facilitates the functioning of human socio-cultural and economic systems, and allows their evolution. In short, the successful (or intelligent) city matches aspirations (demand) and resources (supply).

In a world of constant change, the basis for a city's long-term success, and therefore maintaining its intelligent status, lies in the adaptability of its fabric, processes and systems. It is this aspect that makes city intelligence and urban sustainability mutually dependent concepts.

Urban intelligence, sustainability and the new context: intelligent cities and sustainability?

This understanding of what constitutes city intelligence leads to a consideration of the city from a holistic viewpoint as the sum of a number of systems: namely economic, social and environmental. These systems are fundamentally integrated, and the health of the city overall relies on achieving a dynamic balance between these potentially competing interests. The city is not static; it is a dynamic system in which the key to its long-term health and success, or its intelligence, will be its capacity to adapt to change. Like any ecological system, the key to this capacity is diversity.

Anyone with even a modest understanding of the principles of sustainability will recognize that the factors described above are as fundamental to sustainability definitions and theory as they are to city intelligence. The Darwinian concept of adaptability is

the primary link between these two concepts. City intelligence will measure the capability of a city through the adaptability of its systems (its fabric and processes) to fulfil its fundamental role, ensuring that its citizens are capable of carrying out their transactions and living in freedom. Sustainability will measure the extent to which the city is capable of doing so without negatively affecting the wider environment, or the future capacity of the city to continue to fulfil its role in the same way. Although different in emphasis, these two concepts need to be considered together. Urban sustainability must be rooted in the concept of urban intelligence. If a city is not to some extent intelligent, then its sustainability is irrelevant, but if a city is not sustainable, then it will not remain intelligent for long.

Yet the requirements for city intelligence evolve as one might expect from a Darwinian concept. What made a city intelligent (and for that matter sustainable) in the past will not necessarily do so today or in the future. The traditional city form is derived from the surrounding physical context, available technology and the culture and habits of its inhabitants. In the long term, the sustainability of the traditional city was dependent on satisfying the needs and desires of its citizens, while remaining within (or expanding) the carrying capacity of the local hinterland. The cities that thrived and prospered into the modern age (incidents of politics and war aside) were those that best facilitated expansion through trade and expression, and that were able to adapt continually to changing economic or socio-cultural circumstances; that is, those that were most 'intelligent'. Intrinsic to this definition of intelligence was urban competition; in other words, competition for resources, people and trade.

The urban context has changed. Three factors are profoundly altering the potential for any city to remain successful in the long term:

- **The shift to the knowledge economy and its consequences, especially in terms of the increasing requirements for autonomy and interaction of knowledge workers**
- **The increasing globalization of trade, labour, culture and politics, as well as the new opportunities created by digital communications and information sharing systems**
- **The increasingly important systemic inter-relationships between different cities and places**

The changing context has resulted in both the expansion and change in structure of cities' hinterlands. Cities are globally connected in an increasingly complex web of links, through