and has been used for explanatory and exploratory case studies (Yin, 2003:120).

## Market Review

The hosted enterprise applications available to SMEs in the US and UK can usefully be divided into three main types: customer relationship management (CRM), accounting and payroll (together these applications broadly encompass the functionality traditionally associated with enterprise resource planning (ERP) applications used by large firms. The market for online-hosted SME applications developed initially in the US but is increasingly international. Each of these is considered separately.

Hosted CRM applications: There are three major providers for online CRM application, namely Salesforce.com, NetSuite and Siebel. All the company's have headquarters in US but also offices in UK, Europe, and Asian Pacific. Salesforce.com claims to be the largest provider of hosted CRM applications, delivering integrated, completely customisable enterprise applications for companies of all sizes around the world. The company stated that it had 267,000 subscribers at 15,500

companies worldwide, 11 local websites in various countries in Europe, America, and Asia, and \$176.4 million total revenues in the year ending 31 January 2005 (Salesforce, 2005). NetSuite offers integrated hosted CRM and enterprise resource planning (ERP) and sales force automation (SFA) applications. The company's stated target customers are SMEs worldwide and the company's goal is to enable customers to make better, faster decisions in a highly competitive market (NetSuite, 2005). Siebel's OnDemandCRM, is a hosted CRM application claiming to offer complete SFA, marketing automation, and customer service functionality, built-in customer analytics, virtual call centre technology, embedded CRM best practices, and world-class hosting services and support over the Internet. The Siebel Systems is one of the world's leading providers of business solutions (Siebel, 2005).

Despite offering generally the same functionality, some different features are offered. For example, while NetSuite and Siebel On-demand CRM provide an employee management feature, Salesforce do not include the feature in its product. Table 2 contains a summary of key features available in each product.

General Information	Salesforce	NetSuite CRM	Siebel OnDemandCRM
Company	Salesforce.com www.salesforce.com	NetSuite www.netledger.com	Siebel www.siebel.com
Market(s)	US, UK any size firms	US, UK, SMEs	US, UK any size firms
Features			
Hosted Solution	Y	Y	Y
Sales Force Automation	Y	Y	Y
Marketing Automation	Y	Y	Y
Employee Management	N	Y	N
Customer Support Management	N	Y	Y
Dashboard	Y	Y	Y
Productivity Tool	N	Y	Y
Customization	Y	Y	Y
Free Trail	Y	Y	N

Table 2. Comparison of hosted CRM software

Hosted financial applications: There are several major providers of online accounting applications including: QuickBooks Online, ePeachtree and NolaPro. All these providers are primarily based in US however QuickBooks Online and ePeachtree have indicated an intention to expand internationally. Quickbooks Online is owned by Intuit, the largest provided of resident applications SMEs in the US. Intuit states it is transforming business and financial management for small businesses, accounting professionals and consumers. The company's mission is to create new ways to manage personal finances and small businesses. The company has nearly 7,000 employees and offices in Canada and the UK. Its Los Angeles based division specialises in hosted applications. ePeachtree is owned by Best Software, who provide a wide range of front office and back office solutions, including accounting, human resources, payroll, fixed asset management, customer relationship management, and e-commerce software. The company aims to acquire more than 2.4 million SME customers in US. The parent company is Sage Group plc is a UK based company and it has a large product range of resident applications including Sage Instant Accounting, Sage Line 50, Line 100, Line 200 and Line 500, Sage Payroll and Sage Personnel plus Forecasting, CRM and Contact Manager applications. Noguska specialises in providing software and networking solutions for business and industry; particularly, the printing and graphic arts industries. One of its products is NolaPro, an online system of business management and accounting, including general ledger, accounts payable, accounts receivable, inventory, payroll, and shopping card features, Table 3.

General Information	QuickBooks Online	ePeachtree	NolaPro
Company	Intuit www.quickbooks.com	Best Software www.bestsoftware.com	Noguska www.nolapro.com
Market(s)	US, UK, SME	US, SME	US, any size firms
Pricing			
Hosted Solution	Y	Y	Y
Accessible via the Internet	Y	Y	Y
Free Trail	Y	N	Y
Base Package	\$25 pcm	\$150 pa	\$20 pcm
Users Allowed in Base Package	3	1	Unlimited
Maximum users (with additional cost)	20	10	Unlimited
Payroll Service	\$50 pcm (10 user)	\$95 pa	Included
Sales Plus package	\$10 pcm	No service	No service
Business Plus package	\$8 pcm	No service	No service
Features			
Basic accounting features i.e. GL, AR, AP	Y	Y	Y
Integrated CRM module	N	N	N
Charts of accounts	N/A	75	N/A
Job and Project tracking	N	Y	N
Free product update	Y	Y	Y
Online support	Y	Y	Y
Predefined Report/ form	Over 65	Over 100	N/A
Data Backup/ Protect	Y	Y	N/A
Inventory	N	Y	Y
Shopping cart	N	N	Y

Table 3. A comparison of online accounting applications

In addition to these three major international providers, the UK also has an increasing number of smaller service providers offering the hosted accounting applications. Most are accountancy groups and appear to have developed their own software. Examples of these new entrants include Ascot Drummond ([www.ascotdrummond.co.uk](http://www.ascotdrummond.co.uk)), Company Books ([www.companybooks.co.uk](http://www.companybooks.co.uk)) and Your Online Accountants ([www.youronlineaccountants.co](http://www.youronlineaccountants.co)).

Hosted payroll applications: All the payroll providers reviewed were US-based, Table 4. Sure Payroll claims to be fifth largest payroll provider in the US and the largest online payroll provider. The company provides payroll services directly to small business and a private-label payroll service that allows partners to offer payroll processing to their small business clients. PayMaxx claims to be the second largest independent provider processing payroll and filing taxes in all 50 states. It was the first payroll provider in the USA to launch a hosted payroll service in January 1999.

General Information	EasyPayNet	PowerPayroll	Paychex	PayChoice	SurePayroll
Company	ADP www.sbs.adp.com	PayMaxx www.paymaxx.com	Paychex www.paychex.com	P/Associates www.paychoiceonline.com	Sure Payroll www.surepayroll.com
Market(s)	US, SME	US, SME	US, SME	US, SME	US, SME
Features					
Online	Y	Y	Y	Y	Y
Direct Deposit	Y	Y	Y	Y	Y
General Ledger	Y	Y	Y	Y	Y
Time and attendance	Y	Y	Y	Y	Y
Online Reports	Y	Y	Y	Y	Y
Manual Check	Y	Y	Y	Y	Y
Garnishments	Y	Y	Y	Y	Y
Tax Filing	Y	Y	Y	Y	Y
File exports	N	Y	Y	N	N
128-bit SSL encryption	Y	Y	Y	Y	Y

Table 4. A comparison of hosted payroll applications

Overall, hosted enterprise applications, particularly CRM and accounting software, are becoming more widespread, especially in US. Unsurprisingly service providers promote the use of these applications and state a range of benefits available to users and are listed below:

- *Flexibility, convenience, access*  
QuickBooks Online (Coursey, 2004); Salesforce.com (Bartholomew, 2005)
- *Focusing on core competence and outsourcing provision and back-up.*  
The Company Books (Company Books, 2005)
- *Reduction in hardware, software and maintenance costs*  
NetSuite (Bartholomew, 2005); BRAL's Sage Online 50 services (BRAL, 2005)
- *Integration of transactions and reduction in duplication of data entry*  
BRAL's Sage Online 50 services (BRAL, 2005); Paychex (McCausland, 2004)

The market potential is supported by forecasts of increasing revenues, for example \$7 billion by 2008, Figure 2 (Clyman, 2004). Bartholomew (2005) also supports this growing trend of hosted application in SMEs. He argues that large-scaled enterprises that have already invested highly in software, hardware, and staff are therefore less likely to consider hosted applications. Similarly, the Gartner group, cited in Manchester (2005), states that 30 percent of US SMEs will be using some form of hosted application to support their CRM initiatives by 2008. In terms of explaining this increased adoption of online applications by SMEs Chandrasekhar (2005) suggests that increased focus on core competence is the principal rationale.

This market review indicates that the provision of hosted enterprise applications is increasing, particularly in the US, and that the potential for hosted services is strong. However, accounts of SMEs' experience of hosted services in the academic literature are lacking, and evidence of usage and experience by SMEs is largely anecdotal within the practitioner literature. The benefits appear, at least as portrayed by service providers, to be clear as indicated above. However adopters, cited by service providers, perceived that hosted application benefited their businesses. While perceived benefit is one of the main factors influencing the adoption of Internet and EDI in SMEs, there are other factors such as organisational readiness and owner's attitude towards growth, which need to be considered. Although hosted applications seem to provide an effective way for SMEs to selectively outsource (Ward and Peppard 2002) more empirical research on the factors influencing the adoption process and experiences of SMEs using hosted enterprise applications is needed. The



next sections go some way towards addressing this shortfall by reporting on recent qualitative research on the experience of SMEs in the UK.

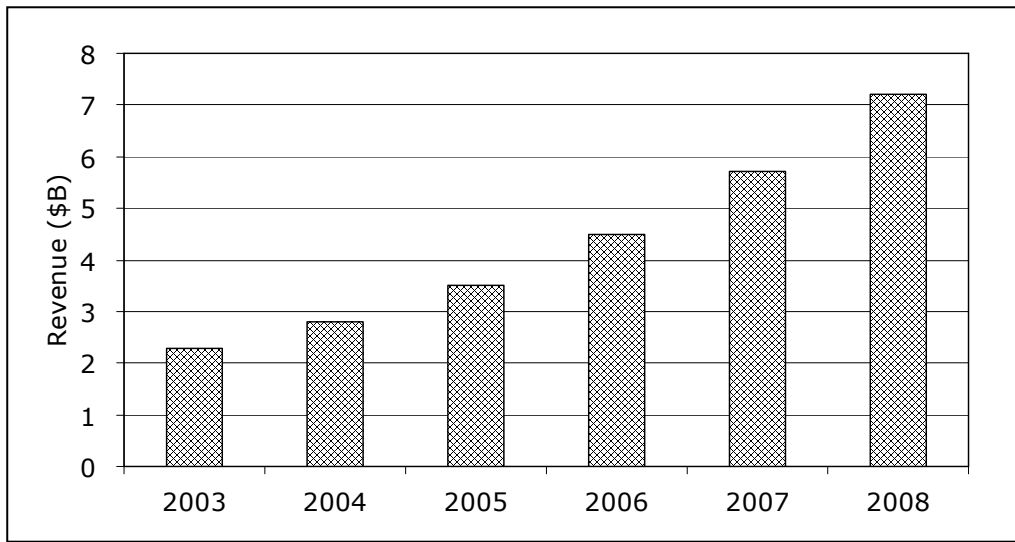


Figure 2. Hosted application revenues (Clyman, 2004)

### Key findings

The study explored the current market for ASP offerings of hosted enterprise applications to SMEs in the UK and provides a relevant theoretical framework for understanding the adoption decision and subsequent experience. From an SME user perspective the key findings to emerge from the study include: i) confirmation that ICT infrastructure was no longer a barrier to adoption, ii) the pragmatic approach taken to security issues, iii) the use of both multiple information systems (hosted and resident) and service providers, iv) the attractiveness of the rental cost model and v) the intention to continue or extend their use of hosted applications within the enterprise.

#### *ICT infrastructure was no longer a barrier to adoption*

None of the enterprises had encountered any connectivity problems when using hosted enterprise applications. Most had broadband connections with two enterprises having lease line connectivity to the service provider. The only negative comment regarding connectivity was by company 2 which stated 'we are slightly dependent on the phone (lease) line – but this has only gone down once in three years and then only for one hour'. This indicates that for SMEs in the UK the ICT infrastructure is available to enable the used of hosted applications and concerns the findings of the E-Business Watch study (EC, 2005).

#### *Pragmatic approach taken to security issues*

There was a general awareness amongst the enterprises of the security issues surrounding the use of hosted applications. Clearly all users had overcome any concerns they may have had in order to access these applications. Surprisingly many users had little knowledge of security and had largely abdicated responsibly to the service providers. Interestingly several highlighted distinct advantages of using hosted applications both in terms of security and back-up. Comments included: 'back-ups are done, it is more secure than we could achieve'; 'the strengths are back-up, security and ongoing developing product'; 'we don't need worry about the service, back-ups, anti-virus or employ an IT person'.

### *Use of both multiple information systems (hosted and resident) and service providers*

No company only used the functionality available from the hosted application although most used it as their main information system. The hosted functionality used included: e-commerce, sales order processing, quotations, sales ledger, nominal ledger, purchase order processing, purchase ledger, payroll, contact management system, email, file storage and diary management. Additionally there was widespread use of resident information systems with several companies mentioning the use of financial applications and office productivity tools.

### *Attractiveness of the rental cost model*

All enterprises commented on the benefits of renting applications rather than purchasing software and installing on their own equipment. Comments included: 'I don't think we would spend a large amount of money in order to bring it in-house'; 'I am comfortable that we are getting reasonable value for money'; 'to pay the money to bring it in-house is not worth it, there are both short and long term savings in using hosted applications, it seems to be better value – we were spending a lot more before'; 'from a financial point of view it is definitely the most cost effective way of outsourcing IT, I think most companies will be happy renting'; 'pricing is not the most sensitive issue - it how fast the functionality can be introduced into the business'; 'when you are a young growing company cash flow is important so renting is better'; 'hosted applications is a very affordable model – the payback has been virtually instantaneous'; 'we have had a member of staff leave and because of the system we have not replaced them, this saving is greater than the annual rental cost'.

### *Intention to continue or extend their use of hosted applications within the enterprise*

All enterprises stated an intention to continue or extend their use of hosted enterprise applications. Comments included: 'we will probably upgrade and allow the field sales force to have access'; 'I would not change from hosted due to the cost and hassle, I think it will grow'; 'provided there is security hosted systems are a fantastic things, the cost of maintaining resident systems is the same as the rental costs but you don't have to purchase the software and future upgrades'; 'we currently using only of 25% of the systems capabilities and intend to extend its use when we have time, it is the companies that embrace hosted applications that will grow quickly and this is down the individual business managers'; 'even large businesses will selectively use hosted applications, the future for hosted applications is enormous but the problem is getting to the marketplace'; 'we have not had the time use all the system yet'; 'we are going to see more appliances accessing the Internet which is the most reliable way of getting information, hosted applications are going to be the thing that enables small organisations to compete with bigger companies but without having the skills and set-up costs'; 'we want to extend the use of the hosted system'.

The experience of using hosted applications was largely positive. Comments included: 'only minor issues, happy with the level of service'; 'the service levels are fluctuating in terms of support'; 'issues sorted out quickly, back-ups are done, remote access, it has simplified things, I can work from anywhere'; 'it seems to be a lot better, it's a solid system'; 'well structured and easy to use, its simple, manageable, practical and fits our purpose'; 'service is second to none, no complaints at all'. But some users did have some concerns. Comments included: 'there is pressure from supplier to upgrade to new interface'; 'there are some restrictions of controls because we use a shared server, it would be a huge upheaval to move to another system'; 'the system is not robust enough, there were problems with a recent upgrade, the information systems are critical to a company'; 'we are dependent on the supplier doing a good job as we don't have the technical expertise in-house'; 'the only downside is having 'all our eggs in one basket', the company might go bankrupt'.

## Conclusion

The early promise of the ASP sector appears not to have been generally realised for SMEs in the UK. The market review indicates that the provision of hosted enterprise applications is increasing, particularly in the US, and that the potential for hosted services is strong. However, accounts of SMEs' experience of hosted services in the academic literature are lacking, and evidence of usage and experience by SMEs is largely anecdotal within the practitioner literature. This study goes on to explore the experience of early adopters of this new IT related innovation and identifies some significant business gains experienced by SME users. It also highlights the opportunity for gaining competitive advantage by using hosted enterprise applications to reduce costs. There are very few empirical studies of hosted applications which take a deliberately SME user perspective and this paper make an important contribution in this emerging field.

## References

- Bartholomew, D. (2005) 'Hosting Gets Hot', *Industry Week*, 254(3), 67.
- BRAL (2005) <http://www.bral.com>, accessed 21 May 2005.
- Chadler, L. (2005) 'Putting your money online', *Association Management*, March, 10.
- Chandrasekhar, K. (2005) 'Why SaaS Is Making a Comeback', [http://www.aspnews.com/trends/article.php/11306\\_3492541\\_1](http://www.aspnews.com/trends/article.php/11306_3492541_1), accessed 1 June 2005.
- Company Books (2005) <http://www.companybooks.co.uk>, accessed 21 May 2005.
- Coursey, D. (2004) 'How I run my business with online software', [http://reviews-zdnet.com.com/AnchorDesk/4520-7297\\_16-5124848.html](http://reviews-zdnet.com.com/AnchorDesk/4520-7297_16-5124848.html), accessed 31 May 2005.
- Cragg, P. and King, M. (1993) 'Small-Firm Computing: Motivators and Inhibitors', *MIS Quarterly*, 17(1), 47-60.
- Clyman, J. (2004) 'Business IT: Rent or Buy?', <http://www.pcmag.com/article2/0,1759,1651062,00.asp>, accessed 1 June 2005.
- Currie, W., Desai, B. and Khan, N. (2004) 'Customer evaluation of application services provisioning in five vertical sectors', *Journal of Information Technology*, 19 (1) 39-58.
- DTI (2004) *Business into the Information Age: International Benchmarking Study 2004*, Department of Trade and Industry, UK.
- EC (2005) <http://www.ebusiness-watch.org/> - accessed 10th March 2005.
- Fillis, I., Johansson, U. and Wagner, B. (2004) 'A qualitative investigation of smaller firm e-business development', *Journal of Small Business and Enterprise Development*, 11(3) 349-361.
- Iacovou, C., Benbasat, I. and Dexter, A. (1995) 'Electronic Data Interchange and Small Organizations: Adoption and Impact of Technology', *MIS Quarterly*, 19 (4) 465-485.
- INTUIT (2005) <http://www.intuit.com>, accessed 18 May 2005.
- Jutla, D., Bodorick, P. and Dhaliwal, J. (2002) 'Supporting the e-business readiness of small and medium-sized enterprises: approaches and metrics', *Internet Research*, 12(2) 139-164.

- Koh, S. and Maguire, S. (2004) 'Identifying the adoption of e-business and knowledge management within SMEs', *Journal of Small Business and Enterprise Development*, 11(3) 338-348.
- Levy, M. and Powell, P. (2003) 'Exploring SME Internet Adoption: Towards a Contingent Model', *Electronic Markets*, 13(2) 173-181.
- Levy, M., Powell, P. and Yetton, P. (2001) 'SMEs: aligning IS and the strategic context', *Journal of Information Technology*, 16(?) 133-144.
- Lockett, N. and Brown, D. (2005) 'An SME Perspective of Vertical Application Service Providers', *International Journal of Enterprise Information Systems*, 1(2) 37-55.
- Lockett, N. and Brown, D. (2006) 'Aggregation and the Role of Trusted Third Parties in SME E-Business Engagement: A Regional Policy Issue', *International Small Business Journal*, 24 (1).
- Manchester, P. (2005) CRM adapts to pay-as-you-go, <http://www.insightexec.com/cgi-bin/item.cgi?id=131293>, accessed 1 June 2005.
- McCausland, R. (2004) Online Payroll: The Small Firm Connection, *The Practical Accountant*, 37, 4, 36.
- Meckel, M., Walters, D., Greenwood, A. and Baugh, P. (2004) 'A taxonomy of e-business adoption and strategies in small and medium sized enterprises', *Strategic Change*, 13(?) 259-269.
- Mehrtens, J., Cragg, P. and Mills, M. (2001) 'A model of Internet adoption by SMEs', *Information & Management*, 39(?) 165-176.
- NetSuite (2005) <http://www.netsuite.com>, accessed 20 May 2005.
- Poon, S. (2000) 'Business environment and internet commerce benefit – a small business perspective', *European Journal of Information Systems*, 9, 72-81.
- Poon, S. and Swatman, P. (1997) 'Small business use of the Internet: Findings from Australian case studies', *International Marketing Review*, 14(5) 385-402.
- Poon, S. and Swatman, P. (1999) 'An exploratory study of small business Internet commerce issues', *Information and Management*, 35(?) 9-18.
- Salesforce (2005) <http://www.salesforce.com>, accessed 20 May 2005.
- Siebel(2005) <http://www.crmondemand.com>, accessed 30 May 2005.
- Ward, J. and Peppard, J. (2002) *Strategic Planning for Information Systems* 3rd edition. John Wiley & Sons, Ltd., West Sussex.
- Webopedia (2005)
- Willcocks, L., Sauer, C. and Associates (2000) *Moving to E-Business*, Routledge, London, UK.
- Windrum, P. and Berranger, P. (2002) 'The adoption of e-business technology by SMEs', available from <http://www.merit.unimaas.nl/publications/>.
- Yin, R. (2003) *Case Study Research: Design and Methods*, Third Edition. Sage Publications, Beverly Hills, CA.