Small and medium-sized enterprises (SMEs) play a pivotal role in virtually all the world economies. For example in the US and Europe they typically constitute over 98% of all businesses by number, provide more than half of the work force and generate about 50% of GDP. In terms of new employment their role is dominant – in the 1990s some 80% of the new jobs in Europe were generated by the SME sector.

Unsurprisingly in the context of the ‘information society’ governments see the adoption of e-business technologies by SMEs as central to their economic development. The UK is a case in point, but the experience is general. The UK Government set three clear targets for the engagement of SMEs in e-business by the year 2002. The first was to ensure the connectivity of 1.5 m SMEs, which was achieved. In contrast the second target of 1 m SMEs ‘trading online’ was not met with just 490,000 trading by mid 2002 – a decline from the previous year. The third target of reaching parity with the best world practice was expressed in terms of SMEs’ progress up a five stage ‘adoption ladder’ with each stage representing increasing complexity and increasing benefits. For this third target the adoption rate beyond online trading to the higher complexity applications such as e-marketplaces, supply chains or inter-organizational collaborative networks was too low to be reliably measured. It is these higher complexity applications that have the potential to provide the major economic and competitive benefits and raises the important question of what this relative lack of engagement will mean not only for SMEs, but also the larger organizations that have significant numbers of SMEs in their supplier networks.

This low adoption rate was unexpected by both academics and policy makers alike. The anticipation was that large-organization e-practices would diffuse and influence the practices and behaviours of SMEs but this is slow to happen. From a theory perspective the issues are profound and suggest that our understanding of small firm behaviour and in particular their adoption of e-business, either alone or within sector aggregations, is too limited.

It is against this background that this special issue seeks to contribute to our understanding of the engagement in e-business by small to medium-sized enterprises, largely defined in the following contributions as firms with less than 250 employees. In putting together the selection of papers we recognized...
that the SME sector is highly heterogeneous and to generalize would be unhelpful. Accordingly, we looked for contributions that between them explored the varying e-business experiences of SMEs in terms of the influence of size, complexity and application area. Six papers are presented. All are empirical and span the spectrum of business types from manufacturing through to services. Five of the papers employed survey instruments with varying degrees of statistical analysis; one paper was wholly qualitative.

The first paper ‘The Impact of Firm Size on Internet Use in Small Businesses’, by Kelly Burke is believed to be the first to compare adoption patterns across specific size categories among only small businesses. The sample size of 752 firms, all with fewer than 250 employees, is large. Together with the size categorization this research design allows for much finer granularity in the analysis of the size effect. Five independent variables were explored: size, industry, CEO education, age and experience. Her overall conclusion – that size is a significant factor in the adoption of small business information systems (SBIS), such as Internet based applications – accords with previous research. However, the use of size categorization shows that a slight amount of firm growth entailed in going from say five to ten employees, or from 15 to 25 employees, can generate a significant increase in the need for some types of SBIS. The author suggests that this could be accounted for in terms of the increasing complexity that follows from increasing size, which in turn requires more effective management of the corresponding increase in information complexity. Her second significant finding arises from consideration of the other four independent variables, namely that growth itself may be a more significant indicator of the adoption of SBIS than the characteristics of the CEO (education, age, experience) or the firm’s industry. Finally in addition to the theoretical contributions the author offers some practical implications and in particular the value of understanding the relationship of changes in size to SBIS use as a first step in being able to plan for better growth.

Nancy Levenburg contributes the second paper ‘Does Size Matter? Small Firms’ Use of E-Business Tools in the Supply Chain’. Recent research has indicated significant benefits from the introduction of e-business technologies into supply chains such as improved lead times, faster deliveries and improved communications. The advent of Internet-based technologies offered the promise of extending these benefits to smaller firms – in effect to ‘level the playing field’ when competing with larger firms. Based on a sample of 395 US firms the author looked at a total of 21 e-business tools and practices covering customer, supplier and internal functions and found significantly different patterns in usage of e-business tools within the supply chain. Very small firms with less than ten employees (micro) typically use the Internet for research purposes, rather than for communication purposes with supply chain members. The pattern is reversed for small and medium-sized firms. In general her study demonstrates that even among the population of ‘small’ businesses, larger SMEs are likely to be better poised to take advantage of e-business than smaller ones. In terms of the approach to her research the author is in agreement with Kelly Burke in the first paper that the variability between firms within the SME sector is such that the distinction between very small firms and large small firms is too important to ignore.

The third contribution ‘The Assimilation of E-Business in Manufacturing SMEs: Determinants and Effects on Growth and Internationalization’ is by Louis Raymond, François Bergeron and Sam Bilili and focuses on a single sector. Smaller manufacturers often act in a subcontracting capacity or in partnership with other firms within networks. This makes for a more complex commercial cycle than traditional business-to-consumer models and can influence their assimilation of e-business. The authors’ contribution is based on an empirical study of 108 Canadian manufacturing SMEs, using a technology-organization-environment (TOE) framework to guide and interpret the research. Their results show that the basic link between strategy and technology assimilation, evident in the broader literature, is confirmed. A particularly interesting finding relates to complexity. In ‘make-to-order’ situations, where interorganizational business processes are more complex than ‘make-to-stock’, the results suggest that firms are less likely to re-engineer with Internet-based technology. In respect of their overarching research question, namely the link between e-business assimilation and internationalization, no positive influence could be determined.

The next contribution, from Maria Woerndl, Philip Powell and Richard Vidgen, is one of two that are concerned primarily with the marketing channel. In their qualitative paper ‘Netsourcing in SMEs: E-Ticketing on Art Venues’ the authors study four theatres and their motivations for adopting a policy of renting IS services, including specialized e-ticketing applications. The services are hosted by a third party provider who supplies the aggregation of users via a network. The authors explore the adoption decision in a novel way by classifying adoption factors into ‘solution-centric’ and ‘realization-centric’; this complements the more common taxonomy of internal versus external factors. With only four cases the authors recognize the exploratory nature of their research but the results are important given that this mode of provision for SMEs is likely to become more widespread. Their findings are that cost does not appear to be a major factor in the decision to ‘netsource’, and that the opportunity to overcome skills and limited resources, to facilitate increased sales and to be in step with technology developments is attractive. An issue that emerges as important but is under-
estimated by both providers and adopters is the need for integration into existing theatre systems.

The second contribution in the sales and marketing area is from Kenneth Saban and Stephen Rau. Their paper ‘The Functionality of Websites as Export Marketing Channels for Small and Medium Enterprises’ looks at 105 SMEs in Pennsylvania exporting to Europe. It has been argued that Internet-based technologies redefine the economies of scale and scope. For example, by making global advertising more affordable and extending SMEs’ market reach, the cost of developing new customers in international markets can be reduced. In their work the authors signal three main conclusions. The first is that of the various marketing channels considered SMEs rated websites as the most used and play a significant role in sales generation – this is impressive for a new technology. The second is that in terms of functionality the web provides a shop window for company or product information, rather than directly transacting sales or providing post-sales support. Their third finding relates to the development of websites. Here the experience is that resource constraints are an important deterrent, and the authors suggest that the higher than expected costs of developing websites to cope with more complex functionality is a plausible explanation.

The sixth and final contribution is based on Australian experience. Julie Fisher and Annemieke Craig contribute their paper ‘Developing Business Community Portals for SMEs – Issues of Design, Development and Sustainability’. In the five previous contributions the e-business engagement is typically the result of the firm’s own actions within the broader context of technology diffusion. In contrast this paper traces the outcome of a Government-funded technology transfer initiative – in this case the development of a community portal. On the surface there are compelling reasons for SMEs to join e-business portal ventures, including limited cost to the business, increased market exposure and expertise. Against this background the authors report that the portal failed and was unable to remain a viable online entity. It was also unsuccessful from the business participants’ perspective, failing to deliver the expected business value. The authors findings identified a number of factors, not generally discussed in the portal literature, that appear to be important for success including the development process and the need to understand the business community stakeholders.

Together these six contributions amply illustrate the breadth of the research issues in the SME/e-business domain, and the potential and need for further research. From these issues we single out two as being particularly pressing and are linked. The first is the need for a better theoretical understanding of the dimensions of complexity and how this impacts on adoption. On the one hand increasing size suggests increasing complexity and the need for enhanced e-business applications; on the other complex applications, such as ‘make-to-order’, can mitigate against their adoption. The second is the position of very small or micro firms, which together constitute the majority of the SME sector. For these firms accessing the Internet is unlikely to be a problem but engagement in the more complex functions, such as sales transactions or supply chain collaboration, remains a difficulty. How this access could be facilitated is an important research topic, especially in the light of the last paper, which describes the problems with current thinking.