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# **Smart Development' for Brownfields: A Futures Approach using the Prospective through Scenarios Method.**

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## **Abstract**

The technological revolution has resulted in fundamental changes as to how and where people work, live and play in modern day society. This has been coupled with unprecedented growth in certain developed countries and has culminated in the creation of new economies based on service provision. Such change has brought with it challenges commonly associated with unpredicted growth; traffic congestion, urban sprawl, the abandonment of inner cities, poor access to education and a perceived lack of affordable housing. However, people now want fewer hours in traffic and more opportunities to enjoy green space, and housing that is both affordable and close to jobs and social activities. They also want healthy cities, towns and suburbs, air and water of the highest quality and a landscape that future generations can be proud to inherit. Advocates in favour of changing from the current development route feel that Smart Development offers the best chance of attaining those goals. Allied to this belief is the recognition of the benefits that accrue out of brownfield redevelopment. One part of the solution proposes the use of future methods like Prospective, to facilitate the adoption of the principles of Smart Development through techniques Scenario Planning.

This paper will:

- Describe how the global backcloth is changing;
- Explain how cities have moved centre stage;
- Examine how traditional planning has failed;
- Describe the theory and practice of Smart Development;
- Explain why there is a need for a Futures approach.

In a world with increasing concerns regarding land use and property development, this paper demonstrates possible roles for future methodologies in the mitigation of these issues. The conclusions to be drawn from this paper are that new innovative and creative methods will be needed to ensure neighbourhoods, towns, and regions accommodate growth in ways that are economically sound, environmentally responsible and socially supportive of community livability. The paper will conclude that achieving smarter land use will require a change in the current mind-set and will include encouraging brownfield redevelopment. This will result in greater usage of futures methods like Prospective as policy makers grasp the nettle and witness the benefits of adopting alternative modes of policy evaluation and implementation in land-use.

Keywords: brownfield redevelopment, futures methods, growth, scenario planning, smart development, traditional planning, prospective, urban sprawl

## 1 Change in the global backcloth: cities now centre stage

There is a general recognition that the 21<sup>st</sup> century will be the century of cities. Cities are moving centre stage, and both the commercial and cultural world increasingly is characterised by cities rather than by countries. A recent World Bank article entitled, "Cities: The New Frontier" posed the question, Problem or opportunity? That's the question confronting the world's urban planning experts as they grapple with the fact that the planet is about to go through a major shift in population, moving from about 47 percent urban in the year 2000 to more than 60 percent urban by 2030 World Bank [1].

Such sudden and sustained urban growth gives rise to serious forces of change- social, demographic, economic, environmental, technological and governmental. Because of this, cities are the focal point for present problems and the cauldron of current controversies. As Hall and Pfeiffer [2] contend, it is in cities that the future quality of people's lives will be determined. The crucial question, therefore, is the same everywhere. How can urban planning and development policy be framed and executed in such a way that everyone shares in economic, technological and social progress, enjoys cultural diversity and a sound environment, and participates democratically in shaping where they live? (*Ibid*)

A huge paradigm shift is taking place whereby development, which until now has been seen largely as a question of saving labour in the production process, will throughout this century emerge as a matter of conserving and maintaining irreplaceable natural and human resources (*Ibid*). This will become a central tenet of city planning and development. In this context, it has been suggested that sustainability has a number of key dimensions or aspects, by which to approach sustainability a city must score on each of them has suggested. These key dimensions can usefully be summarised as follow:

- A sustainable urban economy: work and wealth;
- A sustainable urban society: social coherence and social solidarity;
- A sustainable urban shelter: decent affordable housing for all;
- A sustainable urban environment: stable ecosystems;
- A sustainable urban access: resource conserving mobility;
- A sustainable urban life: building the liveable city;
- A sustainable urban democracy: empowering our citizenry (*Ibid*).

Sustainability is thus the global watchword and a guiding theme for all human activity. Not the least of all challenges ahead is that of sustainable urban development. Though cities differ significantly, they share one particular key ambition in the context of sustainable urban development- that of enhancing their economic competitiveness while at the same time reducing both social exclusion and environmental degradation. Cities of all sizes, locations and conditions face this dilemma- and share the need to develop new processes of decision-making to reconcile their quandry. In achieving such city sustainability there will be difficult trade-offs to negotiate and probably a new economic framework to construct.

## 2 Traditional planning

Planning may be variously described as a social movement, as a governmental function or as a technical profession, with each aspect having individual concepts, history and theories. The integration of these aspects fuses to shape and improve the environment within which people live. Modern life now demands a greater degree of integration than was evident in the past in order to achieve the goals and objectives of more sustainable land-use. One of the main criticisms of conventional urban planning is that the concepts, methods and techniques employed tend to re-inforce the present. This makes it difficult for towns and cities to contemplate, design and build alternative visions of the future more suited to their true desires Ratcliffe [3].

Traditionally, planning has been reactive, aimed at fulfilling social and economic objectives that go beyond the physical form and arrangement of buildings, streets, parks, utilities and other aspects of the environment. Traditional planning of urban form was based on short-term economic gain, and the need to find quick solutions to deal

with the ills of overcrowding in the inner city slums. The dominant planning ideology of this period was based on low-density, mono-use, and lack of diversity and flexibility Bannon [4]. Tregoning et al [5] discussed how the term 'sprawl' has become a popular pejorative, shorthand for poorly planned growth that consumes precious open space and mars the landscape with ugly development. It is blamed for constant traffic jams, crowded schools and a host of other ills that afflict fast-growing communities. But while people from all walks of life agree on the consequences of this growth pattern that originated in the 20<sup>th</sup> century, they rarely see themselves as part of the problem – or the solution. Many gravitate to the outer edges of suburbia without fully accounting for its trade-offs and contradictions (*Ibid*). One of the outcomes of urban sprawl has been abandonment of buildings and sites in city centres unused and left to decay. Coupled to this is the “no go area” status founded on fears about anti-social behaviour and security issues in the neglected part of towns, cities and older neighbourhoods. Another outcome of this linear model of planning is the auto-dependent commuter lifestyles evident today. Furthermore, this short-term approach is not conducive to achieving the long-term objectives of Smart Development.

Nowadays planning is about efficiency and achieving optimum utility out of the available resources by adopting a more cyclical approach that encourages stakeholder participation and takes effect largely through the operations of government. Recent urban design and planning theory attach considerable importance to the concept of mixed-use in achieving sustainability, lower reliance on private vehicular use, and achieving more vibrant urban areas for the long-term Grant [6] There is however, scepticism that whilst mixed-use developments are desirable, they are, nevertheless, difficult to achieve. In this context Hall [7] argues that local development plans commonly work from a paradigm based upon two dimensional uniform land use allocations. This approach has difficulty in coping with mixed-uses, urban design principles, urban history and the more general pursuit of more compact and sustainable settlements. Furthermore this approach does not provide an adequate basis for public participation.

Zoning of land has traditionally been used to separate different types of activities, to prevent conflict between uses. Sterile urban landscapes wrought by almost a century of traditional zoning have stimulated city planners and public officials to find ways to remix uses with the principles of Smart Development fundamental to this endeavour. Planners are often seen as guardians of the environment and have a critical role to play in how space is developed.

“Effecting a smart development programme on greenfield land, or on large infill sites on the urban fringe, however, is a relatively easy task once the principle is established and the market identified. What is often more challenging is implementing a smart development strategy in town or city centres, especially in those locations weakened by decades of decline and neglect. Here, many development schemes are promoted in the name of synergy, with the claim that they will act as a ‘catalyst’ for the revitalisation of the central area” Ratcliffe [8]. Alexander and Tomalty [9] argue that in practice, local residents may oppose mixed-use projects because they will generate noise, parking difficulties or other nuisances fuelled by the NIMBY syndrome. Municipalities are increasingly interested in performance-based zoning as a way to address this issue. Performance-based zoning regulates land use based not on proposed use, location and dimensions of the development, but on the basis of the actual impacts it will have on the neighbouring residents and businesses. It allows any land use to locate adjacent to any other use, provided it satisfies predetermined performance standards (noise, dust, hours of operation, views, etc).

In the pursuit of more sustainable land use in terms of economy, environment and society, many planners and developers are looking to brownfield redevelopment as a viable alternative to further greenfield conversion. The term ‘brownfield site’ means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant (United States EPA [10]). Brownfield sites may be categorised by the levels of remediation required to redevelop and of critical importance is the cost and source of finance for the redevelopment process. Public/private partnerships are one solution to this challenging issue. Preliminary results of a recent survey conducted by the author

highlighted that 88 percent of the 149 respondents, who completed a survey on sustainable land-use in Ireland, agree that there should be greater use of financial incentives to develop brownfield sites and thus reduce greenfield conversion.

In January 2004, the New York City Department of Housing Preservation and Development have stated that they will guarantee \$8 million in loans originated by Citibank, Deutsche Bank, HSBC, and JP Morgan Chase as part of a public-private partnership to bring old industrial sites back to life. The brownfields revitalisation project, dubbed New Ventures Incentive Program (VIP), is part of Bloomberg's 10-year plan to create 65,000 economical housing units and will set aside \$200 million over a five-year period to convert industrial sites into residential communities. New York University property law professor Michael Schill remarks, "This is an important initiative that will increase housing development on land currently blighting communities." In Brooklyn's Bushwick neighbourhood, for instance, 249 homes and rental apartments for low- to moderate-income families could be erected, along with retail space, on the site of the former Rheingold brewery. Developers interested in brownfields can obtain design and underwriting assistance from the housing department, but many are worried that contaminated properties will generate little interest from developers and residents. 'Enhance rehabilitation of brownfield sites, within the context of sustainable development of European cities, by the provision of an intellectual framework for co-ordinated NY Sun [11].

### **3 Theory and practice of Smart Development**

Smart Development itself derives from the notion of smart growth which, at its core, is defined as being about ensuring that neighbourhoods, towns and regions accommodate growth in ways that are economically sound, environmentally responsible, and socially supportive of community liveability. In other words, growth that enhances the quality of life. The Urban Land Institute, which has pioneered the doctrine of smart growth through smart development in the United States over the past decade or more, identifies certain common features worthy of consideration in shaping future policy and implementing proposed projects O'Neil [12]. These can be summarised as follows:

- Collaborating on Solutions; establishing a shared approach between developers, environmentalists, civic organisation, public officials and local citizens as to how future growth can best be accommodated.
- Mixing Land Uses; so as to achieve several smart growth simultaneously by attracting homeowners of various income levels, providing a range of local employment opportunities and reducing travel needs.
- Encouraging brownfield Redevelopment and infill development; which fulfils a prime aim of smart growth by revitalising the neglected part of towns, cities and older neighbourhoods.
- Building Master-Planned Communities; most usually on greenfield areas adjacent to the urban fringe, and taking the form of long-term, multi-phased projects that combine a comprehensive mix of land uses and are held together by unifying design and service elements.
- Conserving Open-Space; the value of which is fast being recognised by developers who find that the incorporation of natural features, cycling paths, play areas and additional footpaths makes their schemes more marketable.
- Providing Transportation Options; for though the car retains its allure to most occupiers, there is rapidly becoming a growing interest in other choices such as light and heavy rail systems, expanded bus services and bike and pedestrian paths, which all enhance mobility and improve the quality of life.
- Offering Housing Opportunities; because the lack of affordable accommodation contributes significantly to the jobs/housing imbalance facing many major towns and cities. This may be due to several factors such as opposition to higher-density development, restricted residential land designation or a desire to attract jobs over homes. Properly planned and designed, however, there is a realisation that mixed-income-housing schemes can be both attractive and profitable.

- Lowering Barriers and Providing Incentives; is a key principle of smart growth and development and distinguishes it from traditional growth management policies in that it combines incentives, disincentives and conventional planning techniques to promote a pattern of development that achieves economic, environmental and quality of life objectives.
- Using High-Quality Design Techniques; is also a central component of smart development as it can help alleviate public opposition to new proposals. By employing design techniques such as integrated land uses, mixed housing types, open space protection, and a pedestrian-oriented environment, developers can create new places that are actively supported, rather than opposed, by neighbourhood groups and local authorities.

Smart Development is not anti-growth and instead provides solutions to address the global challenge of achieving more sustainable development defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” Bruntland [13]. Furthermore, Smart Development seeks to shift the terms of debate away from pro-or anti-growth sentiments of the past.

#### **4 Why there is a need for a Futures Approach**

As outlined at the outset of this paper the world is becoming increasingly urbanised. “For city planning, this transformation demands a more imaginative approach towards the way communities think, talk, plan and act creatively in tackling the urban issues they face” Ratcliffe [14]. Future studies can simply mean any exploration of what might happen and what we might want to become. It contributes to an overall understanding of and approach to the future and its methods. Future studies are subject or questions oriented, for example, what are the critical technologies that will have the greatest influence over the next 25 years? Future methods mirror the principles of Smart Development by embracing a long-term view to planning and development and encouraging a participatory approach.

Foresight is a type of strategic analysis involving a combination of participatory, medium to long-term future-intelligence gathering and vision-building process aimed at current conclusions and joint action Garvigan and Scapolo [15]. The “prospective”, in France, “La prospective”, refers to a much wider approach and activity than other futures methods as it comprises not only the study of the future and evaluation of alternative outcomes against given policy decisions but also the will to influence the future and to shape it according to society’s wishes. Prospective is underpinned by preactivity (understanding) and proactivity (influencing) as compared to foresight that is based on preactivity. The term prospective and its application across a broad range of policy issues on a wider territorial basis than hitherto is likely to gain greater currency over the next few years Branagh et al [16].

Techniques for Future Methods:

- Environmental scanning i.e. a broad scrutiny of all major trends, issues, innovations and events and ideas across a wide range of activities; i.e. to help decision makers in situations of increased uncertainty.
- The Delphi survey technique; i.e. it uses a panel of experts to judge the timing, probability, performance, importance and implications of factors, trends and events in respect of the problem in question. The Delphi technique involves a research and communications process that includes at least eight steps.
- Cross-impact analysis- interdependence of drivers and trends.
- Trends analysis, i.e. how events move through time .
- Scenario analysis.
- Modelling, simulation and gaming, depend on computers.

##### **4.1 Scenario Planning**

Scenario Planning derives from the observation that, given the impossibility of knowing precisely how the future will play out, a good decision or strategy to adopt, is one that plays out well across several possible futures. “Scenarios are a tool for unexpected

learning and learning about the unexpected.” Fahey [17]. To find that ‘robust’ strategy, scenarios are created in plural, such that each scenario diverges markedly from the others. These sets of scenarios are, essentially, specially constructed stories about the future, each one modelling a distinct, plausible world in which we might someday have to live and work. Yet, the purpose of Scenario Planning is not to pinpoint future events but to highlight large-scale forces that push the future in different directions. It is about making these forces visible, so that if they do happen, the planner will at least recognise them. It is at heart about helping make better decisions today.

Scenario Planning allows cities to contemplate alternative scenarios underpinned by vision and suited to desires for the future.

Like the concept of Smart Development, Prospective through Scenario Planning embraces collaboration and capacity building within communities. As stated earlier, cities have moved centre stage and now occupy a dual role as victim and perpetrator of environmental degradation. This duality reinforces the complexity of cities and demands more creative and imaginative solutions in the mitigation of challenges than traditional planning allowed. To be truly effective, however, strategic thinking must precede strategic planning and this requires strong leadership and greater vision. The Scenario Planning process has eight steps as follows:

1. Formulation of the Strategic Question;
2. Identify the driving forces of change;
3. Determine the issues and trends;
4. Clarify level of impact and degree of uncertainty;
5. Scenario logic’s and characteristics;
6. Creation of Scenario Stories;
7. Testing the Scenarios: Wind Tunnel;
8. Agreeing the priorities: Indicators to monitor progress.

Brownfield redevelopment is arguably more challenging than greenfield conversion, however, according to Hughes and Spray [18] “The land in question – quarries, ports, rail terminals etc- is often in poor condition but equally often, given the previous intensity of use, is already provided with sound transport and utilities infrastructure. Due to the complex and delicate nature of brownfield development it is essential that the process is inclusive and includes stakeholders like, owners, developers, public sector and community representatives. Furthermore, resources should be allocated to foster partnerships between the public and private sectors and to encourage the reuse and redevelopment of brownfields consistent with the environmental and socio-economic needs of the community. Allied to this is the need to inform stakeholders of the socio-economic and environmental benefits to brownfield redevelopment. Again in terms of the survey conducted by the author, preliminary results highlighted that 74 percent of the respondents agree that, Local Authority partnerships with the private sector are necessary to achieve sustainable development. Future methods encourage collaboration and can accommodate the complexities associated with brownfield redevelopment in a more creative and imaginative way than traditional planning methods alone. Thus, Future methods can be adopted in tandem with traditional planning methods and achieve synergistic outcomes.

## **5 Conclusion**

This paper described how the global backcloth is changing and how cities have moved centre stage. Modern planning now adopts a more integrated approach in terms of economic, environmental and societal factors. This paper suggests that traditional linear models of planning and development need to be amended to incorporate more cyclical models that accord with the holistic principles of Smart Development and more prudent use of resources. Allied to this is the belief that brownfield redevelopment constitutes smarter land use and can prevent further greenfield conversion wherever feasible.

Within the next couple of decades, one of the most noticeable changes will be the disappearance of the ‘Plan’ as it is currently perceived – definitive, specific, fixed and agree- and its replacement with more open-ended landuse control systems for the management and control of resources, as well as mechanisms for conflict avoidance

and resolution. Planning will increasingly make use of the 'preferred option' path nested within a series of plausible contingency options that would continuously be reviewed and updated. Furthermore, such scenario-based plans will progressively become integrated forums where the objectives of many sectors are synergised and synchronised Ratcliffe [15]. Modern planning is more participatory, founded on the principles of collaboration and consensus building and scope for all stakeholders to be involved in the decision making process. It is argued that this participatory and partnership approach is essential for sensitive land-use issues like brownfield redevelopment to be truly effective and beneficial to all stakeholders. The paper outlined why there is a need for Futures methods specifically in the area of brownfield redevelopment. Prospective using techniques like Scenario Planning to achieve Smart Development in tandem with traditional planning methods, it is argued, is one solution to ensure that neighbourhoods, towns and regions accommodate growth in ways that are economically sound, environmentally responsible and socially supportive of community liveability, now and in the future.

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