

## Foreword

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### KNOWLEDGE-BASED DEVELOPMENT: THE CHALLENGE FOR CITIES

Knowledge has always played an important role in the creation of wealth and has been at the core of city development since the dawn of civilization. It is only recently, however, that knowledge has been recognized as a primary factor driving city development (Greenfield with Knight, 1966; Knight, 1973a, 1973b; Stanback and Knight, 1970, 1976; Knight, 1976, Gappert & Knight 1982; Knight 1986; Knight & Gappert 1989). Moreover, it is only recently that cities have been viewed as knowledge centers, as loci of cultures that produce and valorize knowledge, or as playing a major role in the governance of knowledge, in particular, humanizing knowledge by integrating different types of knowledge and protecting values of a local and regional nature (Knight 1990a, 1991a; Drewett, Schubert and Knight, 1992; Knight, 1992, 1993, 1994, 1995a, 1995b). Historically, cities have been thought of as being the principal artifacts of civilizations and generally conceptualized in terms of their population size and physical attributes, i.e., in terms of their land area, geographic location, morphology, equipment, etc. Consequently, their development has been viewed primarily from the perspective of city planning with a focus on their physical form and the built environment, i.e., on land use, zoning, building, health & safety codes, infrastructure, parks & recreation, aesthetics, etc. Very little consideration has been given to their knowledge resources or to the cultures that produce knowledge and comprise their knowledge base. The emphasis has been on attracting and accumulating tangible forms of wealth, on the factors of production—land, labor and capital—on increasing productivity, expanding markets, etc. Knowledge, being an intangible and difficult to quantify, has been largely taken for granted, seen as something that is ‘in the air’, as a ‘free good’. Moreover, culture has generally been regarded as something that wealth creates, as consuming wealth rather than as a resource that creates wealth. Now, with the advent of an increasingly global and knowledge-based society, greater attention needs to be given to the cities’ cultural assets and to their role as knowledge centers—to enhancing cultures that produce knowledge locally and regionally and to transforming that knowledge into local development. The old adage that ‘wealth creates culture’ needs to be reframed; culture’s role in producing knowledge needs to be recognized. Cultural resources need to be seen as creating rather than consuming wealth.

Knowledge is now the cities’ primary source of power and the challenge for cities is to enhance and to build on the strengths of their knowledge resources, a difficult challenge indeed given the nature of knowledge development (Knight, 1995a). Knowledge is produced by cultures and most cultures producing knowledge are centered in cities. Moreover, cities are centers where citizens ultimately have to assimilate different types of knowledge into their daily lives. However, as the role of knowledge in wealth creation increases and the global economy expands and becomes increasingly knowledge-based, values of a local nature are trumped by global values. The quality of life in the cities will continue to

decline unless cities protect local values and support efforts to valorize local knowledge. Global values, primarily scientific and technological in nature, are key factors in advancing material well-being, determining exchange values in market economies, and so forth; local values, primarily traditional human and ecological values, often referred to as “genius loci,” are reflected in the “sense of place” and are essential for sustainable development (Sinding-Larsen, 1991; Norberg-Schultz, 1984).

The city’s primary role as a center for the production and valorization of knowledge can perhaps best be defined by the enhancement of cultures based in the city and region that produce knowledge. Values of a universal or global nature, however, without values of a local and regional nature, strip cities of their character and individuality. Cities are primary civilizing forces, anvils of civilizations, places where knowledge is advanced and new values are forged, where knowledge is passed on to succeeding generations, and where developmental synergies are realized. City life is greatly enriched by the presence of different types of cultures, particularly when they are integrated. As Toynbee and others have argued, “To be a city in the full sense of the word, a place has to have evolved at least the rudiments of a soul. This is the essence of cityhood” (Toynbee, 1967; Mumford, 1943). Cities need to be responsive to the concerns and intentions of cultures and organizations that produce knowledge of a global nature. The knowledge sector is an important and growing component of the city’s economic base, and it’s to the city’s advantage that knowledge-based organizations remain well-anchored in the city. Cities also must protect and promote local and regional values because they determine the quality of life in the city. Moreover, the atmosphere and habitability of the city affect the quality of communications and the exchange of knowledge—key factors that determine cooperative action. Maintaining a balance between global and local forces and integrating various knowledge-producing cultures lie at the core of knowledge-based city development. Compared to the efforts made by national governments and internationally organized businesses to advance and promote values of a global nature, very little support is given to protecting or advancing values of a local and regional nature or the integration of local and global knowledge. A knowledge-based approach to city development seeks to address these issues by providing a framework for defining the city’s role as a knowledge center. Identifying the needs of the city’s knowledge sector and creating a milieu conducive to knowledge-based activities are critical. Cultures producing global knowledge are of particular concern because, as they develop, their local linkages weaken and they become distanced and disengaged from the affairs of the city (Knight, 1976). If cities are to fully realize the benefits of their presence, they have to make a concerted effort to maintain and strengthen these relationships and create conditions conducive to the continued development of knowledge-based organizations. The city’s mentality from which it drew strength in the past may be endangering its advancement. As cities develop, they inevitably have to change their personalities.

Globalization and rapid urbanization have changed the nature of city development. Until the 19<sup>th</sup> century cities accounted for a relatively small part of the world’s population. The growth of cities was highly constrained: most cities were walled, grew slowly, in an orderly and self-regulated manner with considerable participation by the citizenry. Then, with the advent of industrialization, the rise of nation states, large-scale mass production, rapid urbanization, and improved communications, markets expanded. Power became increasingly centralized in national and corporate power centers and cities began to lose control over their development. With globalization and the international division of labor, cities began morphing into shapeless and diffused urban agglomerations. They became sprawling metropolises, polycentric megalopolises, and mega-cities with less and less control over their own development. The situation is particularly grave in the less-developed countries where traditional village-based rural societies are collapsing. Rural dwellers have few options other than to migrate to major population centers in search of economic opportunity. These new forms of urbanization are inevitable, according to some pundits who recognize that these forms are dictated by technology and the advancement of knowledge. They argue that the modern world is simply becoming flat, and furthermore, that as long as technology advances and urbanization continues to be driven and shaped by free market forces, cities

will become more and more alike. Some even foresee the homogenization of urban space and a global society without cities.

The decline of cities, however, is not inevitable. Although many cities are beleaguered by changes, the city will remain a core social value, particularly in Europe and parts of the world where cities were formed prior to the industrial era and the formation of nation states. Where cities remain polities, where citizens continue to have strong attachments to their cities, and where cities continue to have significant powers over their development and are able to provide their citizens with amenities, local values can prevail. Even though global knowledge is being advanced rapidly and power derived from global values is becoming increasingly concentrated in national capitals, multinational corporations and financial centers, the cultures that actually produce knowledge continue to be centered in cities. All cities have knowledge resources; however, few are aware of the nature or importance of their knowledge resources or the power derived from knowledge being produced locally (Knight, 1977, 1981). As Francis Bacon noted “*Ipsa Scientia Potestas Est*”—knowledge is greater than the use of force (Bacon, 1597). City development strategies are slow to change; they generally remain oriented toward particular industries and toward the production sector (Knight, 1983). The city’s knowledge base is its future economic base, but knowledge-based development is founded on a very different set of attributes, attributes that vary not only by type of culture producing knowledge but also by place. Cultures producing knowledge evolve slowly. They usually begin inconspicuously, drawing on local resources, deepening their roots, and broadening their support networks and influence as they develop. Once established, these cultures are very difficult to replicate or transplant. They require continuous renewal for they tend to atrophy over time, and, once lost, are very difficult to reestablish. Barcelona, which was stripped of many of its knowledge resources during Franco’s regime, is now facing this challenge head on. Knowledge-based city development is basically a process in which citizens collectively shape the development of their city by enhancing cultures producing knowledge in the city. All the cultures producing knowledge in a city have to be actively engaged in articulating the intentions and concerns of the knowledge sector, and the city administration has to be responsive to their needs (Knight, 1990a, 1991a). Without strong citizen involvement cities will be unable to build on their strengths as knowledge centers and will continue to be shaped primarily by ubiquitous market and technological forces melding into the emergent world culture.

There is a growing concern that cities shaped through the centuries by the agency of the civic process are endangered and that urbanization shaped by anonymous global forces is not sustainable (Knight, 1993). The nature of city development has changed significantly in recent decades; the agency of civic process, which used to occur spontaneously, is no longer operative. Many factors are contributing to this breakdown of the civic process: citizens have greater demands placed on their time, increasingly specialized vocations, more vertical communications, increased mobility, and less attachment to a place. Linkages between different knowledge cultures in cities are in decline, and synergies between different types of knowledge cultures based locally are not being realized. Social goods are traded off for material goods. Special interests organized at the national level crowd out local interests. Cities, with their ever-radiating sprawl, become increasingly segmented, fragmented, and dysfunctional (Knight, 1990b, 1991b). The secretary to the Bishop of Genoa described the situation quite succinctly during a discussion about Genoa’s development as a knowledge center. “What we are asking is, ‘Who is the city?’ There is no city! There are no collective interests; there are only special interests. Moreover, there is no mechanism for defining the collective interest” (Knight, 1991c). In short, citizens are living increasingly isolated lives, the city is dissipating, and cities are becoming increasingly disconnected from their knowledge base.

Cities are at a pivotal point in their development. They are the nexus of the global knowledge-based society, and their role in the governance and humanization of global forces is critical. Either they have to reassert their role as a civilizing force and willfully shape their own destinies or their future will be shaped accidentally by external forces. Some cities already are becoming ungovernable. Given the nature

of the growing knowledge-based global society and the role nation states play in advancing science and technology, expanding markets and promoting trade, global forces will not abate, they will continue to intensify. Nevertheless, as knowledge centers, cities do have the potential to shape their own destiny. Redefining their role as knowledge centers in a global context provides a framework for reassessing the nature of a city's power. That redefinition is the city's tool for identifying its global assets as well as its local and regional assets that require valorizing or safeguarding.

Knowledge-based city development can perhaps best be approached as a social learning process, as a way for citizens of a city to inform and become informed about the nature of changes occurring in their city. Particular attention must be paid to the nature of their knowledge resources, how cultures in the city produce knowledge, and how this knowledge is used to create wealth that is transformed into local economic development (Knight, 1995b). This type of learning does not occur spontaneously or through established channels; if it is to occur, it has to be carefully orchestrated. Cultures producing knowledge have to be identified; defining knowledge as "truth in judgment" helps to distinguish between knowledge that is a quality and information that is a commodity. Key actors from different types of knowledge cultures have to be engaged in the process, and the process has to be ongoing. Even though knowledge resources are present in every city, very few persons, other than those directly involved in building them, understand their strategic importance or their development potentials. Proximity of knowledge resources does not mean they have propinquity. As the city planner in Delft explained during a prototype study of knowledge-based development, the city has to build bridges between all the islands of knowledge. Engaging key actors in each of the principal types of cultures producing knowledge in the city is challenging; they have to be convinced that their efforts will be productive. Establishing appropriate channels of communication takes time. In Vienna, principle actors in the knowledge sector representing some 55 different types of knowledge cultures were engaged in a series of dialogue seminars about the nature of change so that the collective intentions and concerns of the knowledge sector could be clearly articulated (Knight, 1994; Caraça & Carrilho, 1993). Without this type of communication between the city and its knowledge sector, how can a city and its administrators increase their understanding of the nature and needs of its knowledge base? Both the city and its citizens must be informed of the nature and challenges of its knowledge-based development so they can better understand the role that their knowledge resources play in wealth creation. Then they can identify ways of enhancing the cultures that produce knowledge. This is, indeed, a major undertaking for a city, particularly for industrial cities that have evolved into sprawling metropolises and have become politically, economically, and socially fragmented (Knight, 1986).

Although the future of cities as production centers may be limited, their future as knowledge centers remains open. Globalization places a premium on knowledge and, as communication costs decline and access to information improves, the valorization of knowledge becomes ever more feasible. The demand for and production of knowledge certainly will continue to expand as the market for knowledge becomes increasingly global. Cities will benefit from the growing role that knowledge plays in the wealth creation because, as argued above, knowledge is produced by cultures and most cultures that produce knowledge are based in cities. Consequently, cities will continue to develop as long as knowledge cultures evolve. Knowledge cultures generally advance through a process of specialization; specializations becoming increasingly differentiated with their own values, language, and organizational structures and networks. Consequently, as knowledge-based activities advance and their specialized networks expand, local linkages are replaced by global linkages; as local linkages decline in importance, their knowledge resources become increasingly independent, separated, and isolated from their locality. Knowledge resources are frequently found in clusters and may have common origins but that does not mean they continue to have close linkages—proximity without propinquity is the norm. If local linkages are to be maintained, cities have to take the initiative. They must close the knowledge gap and engender communication and trust. If no effort is made to maintain these local linkages, the knowledge gap between those responsible for

advancing knowledge and their locality will widen, and, over time, become increasingly difficult to bridge (Knight, 1960, 1973a, 1973b; Knight and Stanback, 1970, 1976). Cities are becoming more aware of the knowledge gap and are finding ways to bring the idea of knowledge-based development into their culture and to build on the strengths of their knowledge base (Knight & Gappert, 1989; Knight, 1982, 1991d, 1991f, 1992; Drewett, et al., 1992).

Global society is basically an open society—multi-polar, multicultural, self-governing, and competitive. Although the emergence of a global society is imminent, the idea of a global city still is little more than a metaphor. However, the metaphor is useful because it presents cities with a way of broadening their vision, and identifying and focusing attention on strengths and opportunities that otherwise may be overlooked. Some cities are actively pursuing the goal of becoming global (knowledge) cities, and the number will no doubt increase as more cities become aware of their opportunities. Today, however, most cities are relatively passive, reactive rather than proactive (see Trono & Zerbi, 2002; Springer & Dente, 1987). Globalization provides cities with new and exciting opportunities to develop their knowledge resources and position themselves as knowledge centers (knowledge city) in the expanding global knowledge-based society. Cities can shape their destinies if their development is knowledge-based. Knowledge-based development hinges on two interrelated factors—on the advancement and integrity of knowledge and on the livability of the city. It is basically a question of cities learning about the nature of their own development, of increasing their understanding of the nature of the forces, processes and principles driving the development of organizations that comprise their own unique, local institutional base.

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