Abstract

Government policy worldwide is to assist small and medium-sized enterprises (SMEs) to become e-enabled, yet it is unclear what impact this has. There is evidence that customers drive e-adoption due to the need to integrate information in the supply chain. There is also evidence that SME owners drive adoption, primarily as a response to perceived benefits. However, there is little exploration of the role of government initiatives in influencing e-adoption strategies in SMEs.

This paper uses network agency theory to investigate Internet adoption in SMEs. The research identifies five influence networks: expert – primarily in IT firms; industry-led – SMEs working in collaboration with sector organizations; and customer-led – driven by customer requirements. The drivers of these three networks are primarily strategic. The other two networks, ICT support and novice, are driven by the SME owner. The key difference is the maturity of internal IT.

This research demonstrates that government policies and strategies have little influence on Internet adoption. Further, competitor pressure has little influence while customer pressure is central. Additionally, IT suppliers may have a key influencing role. The implications for government are explored.

Keywords: Internet adoption strategy, government policy, SMEs

Exploring Internet Adoption Drivers in SMEs

MARTIN BECKINSALE, MARGI LEVY AND PHILIP POWELL

INTRODUCTION

This paper considers drivers of Internet adoption strategy in small and medium-sized enterprises (SMEs). Governments worldwide encourage SMEs to invest in Internet technologies, yet the impact of these efforts is uncertain. This paper reviews Internet benefits as understood by SMEs and the development of Internet adoption strategies in SMEs is considered from the perspective of the key actors in the decision process. The paper then reflects on the role of government in encouraging Internet adoption.

The paper uses network agency theory to assess the process by which SMEs consider adopting the Internet. CW2000, an EU-funded project to encourage Internet adoption by UK SMEs, is used to analyse adoption patterns in 50 case SMEs over a three year period. Five patterns of Internet adoption strategy are identified. Analysis suggests that, as with other information and communication technology (ICT) decisions in small firms, the owner is key. However, there is also evidence that local project support and suppliers are more instrumental in adoption strategies than direct government intervention.

The paper is structured as follows. First, the current state of knowledge about SME Internet adoption is outlined, the drivers discussed and
the role of government considered. Then the research method, network agency theory is presented. Networks are the built up for the case firms. These are discussed and exemplar cases provided. Discussion of the results and conclusions are then presented.

INTERNET ADOPTION AND SMES

SMES are generally unwilling to develop e-commerce systems or to change current business models (Keindl 2000). Research suggests that SMES are unlikely to follow a stages model. Rather, they focus on the owners’ strategy for growth. Internet development in SMES may be slow, reflecting this approach to resource investment. A variety of adoption patterns is identified in the literature as outlined in Figure 1 (Levy and Powell 2003). These patterns are based on the owner’s recognition of the business value of the Internet and their approach to planning business growth. The ‘not planned’ growth dimension represents no coherent strategy for growth. Competitive pressure is usually determined by customer demands.

Research suggests that SME adoption of ICT does develop – changes in ICT adoption are made as the strategic focus of the business changes. Growth requires improved systems (Levy et al. 2002) and Internet technologies may have a role. Steady growth is unlikely, rather SME owners focus on the best potential of technology for their business. They are likely to make step changes to support business strategy. Saban and Rau (2005) identify that SMES rate websites as significant in sales generation but that the web is more of a shop window than a sales channel, though cost and other resources inhibit use.

Drivers for Internet adoption in SMES

Brown et al. (2005) state that the understanding of small firm behaviour especially in the use of the Internet is too limited. Size is seen as a significant factor in SME Internet adoption but small increases in growth generate significant need for new ICT suggesting that growth may be more important than CEO characteristics or industry (Burke 2005). Mehrtens et al. (2001) suggest three drivers of SMES’ decisions to invest in e-business – perceived benefits, organizational readiness and external pressures. There are three aspects to perceived benefit. First, efficiency benefits from improved communication using email (Poon 2000). In common with most large businesses, SMES have embraced email (Poon and Swatman 1999), with 90% of SMES using it regularly (Chapman et al. 2000). Second, effectiveness benefits obtain from research and competitor information. Third, the Internet presents a modern image and improves SME promotion. Identifying new business opportunities is also a perceived benefit (Chapman et al. 2000).

Organizational readiness for Internet adoption is personified in the SME owner. SMES do not see Internet adoption as an IT issue, but a business one. SMES that are attracted to Internet commerce tend to be more entrepreneurial, risk takers, innovative and, invariably, creative (Poon and Swatman 1999). A second organisational readiness factor is the requirement to have adequate IS to access the Internet. However, the time spent on Internet adoption and development may interfere with the core business activity (Poon and Swatman 1999).

Most SMES do not view the Internet as key to their business strategy. Strategy is rarely raised as an enabler or as an inhibitor in the literature. The owner is critical in determining Internet development (Levy et al. 2002). However, strategic commitment has been shown to be critical in Singaporean SMES (Kowtha and Choon 2001). Indeed, Internet adoption is faster when SMES recognize a business need (Kendall et al. 2001).

The final factor, external pressure, is primarily from customers, though suppliers and employees also exert influence. Sectoral differences in adoption may arise given varying external conditions that impact different industries. While Poon (2000) recognizes customer pressure as influential, a lack of customer use is an inhibitor, particularly of email (Sillence et al. 1998). However, few SMES integrate their websites with their back-office systems. While many see value in email there is scant evidence of decisions to invest in internal networks or e-business systems (Keindl 2000).

While customer push influences SME Internet adoption, moving to e-commerce requires more commitment. Many SMES have invested heavily in EDI and their current dilemma is whether to fulfill customer demands to move to Internet-based e-commerce, particularly in SMES that are preferred suppliers. This suggests that adoption may be a function of business relationships and networks (Poon 2000). However, EDI
is the mandated means of order processing by many major customers, particularly in manufacturing (Levy and Powell 1998). Levenburg (2005) investigates electronically enabled supply chains – an advancement on standard EDI. He discovers substantial differences among micro, small and medium-sized firms. The micro and small firms use the Internet to find new sources of supply, email prospective customers and perhaps engage in electronic transactions. Small firms also communicate rather than research using the Internet. In contrast, medium-sized firms are more sophisticated users and make more gains from the technology than their smaller counterparts. Raymond et al. (2005) outline that while SMEs may assimilate e-business into their activities, this does not change their views on the sort of customers they wish for – e-business does not lead to internationalization.

Overall, perceived benefit is the main driver for Internet adoption, with some evidence of external pressure particularly for SMEs with close customer relationships. Internet use among SMEs may take many forms, from simply using the web to purchase supplies to developing a website to sell products and services. Organizational readiness for Internet adoption is also important.

**Influence of government policies on SME Internet adoption**

Many governments have active intervention policies to encourage SMEs’ Internet adoption. In the UK, for example, the government has policy guidelines and websites that provide information about Internet opportunities. Government-funded business advisors encourage SMEs to take the first steps to Internet use. The EU funds projects that support advice and training for SMEs (Lunati 2000). In Singapore there are a number of initiatives for SMEs (Kendall et al. 2001). Similarly in Korea, government policy supports SMEs (Nugent and Yhee 2002). However there is little evidence that these policies are successful in changing SME attitudes. In Singapore, the owner’s existing knowledge and the relative advantage from e-business drives adoption (Kendall et al. 2001). In Korea, advice from commercial sources is valued more highly than government support (Nugent and Yhee 2002). Fisher and Craig (2005) report on a government-funded portal that failed, since engagement of SMEs beyond simple access to the Internet is difficult to engineer. Beck et al. (2005) reveal that government contributions are unimportant in fostering efficient use of e-commerce among SMEs. Of more importance are the potential cost reductions and improved supplier–customer coordination, while technology support, security and the need for face-to-face interaction are inhibitors.

Research suggests that SMEs’ decisions to adopt the Internet are more dependent upon the relative advantage and indirect benefits they might obtain. Government pull is unimportant. SMEs are often the driver of change with the owner the predominant force. External pressure, when it comes, is likely to be from customers. Thus this paper explores the nature of the internal and external drivers of change.

**RESEARCH METHOD**

As Taylor and Pandza (2003: 166) state ‘the building and maintaining of networks is central to the success of the small firm.’ Thus a research method that surfaces networks and their components is required to address the central research issue in this paper. Network agency theory explores patterns of interaction within and between organizations (Conway 1997). Analysis focuses on the configuration, nature and content of the set of internal and/or external organizational relationships. Conway (1997) integrates different disciplinary network perspectives (including Laumann et al. (1983); Mitchell (1969); Titchy (1979) and Scott (1991)) and develops a set of representations to analyse a complete set of relationships (Mody 1990). The development of existing and new internal and external relationships is important to complement and/or replace relationships in line with current and future organizational strategy (Taylor and Pandza 2003)

The key elements of the network are actors, links and flows. Conway (1997) develops Focal Innovation Action-Sets that examine individual actors involved in a specific innovation. Central to the framework (Figure 2) is examination of the sets of relationships involved in the innovation. Relationship variables fall into six categories: relationship type (operationalized, social and moral) (Kanter 1972); formalization (extent of formal recognition); intensity (strength and frequency of interaction and flow of transaction content over time); reciprocity (balance and flow over time of transaction content unilateral or bilateral); multiplexity (the degree to which

![Figure 2. Actor positioning template](Source: Conway (1997))
two actors are linked by multiple role relations (Conway 1997; Tichy et al. 1979); and the origin of the link.

Conway (1997) states that, with regards to the segmentation of the external environment (area outside the ellipse in Figure 2), six zones are identified:

1. bottom-left for actors up-stream of the innovator (e.g., suppliers);
2. bottom-middle for competitor actors;
3. bottom-right for actors down-stream of the innovator (e.g., customers);
4. upper-left for knowledge generating actors (e.g., universities);
5. upper-middle for regulatory actors (e.g., governmental bodies); and
6. upper-right actors in the wider political/cultural environment (e.g., pressure groups).

Beckinsale and Jones (1999) show that the Conway framework provides a means of attaching relationship and transaction variables to the Dodgson and Rothwell (1991) strategic management framework. The network variables fall into three specific categories – Actor, Relationship and Transaction Content.

The weakness of the template from the point of view of integrating it with Dodgson and Rothwell is the undeveloped central ellipse. This represents the firm but as a tool to examine a network inside the organization it currently requires each actor to have his or her own specific template. The Conway (1997) template was designed to analyse the networks at the dyad level, to provide an overall understanding of the set of actors, and to show the way in which the set of actors is embedded in its environment. Beckinsale and Jones (1999) recognize that internal relationships have influence. They consider that the internal strategic cohesion of a firm may be an influencing factor (Dodgson and Rothwell 1991). Figure 3 incorporates the internal elements of the organization while retaining the original framework.

This framework provides stronger network detail and a graphical representation of: the internal relationship; internal to external relationship; intensity of relationship; and the flow of relationships. The central segments representing the internal organization are positioned in relation to the external segments (Daft 1992) and these:
(a) show the functions to which the actors are attached;
(b) map the internal links; (c) map internal actors with others internally and externally; and (d) analyse the network’s strategic links. The template is used here to examine the relationships by which SMEs consider Internet adoption. These networks emerge from what Rogers and Rogers-Agarwala (1976) call the patterned communication flows of a given actor, clique or total system: ‘The network is viewed as indeterminate, unique to each individual and incident, and can in principle ramify almost indefinitely’ Taylor and Pandza (2003: 159).

DATA COLLECTION

CW2000 is a European regional development fund project in the UK West Midlands. The West Midlands is an Objective 2 EU region seeking to reduce its dependence on a declining automotive industry. CW2000 aimed to help 600 SMEs acquire Internet facilities and access to Internet services.

To determine the key influences on decisions to adopt the Internet, this research undertook 50 cases of SMEs participating in CW2000. CW2000 is dynamic, with the majority of SMEs joining later in the project. As this research monitored processes over time, most of the case firms are early adopters. The sample of SMEs is convenient. SMEs were cautious in agreeing to join the project, hence it was thought best to study the first 50 participants in order to follow their progress through the life of the project. The data were collected between 2000 and 2002. Subsequent analysis indicates that the experiences of early adopters do not differ from those of later participants.

Semi-structured interview questions were derived by the first two authors to elicit information on attitudes to Internet adoption, perceived benefits from Internet adoption; support and knowledge from customers, competitors and suppliers. These questions were based on the issues arising from the literature review. Interviews were primarily carried out by the first author, with the second author participating in the early interviews. Interviews were held with SME owners and senior managers to identify their reasons for adopting the Internet. The interviews also considered the business strategy and the influencing factors in the decision process. Agency networks were developed and the findings confirmed with the firms. The assignation of the SMEs to the different network categories was carried out by each author separately. After discussion a final assignment was determined.

Figure 3. Revised template – Strategic Innovation Network (SIN)
The cases demonstrate five patterns of relationships that are instrumental in determining whether SMEs join CW2000 (Table 1). Five cases, one for each pattern, are presented as exemplars. The cases are modelled using the network agency framework to highlight the role of internal or external relationships in determining whether to join CW2000. These relationships are seen in the light of the person driving development, this is usually the CEO in smaller SMEs or the IT director in larger SMEs with an IT department. The network diagrams demonstrate the relationships with customers or suppliers that are influenced by, or influence, the development of web and related technologies.

The first three relationships suggest that the firms have developed some IT internally. The decision to join CW2000 is based on a requirement to develop and grow the business. There are three models of relationship development here. First is the expert network, which is primarily evidenced in IT firms. Second is the industry support network, where firms work in partnership with industry organizations. The third group is the customer-led network, where customer pressure is instrumental in the decision to invest in Internet technologies. The last two relationships are primarily found in SMEs with either limited ICT use or those with an internal focus. The fourth network is the ICT-support network, where firms have developed internal support systems and are investigating whether there are opportunities to be more customer-focused. The final network, the novice, primarily includes those firms that have little knowledge or experience of the value of ICT to their business.

The following sections discuss the networks using, in each case, an example of a participant SME.

**Analysis**

**Instrumental relationships for joining CW2000**

The cases demonstrate five patterns of relationships that are instrumental in determining whether SMEs join CW2000 (Table 1). Five cases, one for each pattern, are presented as exemplars. The cases are modelled using the network agency framework to highlight the role of internal or external relationships in determining whether to join CW2000. These relationships are seen in the light of the person driving development, this is usually the CEO in smaller SMEs or the IT director in larger SMEs with an IT department. The network diagrams demonstrate the relationships with customers or suppliers that are influenced by, or influence, the development of web and related technologies.

The first three relationships suggest that the firms have developed some IT internally. The decision to join CW2000 is based on a requirement to develop and grow the business. There are three models of relationship development here. First is the expert network, which is primarily evidenced in IT firms. Second is the industry support network, where firms work in partnership with industry organizations. The third group is the customer-led network, where customer pressure is instrumental in the decision to invest in Internet technologies. The last two relationships are primarily found in SMEs with either limited ICT use or those with an internal focus. The fourth network is the ICT-support network, where firms have developed internal support systems and are investigating whether there are opportunities to be more customer-focused. The final network, the novice, primarily includes those firms that have little knowledge or experience of the value of ICT to their business.

The following sections discuss the networks using, in each case, an example of a participant SME.

**Expert network.** Online Education exemplifies the expert network. Employees in Online Education are
highly skilled Internet developers. All have strong understanding of the technology and how it may be used and designed. All were hired on the basis of this knowledge and web-based skills. Unlike the later network types, the internal developers (actors) are not positioned in a formalized function of the organization. They have the skills to perform other roles including finance and marketing. The development of the SME’s website is based on customer requirements through consultation sessions with clients. The customer is clearly the key actor in the relationship (Figure 4) and this appears to be the case with many of IT sector firms. CW2000 is shown on this map as it was through being co-located that Online Education joined CW2000. The Project Director of CW2000 is influential in supporting the firm and it was through him that the Online Education CEO became aware of CW2000.

**Industry support network.** Hair Products is part of an industry support network. Hair Products’ map is centred on the IT Director (Figure 5) as he coordinates IT and Internet developments. There are more external links here due to the development of an e-commerce website with the Beauty Industry Guild. Two important links are with the firm in the knowledge segment of the map and the regulatory body. Consultants assisted in providing competitor information and examining existing websites. It was through this external knowledge link that Hair Products heard about CW2000. The regulatory body provides industry information and support data and advice on industry developments. These two areas are strategically vital to the development of ICT and the web.

**Customer-led network.** In the customer-led network, customers are key, as exemplified by Agricultural Engineering. At Agricultural Engineering, customer pressure is the driver in developing its external relationships with customers. Internal departments are linked through an Intranet (Figure 6). Email is a major component internally and externally, as there are many customers for which email communication is the norm. Agricultural Engineering has an IT department and views ICT as key to supporting business processes. Thus, relationships are based around the IT Director rather than the CEO.

Agricultural Engineering is in detailed discussions with customers on the development of customer-focused web processes. Much of this is via email. As a manufacturer and supplier to automotive firms it had experienced change in customer use of the Internet. Customers such as Massey Ferguson and Saab Scania drove Internet adoption and limited integration with back-office systems. These customers are pushing moves away from paper communication to email and the web to communicate job status and assist kanban manufac-
turing processes in real time. All the relationships focus on the central figure in the SME who has the best IT knowledge.

Agricultural Engineering is situated on the same industrial estate as Hair Products and heard about CW2000 through the same actor, an environmental consultancy. The consultancy is known for their links with the estate, although in this case the relationship is informal. This relationship shape is similar to that seen with firms that heard about CW2000 through government-supported small business advisors or the Chamber of Commerce.

**ICT support network.** Construction Co demonstrates how the IT supplier relationship operates in the ICT support network. Construction Co has a well-developed internal network used for business support (Figure 7). Staff use internal email regularly. The technology allows sales assistants’ access to each other’s client databases and examines previous customer contracts to develop quotations.

This network demonstrates little evidence of exploitation with customers. Email communication is limited to one customer and is not expected to increase soon. Email and ADSL are beneficial in sharing drawings with architects and design engineers. Business Computer Co. maintains the in-house PCs in discussion with the CEO. Business Computer Co., part of CW2000, advised Construction Co’s CEO of the benefits. The IT-supplier relationship is instrumental in many SMEs hearing about and getting involved in CW2000.

**Novice network.** The novice network case shows that the drive for Internet development comes directly from the CEO. ICT is limited and is directed by the CEO. The CEO role is gathering information, developing an understanding and considering different options for web development. The CEO of Machine Components has discussed ideas for developing e-solutions, including a website with CW2000. This centres around whether to use an external web developer (common in engineering) to supply a site or to undertake a course in basic web design and develop it in-house. Figure 8 highlights the SME’s limited use of email and the web due to lack of customers and suppliers use. Machine Components uses email with only one of its 20 customers to share information, CAD files and scheduling details. The supply chain is not supported by ICT.

The CEO is the focal point for all web-based relationship transactions due to the lack of skills in-house. These relationships are common in micro firms in engineering and manufacturing. Firms such as Machine Components, with no knowledge of ICT are reliant on external advice. Prior to joining CW2000 the
CEO had funding for a website from the city council (CCI). However, he found it difficult to get advice on how best to invest the funding as indicated in Figure 8 by the one-way communication between the CEO and CCI. One reason for joining CW2000 is to obtain such advice.

DISCUSSION AND CONCLUSIONS

The expert, industry support and customer-led networks all demonstrate the value of external relationships to the development of web-based business. The expert network and industry network work in partnership with customers and industry groups to develop business value. As the networks show, the major difference between the expert and customer-led networks over the novice or ICT support networks is the importance and integration of internal and external use of ICT. Customer pressure is the driver for the customer-led network.

The other two networks, ICT support and novice, are representative of SMEs for which ICT is a support tool and where customers show little interest in exploiting the relationship electronically. The networks and external actor links are heavily orientated to the left hand side of the network framework. Knowledge developments and organizational learning is critical to understanding and realizing the benefits of ICT, email and the web. Novice Network SMEs are encouraged to participate in the project because it exists. They are not convinced of the benefits of Internet adoption. ICT Support Network SMEs recognize the benefits of investing in internal ICT systems and see the Internet as a means of marketing and presenting a more innovative image. However, the benefits are not examined strategically.

Industry support SMEs seek longer term benefits through changing marketplace perceptions. However, ICT is seen as a means to an end, hence benefits are likely to be indirect. Both the expert and customer-led networks perceive direct benefits in the long term from investing in Internet technologies. However, this is for different reasons. Internet technologies are generally fundamental for expert network SMEs. They see direct benefits as an outcome of their business strategy. The customer-led network sees the Internet as a means of locking in its existing customers and gaining new ones as part of their business strategy, thus turning a necessity into a virtue.

Table 2 outlines the major influences on the networks and on the case firms. Table 2a emphasizes the influences of knowledge, suppliers and customers but conclusively demonstrates that political, and to a lesser extent, regulatory and competitor influences do not impact on the networks. Table 2b is more internally focused and assesses the influences on the case firms. This analysis demonstrates that government and competitor influences are negligible. However, as repeatedly identified in the SME literature, the CEO is instrumental in SME Internet adoption. Consultants, internal IT staff, IT suppliers and customers wield some influence too.

Neither government nor competitors generally influence decisions of the case SMEs. None of the firms know of central government schemes to support e-business adoption in SMEs. None of them use the UK Online (a government-supported network) facilities. Knowledge of e-business opportunities is determined in one of two ways. It may be based on the owners’ or IT directors’ knowledge or experience. Alternatively knowledge is gained from local suppliers, such as CW2000, or ICT firms and support agencies providing consultancy services. Thus, local intermediaries influence SMEs’ choice in developing Internet technologies.

The relationships support the supplier/customer push theory to Internet adoption and development. Few of the firms have a formal corporate or Internet strategy. SMEs appear to be investigating the technology and looking for emergent strategies. However, the owner is critical in the decision process, even when there is an internal IT department. Three factors have been proposed that influence Internet adoption among SMEs: perceived benefit, organizational readiness and external pressure (Mehrtens et al. 2001). There is some evidence from the networks studied here for organiza-
tional readiness and for external pressure. However, perceived benefit is seen as a less important factor except in the case of the Industry Support Network.

This suggests that government policy might be better directed at providing information and support to IT suppliers and consultants that will help them support SMEs more effectively. This can take a number of forms, from practical support such as grants accessed through local suppliers to developing networks between suppliers and government agencies to assist Internet adoption.

Figure 9 takes the framework outlined in Figure 1 and locates the networks within it. Neither the customer-led or novice networks plan their strategic growth in any coherent way. There is little business value from the Internet envisaged by the novice network nor is business growth planned systematically. This is especially true in SMEs that are experimenting with online applications.

Hence, this network is an example of brochureware use. In slight contrast, the customer-led network does perceive business value but again business growth is largely unplanned – this is an example of business opportunity use. The customer-led network is pushed by customers but the lack of strategic direction inhibits the potential business opportunity.

The other three networks, ICT support, Industry support and Expert networks, all consider the Internet important to their future development. The ICT support network uses technology to provide internal efficiency yet sees little business benefit accrue. In contrast, the Expert Network and the Industry Support Network see the Internet as integral to their growth and development.

By analysing 50 case firms this research identifies five archetype networks. The research demonstrates that government policies and strategies have little influence on SME Internet adoption. Further, competitor pressure has little influence while customer pressure is central. Additionally, IT suppliers may have a key influencing role. Future research might focus more on the detail of the relationship between IT suppliers, consultants and SMEs. There is a need to explore why SMEs rely more heavily on their own and local knowledge. This may be because of the informal nature of strategy and the unplanned nature of growth for many SMEs, leading to the differential adoption patterns identified by Levy and Powell (2003). There is also a potential dynamic in the strategic Internet adoption patterns that can usefully be explored.

Figure 9. Strategic growth opportunities from the SME networks.

<table>
<thead>
<tr>
<th>Network</th>
<th>Knowledge</th>
<th>Regulatory</th>
<th>Political</th>
<th>Suppliers</th>
<th>Competitors</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry support</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Customer-led</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT support</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Novice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) Influences on Internet adoption in case SMEs

<table>
<thead>
<tr>
<th>Network</th>
<th>Government</th>
<th>Competitor</th>
<th>Customer</th>
<th>IT supplier</th>
<th>Internal IT</th>
<th>CEO</th>
<th>Industry</th>
<th>Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry support</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer-led</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT support</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novice</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
References


