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Yigitcanlar, Tan and Velibeyoglu, Koray (2008) *Knowledge-based strategic planning: harnessing (in)tangible assets of city-regions*. In: International Forum on Knowledge Asset Dynamics, 26 - 27 June 2008, Italy, Matera.

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Knowledge-based strategic planning: harnessing (in)tangible assets of city-regions

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Structured Abstract

Purpose – The aim of this paper is to investigate the ways of best managing city-regions' valuable tangible and intangible assets while pursuing a knowledge-based urban development that is sustainable and competitive.

Design/methodology/approach – The paper provides a theoretical framework to conceptualise a new strategic planning mechanism, knowledge-based strategic planning, which has been emerged as a planning mechanism for the knowledge-based urban development of post-industrial city-regions.

Originality/value – The paper develops a planning framework entitled 6K1C for knowledge-based strategic planning to be used in the analysis of city-regions' tangible and intangible assets.

Practical implications – The paper discusses the importance of asset mapping of city-regions, and explores the ways of successfully managing city-regions' tangible/intangible assets to achieve an urban development that is sustainable and knowledge-based.

Keywords – Knowledge-based urban development, Knowledge-based strategic planning, Tangible assets, Intangible assets, City-regions.

Paper type – Academic Research Paper

1 Introduction

Throughout the last two centuries, social production had been primarily understood and shaped by the neo-classical economic thought that recognised land, labour, and capital as the three primary factors of production. Neo-classical economics considered knowledge, education, and intellectual capital as secondary, if not incidental, parameters of production. During the last several decades, however, it has become apparent that knowledge in and of itself is sufficiently important to deserve recognition as a primary factor of production. Similarly, intellectual capital is also recognised by firms and local governments as one of the vital sources of competition in urban and economic development within a knowledge-based economy. Since then many city-regions around the world started to view knowledge and creativity as keys to development and economic prosperity, and adjusted their endogenous development strategies increasingly by visioning the ultimate goal of knowledge-based development (Knight, 1995; 2008).

In this context, knowledge-based urban development, a strategic management approach applicable to human settlements, has gained popularity as a powerful strategy for sustainable economic, social and urban growth, and for the post-industrial development of city-regions (Yigitcanlar et al., 2008a). In the knowledge-based development process of city-regions, knowledge-based assets play a critical role by both securing a competitive advantage in the knowledge-based economy, and also engineering the formation of creative urban regions (Boisot, 1999; Yigitcanlar et al., 2008b). Knowledge-based strategic planning, the planning and implementation instrument of knowledge-based urban development, is a mechanism to (re)organise critical knowledge assets, both tangible and intangible, of city-regions in order to prepare a base for their knowledge-based development. However, to date knowledge-based strategic planning has not yet been fully operationalised as it is still in its early developmental stage.

The aim of this paper is to investigate the ways of best managing city-regions' valuable tangible and intangible assets while pursuing a knowledge-based urban development that is sustainable and competitive. To realise this aim the paper develops a planning framework entitled 6K1C for knowledge-based strategic planning to be used in the analysis of city-regions' tangible and intangible assets. This paper examines and discusses knowledge-based urban development mechanisms, and the importance of asset mapping of city-regions since they are popularly recognised by the neo-liberal policies as among the key attributes of competing city-regions. The research provides a theoretical framework to conceptualise knowledge-based strategic planning, and to examine the ways of improving city-regions' knowledge-based assets via strategic actions. The paper provides practical recommendations for further development of knowledge-based strategic planning as a planning and implementation instrument that also play a role in overcoming tensions and dualities that usually occur in urban settings of competing knowledge-based cities.

2 Competitiveness, sustainability, knowledge-based urban development

The competition between city-regions has been intensified since information and communication technologies (ICTs), rapid transport connections, and lower transport costs enabled a real-time global market. Tough global competition pushes city-regions to define their roles within the global processes, and to develop niche market areas to excel

(Carrillo, 2006). City-regions, to compete nationally and internationally, need knowledge infrastructures; a concentration of well-educated people; technological, mainly electronic, infrastructure; and connections to the global knowledge-based economy (Yigitcanlar et al. 2008d). The value of being competitive, therefore, has globally been pumped by neo-liberal policies with the motto of compete or perish. The competition, as Friedmann (2006) underlines, is not for attracting consumers but for attracting national and international investors and workers to the city-regions to secure their global position in the new economy. Besides many promises, such as global recognition, wealth generation, the notion of competing city-regions has some dead-ends to sustain a continuous accumulation of growth and wealth that are heavily based on exogenous global capital. The logic of global competition dictates that “global capital is footloose, has no loyalty to place, and its horizon of expectation is short: investments have to be recouped within only a few years” (Friedmann, 2006: 4). In terms of city-regions, the real danger is the mobility of global capital that once capital moves on to a more lucrative location, what it leaves behind is a degraded city-region that has lost its major economic base as well as sustainable endogenous development opportunities.

Rapid urbanisation and its immense effects on the environment have raised the importance of urban sustainability, and necessity of the need to adjust urban and economic development in the knowledge era. In this new era, already upon us, the emerging environmental agenda which focuses on the maintenance and improvement of quality of life has become more significant. In this contemporary era, therefore, the target of urban development policies seems to oscillate between the economic and environmental poles with an aim of finding balance between economic and environmental gains and considering society in general (Figure 1). During the last couple of decades, sustainable urban development has become a crucial and widely pronounced concept, covering all economic, environmental, cultural and social objectives of city-regions. In terms of economic sustainability this means that “the ability to generate wealth and resources and, for the moment, as the planet is now entirely capitalist and will be so for the foreseeable future, it also means the ability to create wealth by increasing productivity and increasing competitiveness of the city in a market environment” (Castells, 2000a: 119). In a knowledge-based economy, connectivity of global linkages and renewal of human resources for creating added value play a key role in achieving economic sustainability. Other components of urban, social, and ecological sustainability are equally important for the formation of a knowledge society. Knowledge society is an integral element of a knowledge-based economy, therefore, rather than solely investing on economy, also investing on communities, via social and human development programs, helps them to become sustainable communities, and also helps in the construction of a strong economic base for cities. In social terms, urban sustainability includes acknowledgement of social heterogeneity, inclusion, tolerance, public participation, and democratic governance (Castells, 2000a). Although natural environment has always been a necessary precondition for capital accumulation, the importance of ecological sustainability could only be fully appreciated in recent years followed by the warnings of environmental catastrophes (While et al., 2004). Besides, social and ecological sustainability have strong relations with the foundation stones of knowledge-based city formation, i.e. urban diversity, quality of life, social equity, sustainable communities, and preserved natural environment (Van Winden and Berg, 2004; Yigitcanlar et al., 2008c).

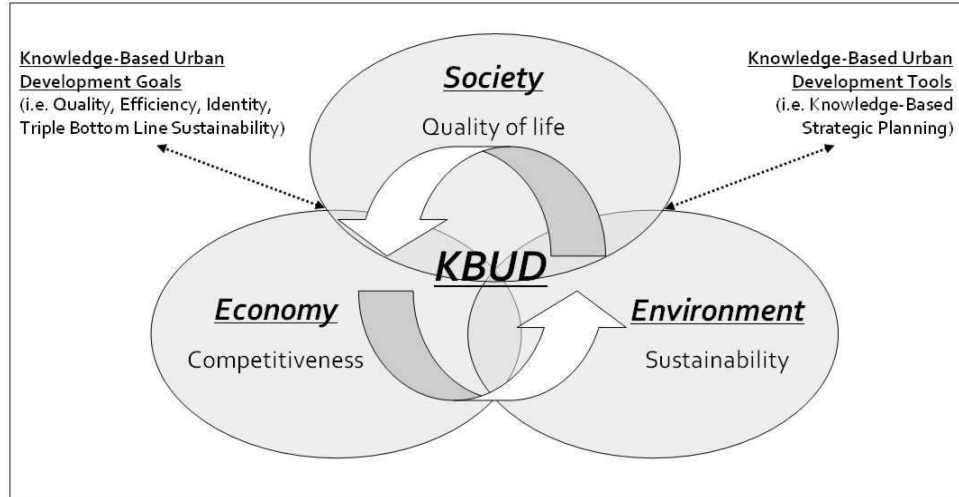


Figure 1. Competitiveness, sustainability and knowledge-based urban development

As an emerging field of study and practice, knowledge-based urban development (KBUD) principally is about processes of knowledge production, and their reflection on the urban form (Yigitcanlar and Velibeyoglu, 2008). It is considered as a new strategic development approach in the tough global economic competition (Yigitcanlar et al., 2008a). KBUD involves contemporary understanding and management of value dynamics, capital systems, urban governance, development, and planning. The main promise of KBUD is a secure economy in a human setting, in short, sustainable urban and economic development. KBUD transcends many areas of economic and social policy and has three broad purposes. Firstly, it is an economic development strategy that codifies technical knowledge for the innovation of products and services, market knowledge for understanding changes in the economy, financial knowledge to measure the inputs and outputs of production and development processes, and human knowledge in the form of skills and creativity, within an economic model (Lever, 2002). Secondly, it indicates the intention to increase the skills and knowledge of residents as a means for human and social development (Gonzalez et. al., 2005). Thirdly, it builds a strong spatial relationship among urban development clusters to augment the knowledge spill-over effect that contributes significantly to the engineering of creative urban regions (Yigitcanlar et al., 2008c). Common broad KBUD policies include: developing financial, social and human capital systems, distributing instrumental capital, developing and adopting the state of art technologies, providing hard and soft infrastructures, and providing quality life and place (Carrillo, 2004; Yigitcanlar et al., 2008a).

3 Asset mapping of city-regions

Recent and increasing knowledge management literature indicates that the knowledge-based economy provides an opportunity for firms with limited tangible assets to command high market values if they invest on valuable intangible assets (Kaplan and Norton, 2004). E-business firms like Amazon and Google are good examples as they mainly hold a rich source of human and intellectual capital. Unlike the firms, the same

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rule does not apply to city-regions. In the long run, city-regions are unsustainable and uncompetitive without a solid base of tangible assets. Additionally, the quality of city-regions' tangible assets plays a primary role in the nurturing of their intangible assets (Carrillo, 2006). The strong linkage between intangible and tangible city-region assets raises a growing attention on the importance of the asset mapping of competing cities.

In the urban development context, assets are defined as popularly recognised attributes of city-regions. They are considered essential for the maintenance of urban life and vital for the sustainability of the environment, economy, and society. Extremely networked knowledge-based economy has created a new policy discourse that calls for more attention to coherent strategies to develop the assets and qualities of city-regions (Healey, 2005). Assets are the sources of achieving local economic competitiveness and urban sustainability. Assets of sustainable urban development are the assets that we would want to keep, build upon, and sustain for future generations. The assets of a city-region influence the potential success of development strategies. Mapping the tangible (i.e. physical infrastructure and buildings such as transport, property, utilities, and cultural amenities) and intangible assets (i.e. knowledge, trust, cooperation, and creativity) contribute to the competitiveness of that city-region by providing countless opportunities (Cities Alliance, 2007). Table 1 lists capital systems and some of the key tangible and intangible assets of city-regions.

Table 1. Capital systems and assets of city-regions

	CAPITALS	ASSETS
Tangible	Physical capital	<ul style="list-style-type: none"> Built environment (buildings, roads, etc.) Hard (physical) infrastructure Business and industry firms (including specialised industries: creative, cultural, knowledge-based) Institutions and civil organisations (that are managing urban services, utilities, citizen rights)
	Instrumental capital	<ul style="list-style-type: none"> Climate, landscape, flora and fauna Elements of accessibility and natural environment and resources Environmental liabilities (visual, auditive and olfactive pollution)
	Financial capital	<ul style="list-style-type: none"> Urban economy Financial institutions Monetary and economic indicators
	Human capital	<ul style="list-style-type: none"> Talent pool – employees (including the creative class of knowledge workers) Education and skill development opportunities Job market Universities and research institutes
Intangible	Organisation capital	<ul style="list-style-type: none"> Institutional capacity Organisation and management capacity Human resources management capacity
	Symbolic capital	<ul style="list-style-type: none"> Image, identity, reputation, experience Creativity and innovation capacity Knowledge and creativity Capacity to define and legitimise cultural, moral and artistic values, standards and styles
	Social capital	<ul style="list-style-type: none"> Trust, cooperation, relationships, networks Soft (social) infrastructure Cultural heritage and social capacity to transmit knowledge Civic and citizen participation in decision-making
	Intellectual capital	<ul style="list-style-type: none"> Development of innovation systems Design, patents, copyrights, intellectual property, commercialisation of new knowledge Strong focus on research and development
	Relational capital	<ul style="list-style-type: none"> Social integration Cultural integration and tolerance Political dynamism
	Intelligence capital	<ul style="list-style-type: none"> Visualising and understanding context of identity Ability to strategise systems, procedures and competencies Communicating intelligence findings of citizens

3.1 Assets to meet the needs of city-regions

Asset mapping of city-regions has gained popularity in recent years (Bennett and Giloth, 2007). This increasing popularity is a result of the realisation of assets being the source of meeting the needs of city-regions. In parallel to this in urban and regional planning, particularly in community planning, a shift from a need-based approach to asset-based approach has occurred. While the former focuses on community problems, the latter allows the community to concentrate on their strengths to form a base to meet their needs. In a need-based approach for growth and urban development the primary task is to predict the scale of economic growth and the jobs it would generate, and then locate the resultant space needs around a sub-region to meet employment needs (Healey, 1999). Owens (1995) resembles a need-based approach with a predict and provide approach. She carefully exemplifies that in the jargon of economic competitiveness city-regions treated as need-sites to capture investment, which would eventually generate wealth. This in turn creates rising environmental reactions to the speculative development path of economic competition that is insensitive to critical natural asset of city-regions. In asset-based approach assets are viewed as the bases of solutions, and this approach has a stronger endogenous point of view in growth and development with a greater sustainability focus. This new point of view and approach in urban development policy recognises the asset mapping of city-regions as major sources of their competitiveness. In asset-based approach, therefore, building-up critical tangible and intangible assets (i.e. natural, social, human and intellectual capitals) is protected and strengthened rather than adjusted to the ever-changing needs of exogenous forces.

3.2 City-region as an asset

Since city-regions act as focal points for various social, cultural, economic and educational activities, the notion of city-region itself has been celebrated in knowledge-based economy as an asset or a store of assets useful in creating and maintaining urban competitiveness (Vigar et al., 2005). The primary motivation to do so is to attract inward investment (i.e. foreign direct investment), reflecting the dominance of an economic competitiveness discourse in policy-making in the locality and the wider region. This discourse emphasises the asset of a strong sense of regional identity. With respect to urban development policies city as store of critical tangible and intangible assets means an attractive city-region where key knowledge workers attracted and retained and a quality of life and place are secured.

3.3 Tangible and intangible assets

Harnessing critical tangible and intangible assets improves city-regions' attractiveness to outside investment, and is considered as a useful policy tool for endogenous development of city-regions. Friedmann (2006) distinguishes seven clusters of assets for the long-term endogenous development of city-regions. Reichert (2006) and Benneworth and Hospers (2007) also identify the following tangible and intangible assets as the true wealth of city-regions:

- Human Assets including people and quality of their lives and places,
- Organised Civil Society referring city-region's quality of social capital and distinctive organisational capacities of civic institutions,

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- Heritage and Culture covering preservation of historically-significant built environment and distinctiveness and vibrancy of its cultural life,
- Natural Assets referring city-regions' critical natural amenities and resources that are more fragile to speculative urban development,
- Environmental Assets covering qualities of city-regions' physical environment that are essential for sustaining life,
- Quality of Urban Infrastructure referring all basic facilities and services for transportation, energy, communications, water supply, sewerage, and solid waste disposal, and health, education and cultural infrastructure and services,
- Intellectual and Creative Assets or Knowledge-Based Assets referring the quality of universities and research institutes of city-regions.

Although all seven of these clusters of assets have equal importance, particularly in recent years with respect to strategy development, the visibility of knowledge-based assets has clearly become a desirable marketing tool for knowledge-based cities. The primary reason behind this increasing importance was the role knowledge-based assets play in attracting major investments and knowledge workers to a city-region (Yigitcanlar et al., 2007; Yigitcanlar et al., 2008c).

3.4 Challenges to asset-based development

It is important for city-regions to clearly understand their own particular circumstances to build on what is already there in order to make the best use of their invaluable assets (Lee, 2008). At this point, mapping and investing on city-regions' tangible and intangible assets helps them to improve their endogenous development, and creates a positive outlook in attracting exogenous investment and talent. However, for city-regions, such an approach simultaneously invites major challenges to impede sustainable development.

The first challenge is the emergence of a polarised city-region or a dual city-region. Asset-based development informed by ideas of recognition of tangible and intangible assets is therefore decidedly not a comprehensive approach. Asset-based development needs to be highly selective, focusing on the distinctive qualities and dynamics of particular regional assets. The city-region, then, becomes a highly selective collection of assets that requires most of the city-region's resources for the promotion of critical assets. This implicitly underlines that the privileged socioeconomic groups (haves) gain the most in the process at a cost of the most disadvantaged ones (have-nots) becoming more vulnerable. This process can be best exemplified by the work of Castells (2000b) (Dual city thesis) and Graham (2004) (Premium places).

The second challenge is the openness to external fragmentation. Investing on and building assets of a city-region usually takes long time, and needs careful management to become sustainable. On the other hand, foreign investment uses, many cases consumes, directly the best assets of a region rather than investing on and caring of the valuable assets of that region. As Friedmann (2006: 12) mentions that global capital is highly mobile and not loyal to a region, and he states "its eyes are principally on shareholder interests rather than on regional wealth creation... Seducing global capital by sacrificing regional assets leads only to an illusory development".

The third challenge is the identification and management of city-region's critical tangible and intangible assets. Although the relative value of the assets may change from region to region, some are considered as critical like natural and heritage assets that take very long time to evolve however can easily be fragmented, destroyed and vanished through the thoughtless exploitation. Similarly city-region's intellectual and creative assets are highly mobile and hard to retain without making conscious policy efforts. Urban policy makers are usually concerned with the visible and tangible dimensions of city-regions. But like new technologies (i.e. ICTs) critical intangible assets of city-regions (i.e. intellectual, cultural, and creative assets) remain largely invisible and a big challenge to urban competitiveness and knowledge-based development path of competing city-regions. For that reason, when assets are identified, supporting systems (i.e. knowledge-based strategic planning) also need to be put in place to maintain and strengthen them. This requires a strong governance, political leadership, and vision, as well as sound strategic planning that is knowledge-based.

4 Knowledge-based strategic planning

In the knowledge-based economy, strategic planning and the utilisation of knowledge are among the important issues to consider when a knowledge-based urban development is being planned. Drucker's views on these two issues are worth mentioning. Firstly Drucker (1992) highlights the dimension of the change by coining the phrase of 'The Age of Discontinuity' to describe the way change forces disruptions into the continuity of our lives. In an age of continuity attempts to predict the future by extrapolating from the past can be fairly accurate. But according to him, we are now in an age of discontinuity and extrapolating from the past is hopelessly ineffective. We cannot assume that trends that exist today will continue into the future. He identifies four usual suspects to blame for discontinuity: new technologies, globalisation, cultural pluralism, and knowledge capital. In this knowledge era or the age of discontinuity, KBUD experts suggest people and organisations first to set their vision and objectives, then accommodate their capabilities to move in volatile environments, and use scenarios or other planning methods to identify assumptions, risks, and environmental factors around them (Yigitcanlar and Velibeyoglu, 2008). Basically these are the main steps of strategic management and planning which lead us to Drucker's (1998) second claim on the pivotal role of knowledge in our lives. Drucker describes knowledge as the only sustainable source of competitive advantage. He predicts the rise of knowledge workers as one of the primary sources of human and intellectual capitals, and explains the consequences of the increasing importance of knowledge work and workers from the knowledge management perspective. In the globalising world and under the influence of neo-liberal policies strategic spatial planning has widely been accepted as a critical instrument to cope with those discontinuities as Drucker accurately coins.

Although strategic planning has private sector origins and considered as a key mechanism to navigate within the capitalist urban economies, it is also a new tool for city administrations to deal with tensions and dualities that exist in the urban settings of knowledge-based cities. The examples of these tensions and dualities in policy-making for a balanced urban and economic development include competitiveness vs. sustainability, endogenous vs. exogenous, and networked vs. bypassed. In the knowledge

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era, spatial strategic planning attempts have to be knowledge-based since the knowledge considered among the primary sources of production. Knowledge-based strategic planning, therefore, is a key to economic, social, and spatial development of city-regions that choose to integrate highly mobile and networked knowledge-based economy of our time. Knowledge-based strategic planning, in this sense, offers sustainable management of city-regions' valuable assets within a framework of strategic planning process. As Porter (1996) argues strategic planning and management assemble a collection of assets that will increase the added value and provide a competitive advantage. Knowledge-based strategic planning is a planning and implementation instrument for KBUD. It aims to make the best use out of city-regions' assets to achieve an urban development that is sustainable and knowledge-based. Table 2 lists and details some of the principle elements of a city-region's development in the knowledge era, where the critical planning mechanism and framework are formed considering strategic planning and management principles.

Table 2. Elements of a city-region's development in the knowledge era

ELEMENTS	DESCRIPTION
Goal	<ul style="list-style-type: none">▪ Knowledge-based city formation<ul style="list-style-type: none">◦ Establishing a strong knowledge-based economy◦ (re)Structuring urban development and human activities (i.e. development of knowledge community precincts)
Approach	<ul style="list-style-type: none">▪ Knowledge-based urban development<ul style="list-style-type: none">◦ Combining sustainable urban development with knowledge-based development to balance economy (competitiveness), environment (ecologic sustainability) and society (quality of life)
Mechanism	<ul style="list-style-type: none">▪ Knowledge-based strategic planning<ul style="list-style-type: none">◦ Combining strategic planning principles with knowledge-based development principles◦ Mapping tangible and intangible assets of city-regions
Framework	<ul style="list-style-type: none">▪ Knowledge-based strategic planning framework<ul style="list-style-type: none">◦ 6K1C framework◦ Scrutinising key questions for the knowledge-based strategic planning of city-regions

In summary, as a planning and implementation mechanism for KBUD, knowledge-based strategic planning allows us to move in a turbulent environment and give strategic direction in an age of discontinuity. However, as Mintzberg (1993) debates this should not be turned into an obsession of control that only gives a little room to creativity and new knowledge generation. Creativity should be the key starting point of all knowledge-based strategic planning efforts.

4.1 6K1C: a framework for knowledge-based strategic planning

The research framework developed in this research is an attempt to articulate the planning and managerial issues of strategic planning and knowledge-based development. The framework underlines the importance of knowledge in a strategic planning process under the 6K1C formulation, which is primarily a check-up for the sustainable accumulation of so-called knowledge-based urban development. Figure 2 illustrates steps of a generic strategic planning process, knowledge-based strategic planning and how 6K1C framework relates with them.

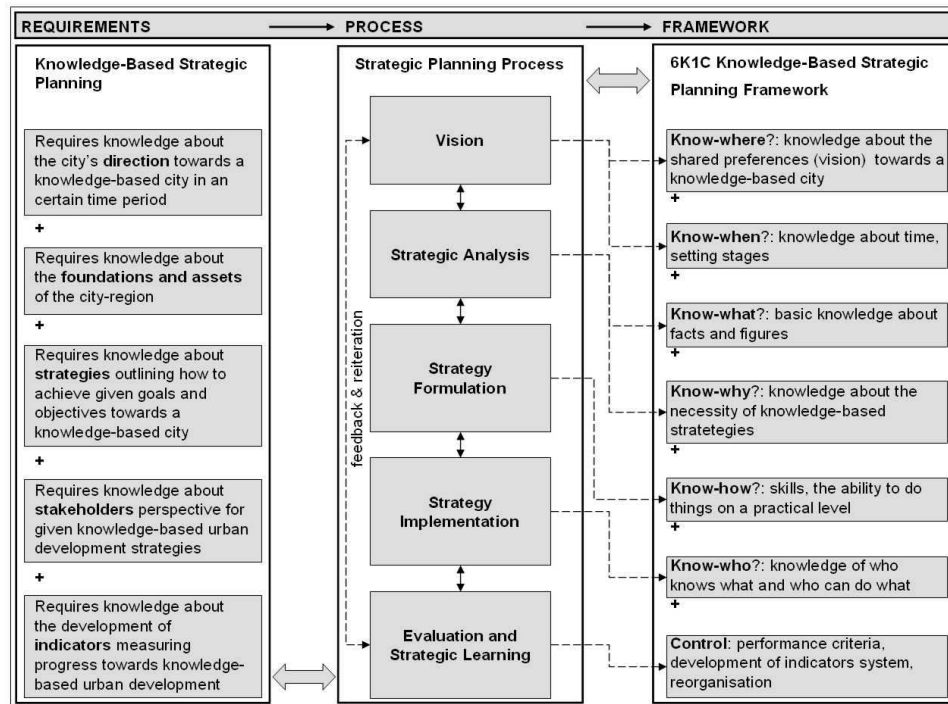


Figure 2. 6K1C: a framework for knowledge-based strategic planning

The innovativeness of this research framework lays in the integration of the spatial strategic planning process with a 6K1C framework, which forms a base for the KBUD strategies. 6K (Know-where, Know-when, Know-what, Know-why, Know-how, Know-who) and 1C (Control) framework is derived from 5Ws (what, why, when, where, who) framework, which is originated from the journalism discipline. 5Ws is a formula for getting the full story or seeing the big picture on any subject under investigation. The principle underlying this checklist questions is that each question should elicit a factual answer – facts that are necessary to include in a report for the report to be considered complete. Similarly, the effective implementation of KBUD strategies requires a simple but comprehensive check-up that 6K1C framework may offer.

Know-where and know-when are asked at the first step of the strategic planning process: while the vision is being developed. The vision simply shows where we want to head-on with our plans, know-where. It gives a direction towards the dreamed future. Knowing-where is becoming increasingly important in a resilient and dynamic economy. Where things are best done or located? Where we get things to happen? The levers of change are often reinforced or reached to a critical mass in two types of places. The first type is knowledge community precincts favourably in inner city areas. Knowledge community precincts (i.e. One-North Singapore, 22@bcn Barcelona, and Brisbane Kelvin Grove Urban Village) can be regarded as the spatial nexus of KBUD that chiefly refers clustering of R&D activities, high-tech manufacturing of knowledge-intensive industrial and business sectors linked by mixed-use environment including housing, business, education and leisure within an urban-like setting. The working definition of such areas

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differs from country to country (i.e. high-tech cluster, knowledge/innovation cluster, science/technology hub, and digital village), more or less indicating a clustering of high-tech enterprises with a commercial mix of urban life and culture (Yigitcanlar et al., 2008d). The second type is the emerging knowledge-based cities (i.e. Austin, Melbourne, and Helsinki) as a functional city-region for knowledge community precincts. These cities accommodate high quality urban services (i.e. high quality residential areas, cultural districts, recreational facilities, and connectivity to global air transport networks) and a diversified economic base including extensive supplier and distribution networks and specialised services. Additionally, knowledge workers, primary sources of intellectual capital, prefer those inspiring cities with a thriving cultural life, an international orientation, and high levels of social and cultural diversity (Baum et al., 2007).

Know-when outlines the timing of the conceived future directed by visioning. In a knowledge-based economy being first to create and innovate is highly critical for firms as well as competing city-regions. This requires the prediction and management of change and making timely adjustments for the conceivable future. India's and Ireland's recent success in ICT industries laid their conscious investment in human capital that requires readjustment of human capital to the needs of knowledge-based economy and society within a careful time plan. In terms of knowledge-based strategic planning know-where and know-when resembles a knowledge about the city's direction towards a knowledge-based city in a conceived time plan.

Know-what and know-why are basically related to the second step of the strategic planning process: strategic analysis. Once the vision is determined, it is followed by the stage of strategic analysis illustrating the internal and external situation assessments (i.e. SWOT), the appraisal of differences between actual and desired states (i.e. gap analysis) and the comparative assessment against potential competitors (i.e. benchmarking). Know-what refers to knowledge about facts and figures that are assumed to provide the solid basis of a vision. In terms of knowledge-based strategic planning this means knowledge about the foundations and assets of city-regions. Van Winden et al.'s (2007) recent study outlines these foundations for knowledge-based cities. They found that basic dimensions like knowledge base, economic base, socio-cultural base, quality of life and place, urban diversity, accessibility and connectivity, and social equity has prime importance for cities to declare themselves as knowledge-based cities. Therefore know-what simply asks for city-regions to what extent they are capable of performing the basic foundation stones of knowledge-based cities.

Know-why refers to understanding the wider context or the big picture (i.e. knowledge about the natural world, society, and the human mind) and the vision. Many of us, for example, do not question of daily routine at work. Overspecialisation of modern life has left little room to people to explore the purpose of doing things. The question of know-why gives organisations or city-regions a basic sense of purpose of doing things. For example, knowing-why helps organisations to understand why strategic planning is important and why the process and procedures are becoming increasingly knowledge-based. It helps city-regions in being aware of how to cope with the change (both internal and external) and determining the kind of strategic analysis needed to undertake.

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Know-how is associated with the strategy formulation that is the third step of strategic planning process. Strategies depend on goals and objectives and a strategy indicates how that goal or objective will be realised. Know-how simply means the knowledge of how to get things done. In economic terms, know-how refers to skills, the ability to do things on a practical level. It is a form of explicit knowledge (i.e. policies, procedures, formulas or processes) that is transferable (and easily replicated) and contributes to efficiency. But much of the know-how is still implicit to people and places that constitutes the form of tacit knowledge. For the purposes of knowledge-based strategic planning know-how implies practical knowledge about strategies outlining how to achieve given goals and objectives aiming the formation a knowledge-based city. KBUD strategies are not generic (and explicit) strategies, therefore they need to be tailored suitable for city-regions' own assets. The more endogenous, innovative and participatory the KBUD strategy is, the more successful the outcomes are. In such a process the specifics of the demand side should be taken into account too. The process should not be prescriptive, and should be adapted to meet the requirements of the individuals, and social and business communities.

Know-who refers to knowledge of who knows what and who can do what, and links with the strategy implementation step of the strategic planning process. New forms of capitalism and technological innovations have diminished the significance of national borders and have deepened the interrelations between countries, cities, communities, and firms. This brought a new strategy agenda into the play and widened the range of actors involved in the strategic planning processes, with new alliances and stakeholder partnerships. Different levels of governments are encouraged to work together (i.e. multi-level governance) and in partnership with actors (i.e. public-private-academic partnerships) in diverse positions in the economy and civil society. Therefore, the organisational dimension of knowledge-based strategic planning involves collaborative planning through networking and management of stakeholders. Stakeholder management is considered as important as their active collaboration. Not all of the collaborative processes are strategic, only the ones that accommodate the strategy features in both of their processes and plans are the strategic ones. A recent example of multi-stakeholder collaboration and management as a new innovation strategy is the triple-helix model (Etzkowitz and Leydesdorff, 2000). At its essence triple-helix is a partnership between the industrial, academic and governmental communities which recognises the differing goals and stakeholder communities of the three groups but stresses the common interest of those groups to provide value to the societies in which they reside. Know-who is the key for mapping and sustaining stakeholder commitment. The process is not easy and requires careful stakeholder management and strategic change from government to governance.

Control links with the evaluation and strategic learning phase of the strategic planning process. Control includes measures like performance criteria, development of indicators, and continuous monitoring of outcomes. Strategic learning complements control and outlines that understand and respond to the lessons organisations learn from both formal evaluation and more informal monitoring. Strategic learning also contributes to strategic analysis based on experience and lesson drives from evaluation process (see Figure 2). Although monitoring of outcomes and learning from evaluation is necessarily a positive thing, Mintzberg (1993: 33) warns organisations to be aware of the illusion of control by

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stating: “An obsession with control leads to all kinds of behaviours... One is aversion to risk, which means a reluctance to consider truly creative ideas and truly quantum changes, both of whose effects are unpredictable and so beyond formal planning. Another is conflict with the subjects of the planning, who don’t appreciate their own loss of control. Planners may see their procedures as merely bringing order and rationality – in effect, co-ordination – to decision making. But co-ordination is control.”

The 6K1C model has recently been developed and in the near future will be applied and tested in a number of pilot studies in North-America and Australia.

5 Conclusions

The research reported here highlights the new logic of networked knowledge-based economy, which is highly selective and exclusionary. Hence, there is a need for a balancing mechanism for knowledge-based development of city-regions to continue being competitive and sustainable in the long run. The increasing importance of asset mapping and management brought the question of ‘how to best manage city-regions’ valuable tangible and intangible assets while pursuing a KBUD’. To address this issue, in this paper we developed a new research framework called 6K1C for knowledge-based strategic planning, which is the planning and implementation mechanism of the KBUD approach. In this research framework knowledge-based strategic planning plays a key role as a new tool in managing tensions and dualities that occur in the urban settings of emerging knowledge-based cities and their knowledge community precincts.

In contrast to static and rigid regulatory tools, knowledge-based strategic planning is a dynamic and resilient planning tool that is essential for coping with the challenges and new ambitious goals of the knowledge-based economy. These challenges and ambitions include: managing the growing complexity of networked knowledge-based economy, dealing with the rising uncertainty of spatial trends, and finding a solution for new interdependencies of the knowledge society. The framework developed for the knowledge-based strategic planning could tackle these issues by determining a sound strategic vision and relevant policy objectives that are more attentive to ever-changing environment and processes, opening the planning process to participation and partnership, and following the logical steps of the 6K1C framework.

Knowledge-based strategic planning offers a promising mechanism based on integrated policy steps and a knowledge-based check-up system (i.e. 6K1C) for the sustainable accumulation of KBUD. Additionally, it considers understanding and anticipating future trends and effects of decisions and issues, and most importantly these are considered in different geographic levels (i.e. city-region, community, precinct, and firm). However, knowledge-based strategic planning still needs to be further developed as a strategic decision-making mechanism mainly focusing on: harnessing tangible and intangible assets of city-regions; realising synergies between public, private and academic spheres; orienting new knowledge-based activities to support shared goals, and; concerning widely accepted values, while strongly supporting openness and diversity. Lastly, knowledge-based strategic planning is an open process to allow creativity and knowledge that appreciates the value of spontaneity and resilience among the main drivers of urban governance, management and change.

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