Sustainable cities through collaborative and co-operative services

Session 22

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Sustainability of the eco-city?

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In this day and age, it is acknowledged that the population living within urban areas has increased considerably, which could be considered as the major contributor to environmental degradation and concentration of greenhouse gases. It is reasonable that this tendency raises demands for establishing sustainable urban systems, remarkably for constructing eco-cities as the solution for problems relating to the process of urbanisation. In that context, this paper examines the dominant urban conversation as the foundation for identifying international best practice eco-cities around the world in order to address the research question: ‘Are eco-cities delivering on sustainability?’ With regard to the methodology utilised for this study, a literature review with the reference from different academic resources is developed to clarify the dominant urban thinking stream within several last decades. In addition, a critical case study approach is also employed to establish a framework for analyzing experiences of creating eco-cities from a prominent example – Freiburg (Germany). The preliminary result of the study illustrates that the dominant urban conversation is arranged with the administration of economic growth as well as neoliberalism and market-based components, which favours the development of entrepreneurial city or competitive city. Within this foundation, the research also shows that the listed eco-city – Freiburg (Germany) is positioned within this dominant urban conversation with a focus on the practices of sustainable urban development in the areas of green technology, energy, waste management, transportation and green space.

Keywords: sustainability, urban conversations, eco-city, Freiburg.
Background

Traditionally, there is a common belief that city is one of the most primary and advantageous inventions of humanity. Due to the process of urbanisation, industrialisation as well as the influence of different market forces, it is widely recognised that there has been an increasing number of people living in cities throughout the time. Remarkably, currently it is claimed that the urban age has arrived, with more than 50 percent of the world’s population live in cities (up from 2 percent in 1800), and it is predicted that about three-quarters of the earth’s population of nearly 10 billion people will live in cities by 2050 (UN 2007). In addition, it is also important to notice that the scale of urban change in recent years has been rapid. In 2010, within 611 cities with populations over 750,000 people, 47 of these cities had grown greater than twenty folds since 1960, and the growth was ten folds for 120 of those cities (UN 2012). Most of this recent growth in urban populations has been in low-and-middle income countries occupying two-fifths of the world population, three quarters of its urban population and mainly within their large cities. It is obvious that this tendency is different from the previous two centuries since highest income nations encompassed the world’s urban population and most of its were largest cities. In 2011, while 23 mega-cities were identified with two in Japan, two in USA, one in France, four in China, three in India and two in Brazil, only five are currently within high income countries (UN 2012 IPCC AR5: 7). It is also anticipated that between the period 2000 and 2030, urban land areas will approximately triple (Seto et al. 2012). As a result, it is argued that this considerable increase in urban land areas leads to ‘considerable loss of habitats in key biodiversity hotspots’ (Seto et al. 2012: 16083) as well as the elimination of green infrastructure which is the key to protect environments and make it adaptable to climate change impacts (Seto et al. 2012; Baeumler, Ijjasz-Vasquez and Mehndiratta 2012; Lye and Chen 2010). Therefore, it is widely acknowledged that one of the most important objectives for almost all cities around the world is moving towards sustainable development in the long-term period. There have been a variety of models for city’s development which aim at achieving economic, environmental as well as social sustainability, and prominent is the concept of eco-city. In this correlation, with the purpose of presenting an in-depth research on the topic regarding eco-city, the article ‘Eco-Cities - A Global Survey 2011’ written by Joss, Tomozeiu and Cowley (2011) explores and documents different case studies of eco-city from an international position.

With the database built from a survey of the International Eco-Cities Initiative in 2009 and various academic literature or policy documents, a ‘horizon-scanning’ of eco-cities from all over the world was conducted from March to August 2011 (Joss, Tomozeiu and Cowley 2011). Within this research, the selection for samples of eco-city are based on three main criteria; namely, scale of development, multiple policy areas and policy significance. In addition, listed eco-cities in this article are also categorised following these variables: (i) type of eco-city - new development, urban expansion and retro-fit development, (ii) development stage - planning phase, under construction and implemented, (iii) key implementation approach - technological innovation, integrated sustainability planning and civic participation.

The preliminary finding of the research from Joss, Tomozeiu and Cowley (2011) indicates that there is an extension in the eco-city data set available worldwide when the number of case studies has went up from 79 (in 2009 survey) to 174 in the current study. In addition, in comparison with the 2009 survey, there are 12 additional new eco-city initiatives located around Europe, Asia and North America. The research also presents that eco-city is a global phenomenon, which is not limited in the western
areas. China is by far the country having the largest number of case studies with approximately 25 case studies reported in this research. Moreover, Europe, Asia, Australasia and the Americas are also regions obtaining the high number of eco-cities. Furthermore, in terms of the categorisation of these case studies, it is generally recognised that the new development eco-city (27) kind is less popular than types of urban expansion (72) and retro-fit development (75) as well as the majority of eco-cities is still under construction (69) or planning phase (60) rather than under implemented stage (45) with the strong focus on technological innovations (105). Along with the terminology eco-city, discrepant types of ‘eco-’ initiatives such as eco-district/neighbourhood, eco-community, eco-village, eco-region or eco-park are investigated in this research. Additionally, various terms contributing to the extensive eco-city discourse ranging from sustainable city/community, compact city, smart city or slim city to zero carbon city, solar city or eco-municipality are also clearly examined in this study. Finally, it is crucial to notice that almost all listed case studies claim innovative ideas for achieving economic, social and environmental sustainability, which position themselves as models for future urban development.

With the framework derived from the survey of Joss, Tomozeiu and Cowley (2011), this paper consists of four main parts with an aim of elucidating the key research question: ‘Are eco-cities delivering on sustainability?’ In this context, the first part of this research provides the literature review on the current dominant urban conversations. The research method is a case study approach and the selected cities are: Freiburg and Songdo IBD. The cities reviewed based on the following key themes: background, vision, and performance indicators. The paper concludes with a discussion on the similarities and differences between selected eco-cities, and thus presenting the conclusion for the paper.

Dominant urban conversations

The concept of sustainability eco-city has internationally aroused wide debate and also it is reasonable to expect different urban conversations related to this topic from scholars from all over the world. In this context, the dominant thinking stream on urban sustainability is positioned within urban governance of economic development, which is termed as ‘new urbanology’ (Gleeson 2012). The texts of new urbanology written by authors coming from discrepant backgrounds consist of: Welcome to the Urban Revolution (Brugmann 2009); Arrival City (Saunders, 2010); The Next Hundred Million: America in 2050 (Kotkin 2010); The Triumph of the City (Glaeser 2011); Aerotropolis: The Way We’ll Live Next (Kasarda and Lindsay 2011) and The Great Reset (Florida 2011).

As an overall view, it is apparent that dominant urban conversations are strongly embedded in neoliberal urbanism – with the strong foundation on economic management (Davidson and Gleeson 2013; Hodson and Marvin 2010; Beer et.al 2005). New urbanologists believe that the enhancement of ‘economic and material reproduction’ is by far the greatest inspiration for the construction of sustainable cities (Hodson and Marvin 2010). The focus of neoliberal urbanism is on improving the city’s economic development and financial viability, which probably leads to negative effects on the built environment and general social justice (Gleeson 2010).

With regard to this dominant discourse, it is apparent that the perspective of new urbanologists on urban sustainability is solidly aligned with the idea of entrepreneurial city. Within this model, these above authors advocate the cost efficiency together with economic effectiveness in the process of constructing a sustainable city. They claim
that the high density built form is the important prerequisite to attain economic success as well as human innovation (Brugmann 2009). Additionally, the application of technology and the power of connectivity are considered as key themes in achieving sustainable development illustrated by different ideas such as the aerotropolis model – ‘the city is the airport’ (Karsada and Lindsay 2011) or the rejuvenation of suburbs with the strong focus on telecommuting (Kotkin 2010). Moreover, theorists favoring new urbanology also advocate market mechanisms (for example: the price incentives of the congestion tax), which are understood as crucial to resolve plenty of issues of climate change and contribute significantly to obtaining ‘smarter environmentalism’ (Glaeser 2011, 220). Therefore, with the emphasis on boosting profit and productivity, it is obvious that concerns on the natural built environment of new urbanologists are mainly motivated by the demands of economic development (Glaeser 2011; Kasarda and Lindsay 2011; Brugmann 2009). As being considered as an interchangeable term for ‘entrepreneurial city’, ‘competitive city’ is counted as an effective conceptual framework to enhance economic growth and mitigate influences of climate change in this day and age (Kamai-Chaoui and Roberts 2009; World Bank 2010). With respect to this model, Kamai-Chaoui and Robert (2009) favors the implementation of green growth and compact city that could result in ‘sustainable resource use’ and increase connectivity. Additionally, in a similar pattern with the perspective of Gleaser (2011), the application of market based mechanisms such as carbon taxes or congestion charges is also advocated by OECD to reduce air pollution and create healthy environment (World Bank 2010b, 33). Consequently, it is evident that the concept of competitive city encourages the mutual benefit between economic development and climate goals (IPCC 2014).

Methodology

A comparative case study approach was utilised for this paper in order to develop a framework for analysing and comparing different experiences of creating eco-cities. By exploring a selected number of cases, the approach provides an in-depth understanding for this contemporary phenomenon within its natural setting, its complexity and its real life context (Yin 1984; Punch 2005). In addition, a comparative case study approach illustrates an issue in conjunction with plenty of successive instances, or patterns of repetition in a number of cases (Zartman 2005, 7). Therefore, it is rational that this method incorporates sparse background information in order to present prominent features of one phenomenon, thus, is most appropriate for the study reported here.

In this research, the comparative case study approach ‘lie(s) at the crossroads of reality and theory; they present their evidence through the eyes of a knowledgeable specialist and they test it against the hypothetical constructs of a creative conceptualist’ (Zartman 2005, 4). As a consequence, with the purpose of exploring characteristics of eco-cities as well as substantive environmental, economic and social sustainability components, empirical data was collected through the case study analysis and examined against different theories and concepts (Zartman 2005, 3). Determining patterns in each case study presented an indication of policy drivers, built form, development standards and operational performance of eco-city phenomenon around the world.

Within the scale of this research, two eco-city case studies are Freiburg (Germany) and Songdo IBD (South Korea). Although there are three types of eco-city development, namely, planning, under construction and implemented (Joss, Tomozeiu and Cowley 2011), one of the listed case studies is in implemented phase (Freiburg) and one is
currently under construction (Songdo IBD). These cases were selected on the basis of relevance to the research, and which illustrate prominent features in the area of eco-city practices. Additionally, each case has been addressed in relation to the research objectives and the critical literature in this field. In this correlation, since information for eco-cities under planning phase was quite difficult to access, case studies under construction and implemented stage were selected instead.

Two case studies

With an aim of addressing the research question ‘Are eco-cities delivering on sustainability?’, two case studies, namely Freiburg and Songdo IBD are critically reviewed. The five main sections are the focus of the review of the case study cities: background, vision/aim, key performance indicator/standard, review and discussion. The background section incorporates an account of fundamental information such as location, population or history of the listed eco-city. The vision/aim section demonstrates important features within the master plan as well different objectives for the process of urban planning in the city. In addition, various aspects relating to the eco-city’s operational performance, for instance, standards for urban development or discrepant awards are clarified in the key performance indicator/standard part. Finally, achievements and limitations of the city’s operation are provided within the review and discussion section respectively.

A case study of Freiburg, Germany

Background

As being considered as the ‘ecological capital’ of Germany, Freiburg is situated in the southwest corner of the country, within the region between the Black Forest and the Upper Rhine (Hagemann 2007, Gregory 2011). With an area of approximately 150 square kilometres, Freiburg accommodated nearly 220,000 residents in 2011 (Joss, Tomozeiu and Cowley 2011).

With respect to the city’s history, from the establishment in 1120, it is generally acknowledged that Freiburg has still perpetuated its charm and beauty through many centuries of growth and modernisation (Gregory 2011). During the 1970s, Freiburg was known as one of cities around the world which pioneered the Green Movement (Joss, Tomozeiu and Cowley 2011). After that, as the concept of ‘sustainable development’ has internationally become dominant since the Earth Summit in Rio de Janeiro in 1992, the city of Freiburg has also incorporated different strategies for sustainable urban growth with the purpose of moving toward ‘eco-cities’ (Roseland 1997a) or “green cities” (Kronsell 2013; Freytag, Gössling and Mössner 2014). As a result, according to Joss, Tomozeiu and Cowley (2011), in several types of eco-city, Freiburg is categorised as the retro-fit development and currently under implemented phase.

Vision / Aim

As discussed above, it is apparent that the vision for Freiburg is to build a green city with appropriate political framework and high living standards for its residents. Within this aim, the Lord Mayor of Freiburg - Dr. Dieter Salomon (cited in Stadt Freiburg im Breisgau 2011) points out that the local government will implement ‘a holistic city development concept’ to achieve the sustainability in different areas of:

-Waste management (recovering, reusing and recycling waste)
-Land conservation (promoting the development of communal forest and parks to protect the soil and provide recreation, greenery, biodiversity)

-Energy (improving energy saving with efficient technology and other renewable energy sources such as solar, wind, hydropower or biomass)

-Transportation (reducing the use of motor vehicle as well as promoting walking, cycling and utilising public transport, or declining traffic congestion)

-Green economics (supporting the development of renewable energy production, environmental education and eco-tourism) (Gregory 2011; Freiburg Wirtschaft Touristik und Messe n.d.; PV Upscale 2007). In addition, Freiburg also presents the goal for decreasing 40% of all CO₂ emissions by 2030 and climate-neutral by 2050 to attain the low-carbon living and climate protection objective (Stadt Freiburg im Breisgau 2011).

Performance Indicator / Standard

Along with discrepant strategies presented above, the sustainability process of Freiburg is also well-directed by several standards and performance indicators. With a strong focus on enhancing energy efficiency throughout the city, in 2009, 'Freiburg energy-efficient housing standard' was established in accordance with the origin from 'Low-energy Housing Construction' standard (1992) and 'Passive-House-Standard' (2008) (C40 Cities 2011; Freiburg Wirtschaft Touristik und Messe n.d). Within this standard, the construction of all new housing buildings in Freiburg is required to satisfy the goal of energy saving and energy efficiency. In this content, ‘no more than 65 kWh/m² of energy may be used for heating purposes in households’, and for the establishment of new districts, it is important to have enough spaces for installing solar collectors (C40 Cities 2011; Freiburg Wirtschaft Touristik und Messe n.d). Additionally, the standard also requires a certain number of apartments to be built as “plus energy” (houses producing energy surpluses) or “passive house” (15kWh/m²) (C40 Cities 2011; International Energy Agency n.d). Accordingly, it is generally acknowledged that ‘Freiburg energy-efficient housing standard’ has declined approximately 80% of household energy consumption, and thus has significantly decreased CO₂ emissions released from housing (C40 Cities, 2011).

Furthermore, in 2011, the Sustainability Management Unit (SMU) was set up as the central office for developing the ‘green profile’ of Freiburg in the long-term period (Freiburg Wirtschaft Touristik und Messe n.d). It is recognised that the operation of SMU ensures the city’s commitment to ‘durable urban living’ by sharing experiences and important skills to resolve coming environmental challenges (Freiburg Wirtschaft Touristik und Messe n.d; ICLEI Europe n.d). Within this commitment, Freiburg was granted the ‘German Sustainability Award’ as the most sustainable city in Germany (Freiburg Wirtschaft Touristik und Messe n.d). It is apparent that this prize not only reflects diverse achievements of Freiburg but also becomes the strong motivation for the process of moving towards sustainable development in the future.

Review

In recent decades, it is internationally accepted that Freiburg has been considered as a noteworthy and well-established sample for sustainable urban development (Freytag, Gössling and Mössner 2014). In the academic literature, different authors point out that Freiburg is a successful model for implementing a comprehensive set of environmental policies and strategies (Newman, Beatley and Boyer 2009; Beatley 2007). While several aspects of sustainable targets of Freiburg such as waste management or land conservation are believed to be similar with other Germany’s cities, it is acknowledged that policies in the areas of energy and green economy are especially impressive
In terms of energy, Rohracher and Späth (2012) indicate that Freiburg is one of cities pioneering solar energy with the application of high technology and different standards for passive housing. Turning to the green economy, it is noticeable that in Freiburg, environment is considered as an economic factor, and it is also predicted that ‘the markets of the future are green’ (Freiburg Wirtschaft Touristik und Messe n.d). Gregory (2011) also clarifies that the ‘environmental economy’ including energy production, ecological education and eco-tourism ‘employs nearly 10,000 people in 1,500 businesses, generates 500 million euros per year’. Noticeable, this sustainable city also applies a new economic model which permits residents to invest renewable energy industry (Gregory 2011). For instance, when citizens invest money to install solar collectors or windmills for generating energy serving a soccer stadium, they will get benefits from their investment – free season tickets (Gregory 2011). As a consequence, with the incorporation between ecological and economic targets, Freiburg aims at achieving ‘a win-win situation for both ecology and the economy’ (Freiburg Wirtschaft Touristik und Messe n.d). Apart from environmental and economic factor, the support from urban society also plays an important role in the success of Freiburg. In this correlation, Freytag, Gössling and Mössner (2014) determine that discrepant policies of building a green city in Freiburg are also strongly advocated by almost all social groups, which are illustrated by the establishment of residential areas with high eco-standards and eco-lifestyles.

Discussion

Along with positive aspects, it is argued that the City of Freiburg also has several limitations which affect different objectives for attaining sustainable development. Purvis (2008) points out that it is hard for socio-economic disadvantage in Freiburg to afford houses since the city is probably ‘failing to promote social housing and group ownership’ while supporting big developments delivered by private sectors. Moreover, Rohracher and Späth (2012) present that although Freiburg praises its successes, the real decrease of greenhouse gas emissions of the city is not amazing, and the decline of this is mainly derived from private investments. Also, while the city might proudly call itself a ‘Solar city’ or ‘Solar region’, ‘the total capacity of 11.3 MW in photovoltaic power plants has long since been topped by other German cities of a similar size’ (Rohracher and Späth 2012, 3). Furthermore, it is claimed that ‘Freiburg region is booming’ with massive usage of land resulted from the city’s reputation for being an ecological capital, which leads to ‘splinter development and disfigurement of landscape’ across the city (Mayer n.d). In addition, it is crucial to recognise that environmental goals in Freiburg are mainly controlled by the economy. Mayer (n.d) indicates that greenwash, which is the circumstance that companies spend time and money claiming to be green through marketing and advertising campaigns rather than conducting effective practices to reduce environmental influences, is the ‘green cloak’ for industrial plants along the Upper Rhine. Therefore, it is rational that the sustainability process of the ecological capital Freiburg still experiences different drawbacks that arouse wide concerns from the public.

A case study of Songdo IBD, Republic of Korea

Background

Songdo IBD is the ‘new international eco-city’ of South Korea which has been developed by Gale International and Korea’s POSCO E&C since 2009 (UNEP 2013). As reported by Joss, Tomozeiu and Cowley (2011), in different kinds of eco-city,
Songdo IBD is counted as the new development, currently under construction and anticipated to be completed by 2015.

With an aim of establishing a sustainable city in accordance with the aerotropolis model – ‘the city is the airport’ (Karsada and Lindsay 2011), Songdo IBD is situated only 7 miles from Incheon International Airport and roughly 40 miles from Seoul (Gale International, n.d.). In addition, the location of this project site ‘along the northeastern coast on the trade routes of three of the biggest economies in the world, China, Japan, and Korea, and in close proximity to Hong Kong and Singapore’ is considered to be advantaged for the economic development in the future (Shwayri 2013, 45).

Furthermore, due to the intended total cost up to $35 billions, the subject site, which has an area of 9.2 million square meters, is expected to accommodate residences, retail spaces, commercial office space, hotels together with cultural and community facilities (Ekblaw, Johnson and Malyak 2009; UNEP 2013). In details, at implemented phase, Songdo IBD is likely to house approximately 75,000 citizens and 300,000 travelers with about 80,000 apartments, 930,000 square meters of retail space and 4,600,000 square meters of office space (Shwayri 2013; UNEP 2013).

Vision/Aim

Within the above estimated scale development, the vision for Songdo IBD is to become a flagship model eco-city in Korea which encompasses environmental, economic and equity objectives (Kamal-Chaoui et al. 2011; Ekblaw, Johnson and Malyak 2009). In terms of environmental aspect, Songdo IBD is anticipated to provide ‘the quality of life that doesn’t exist anywhere in Korea and maybe anywhere in the world’ to its residents and employees (Lee and Oh 2008). As a result, the Master plan for Songdo IBD mainly focuses on establishing ‘high-tech, green urban development’ which is implemented through different aspects such as:

- Energy (improving energy efficiency with green materials)
- Water (conserving, recycling and reusing water)
- Transport (encouraging walking, cycling and the use of green and public transport including water taxis)
- Waste management (recycling waste)
- Green building operators (utilising ‘low- toxicity or non-toxic production within buildings’) (UNEP 2013; Vogl 2012). Furthermore, with an aim of becoming ‘the greenest new city in Asia’, approximately 40 per cent of Songdo’s areas are covered by parklands and waterways (UNEP 2013; Lee and Oh 2008). Turning to economic aspect, Songdo IBD is predicted to be the business hub of Southeast Asia with roughly 50 million square feet utilised for commercial area, office space and appropriate policies providing financial incentives for different firms. Additionally, Songdo IBD attempts to apply progressive technology and communications to boost the economy (Ekblaw, Johnson and Malyak 2009). On the subject of equity feature, apart from providing high quality of living standard, Songdo IBD will guarantee equitable access for residents to a variety of amenities such as hospitals, schools, parks or malls, golf club, which contributes significantly to creating city sustainability (Ekblaw, Johnson and Malyak 2009; UNEP 2013).

Performance Indicator / Standard

With the purpose of moving toward sustainable development, new buildings in Songdo IBD are required to obtain Leadership in Energy & Environmental Design (LEED) certification (Burnham 2011). In details, there are six categories in the LEED
certification; namely, Sustainable Sites, Materials and Resources, Innovation and Design Process, Energy and Atmosphere, Water Efficiency and Indoor Environmental Quality (Ekblaw, Johnson and Malyak 2009). Within achieving credits in these diverse types, LEED buildings examine the sustainable performance on different levels and phases of the construction process (U.S. Green Building Council 2005). In 2010, Songdo’s convention centre, which includes plenty of energy saving measures, various access points for public transport and unirrigated landscapes, was the first building in Asia receiving LEED certification (Joss, Tomozeiu and Cowley 2011). Furthermore, it is noticeable that Songdo IBD was also the winner of Sustainable Cities Award, which honors prominent examples of ongoing projects that present innovative ideas for sustainable land use, from the New York Times and the Urban Land Institute in 2008 (Gale International 2008; Winden et. al 2014; Kemp and Stephani 2015).

Review

With the application of ‘sustainable design principles and combination of the best practices in urban planning’, Songdo IBD is considered to be a flagship eco-city project which integrates both ecological and economic objectives (UNEP 2013; Kamal-Chaoui et al. 2011). In terms of ecological goals, Burnham (2011, 24) points out that Songdo IBD presents impressive environmental strategies, and prominent is moving towards ‘reducing irrigation-based potable water use 90 percent versus the international baseline’. Additionally, green building design with the LEED standard and the implementation of advanced technologies also contribute considerably to obtaining environmental objectives for Songdo (Alusi et. al 2011). In this correlation, it is recognized that all buildings in this smart city have ‘special window glazing and ventilated double facades, a network of underground pneumatic pipes for removing solid waste and recycling of sewage for irrigation and use in cooling towers’ (Vogl 2012, 393). Furthermore, with the establishment of a complete networking that all urban services are piloted through sensors, Songdo’s citizens can turn on and off different household appliances such as air conditioner, heater or light and also manage their daily energy consumption ‘green meters’ via their phones or computers (Steinberg and Lindfield 2012; Vogl 2012). Turning to economic aims, Songdo IBD is expected to become a new commercial hub that enhances the vitality of Korean business by increasing the standards of typical Free Economic Zone (which focuses on addressing environmental and social concerns), and thus drawing global business’s attention (Newman and Matan 2013). Apart from that, this city is also an attractive destination for a large number of technology, engineering, architecture and design companies operating in the area of ‘green technology integration’ (Alusi et. al 2011). In addition, the plan for the development of Songdo IBD which replicates the aerotropolis model is also taken into consideration by different authors. Dinardo (2013) indicates that the model of Songdo IBD with an airport located in the middle of the city is anticipated to have positive impacts on business and leisure travellers in terms of accessibility and efficiency. Likewise, Lindsay and Karsada (2011) also believe that the development of Songdo IBD following the aerotropolis is obviously a good practice for building cities around the airport to improve the connectivity in this day and age.

Discussion

Since every coin has two sides, apart from positive features, the construction of Songdo IBD also has several difficulties which restrict its progress. Due to cultural differences, Hynes (2008) determines that it is hard for Gale International to apply new concepts, new design strategies originated from USA into the market environment of Korea (cited in Lee and Oh 2008). In addition, the project also experiences the shortage of LEED materials other natural resources within local production (UNEP
In this correlation, new buildings in Songdo IBD have to purchase these necessary materials from outside, and the energy as well as emissions required to transport those resources could be calculated for the ecological footprint of the city (Ekblaw, Johnson and Malyak 2009). Moreover, since Songdo IBD is planned not to satisfy demands of low-income groups or elder people with no social housing, one of key themes for achieving sustainability named social justice or equality will be restrained within the development of this eco-city (UNEP 2013, Gleeson 2010). Additionally, the high fees of international schools (which are approximately $20,500 USD per year in comparison with South Korea's per capita income – around @27,700 USD per year) and hospitals in Songdo IBD also make these services become unaffordable for the low income individuals, which can lead to the lower quality of life and social exclusion in the foreseen future (Ekblaw, Johnson and Malyak 2009 and Central Intelligence Agency 2008). Furthermore, the operation of the Jack Nicklaus Golf Club Korea, which obtains the size that is over twice the area of Central Park, also raises environmental issues for maintenance due to the large consumption of water in the city (Ekblaw, Johnson and Malyak 2009). Also, it is noticeable that with the vision for becoming an eco-city, Songdo IBD fails to address renewable energy resources such as wind, solar or hydropower like other cities. The project will mainly generate energy through natural gas combustion. It is apparent that although natural gas is one of the cleanest forms of fossil fuels, it still releases the large amount of carbon emissions when burned (Naturalgas.org. 2004, Ekblaw, Johnson and Malyak 2009). Consequently, it can be seen clearly that the new eco-city Songdo IBD still has different limitations that constrain the process of moving towards sustainable development in the long-term future.

Discussion

Similarities

After reviewing two case studies, it is apparent that there are various similarities between background, aim or key performance indicator of listed eco-cities. Firstly, it is generally acknowledged that the key implementation mode of all these cases is technological innovation with the strong concentration on developing green technology. In addition, two selected case studies are also considered to be best practices for sustainable urban development from all over the world with the master plan focusing on following aspects:

- Waste management (recycling and reusing waste)
- Transport (promoting the utilisation of public transport and encouraging walking or cycling)
- Energy (improving energy efficiency and using other renewable resources such as solar or wind energy)
- Green space (moving forwards to build green cities with large amount of land reserved for parks, open spaces or forests)

Moreover, apart from the master plan, it is evident that each eco-city has its own standard for examining the process of sustainability throughout the time (Freiburg - ‘Freiburg energy-efficient housing standard’; Songdo IBD - LEED certification). Remarkably, all two selected case studies were granted different awards in the areas of urban sustainability, in details, Freiburg was the recipient of ‘German Sustainability Award’ and Songdo IBD was the winner of ‘Sustainable Cities Award’. Finally, although
two eco-cities have obtained various achievements in terms of sustainable development, these cities also have experienced plenty of difficulties in gaining social equity due to the lack of affordable housing for low-income groups.

Differences

Along with plenty of similarities, there are also several differences between two listed eco-cities. Firstly, it is obvious that, while Freiburg is retrofit development and currently under implemented phase, Songdo IBD is the new development which is still under construction. Additionally, although these case studies share general objectives within the master plan for moving toward sustainable development, each city has its own focus presented below:

-Freiburg: Concentrating on energy and green economics

-Songdo IBD: Focusing on green building operators and technology integration

Furthermore, each city also has its particular difficulties within the process of sustainability which are illustrated as follows:

-Freiburg: Having operational performance under expectation when the actual decline of greenhouse gas emissions as well as the effects of solar energy is not overwhelming.

-Songdo IBD: Experiencing the shortage of green materials, having limitations due to cultural differences when applying new concepts of urban planning originated from USA into Korea’s market

Conclusion

By way of conclusion, from what has been discussed, it is clear that the dominant urban conversations favoured by new urbanologists are situated within the governance of economic growth, neoliberalism and market-based mechanisms. Within this urban thinking stream, the concept of sustainability as well as eco-cities is also strongly aligned with the ideas of entrepreneurial city or competitive city, which focuses on enhancing technological innovation and connectivity together with incorporating economic and climate goals. As a consequence, the discussion on two international best practice eco-cities, namely, Freiburg and Songdo IBD presents that key environmental goals are mainly controlled by the economy, and there is limit progression of socio-economic objectives. Therefore, although two selected cities have obtained different achievements in the areas of green technology and climate change resilience with innovative ideas on rubbish management, transport or energy and green space, these case studies are still far away the real sustainability.

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Intangible waste: the untapped capacity of elderly people to contribute and participate

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When considering waste, we often think of material or resource waste. However, if ‘waste is created when we no longer value something we create, possess or use’, then we can broaden the definition of waste to include intangible waste. One such example is the wasted social capital of elderly people who are no longer able to participate in a society that only accommodates the working age bracket.

Given that globally, and especially in Australia, population ageing is increasing, a significant percentage of the population will soon be considered to be ‘elderly’. However, an increasingly segmented urban fabric means that many elderly people are excluded from participating in many aspects of society. As a result, age-specific developments, such as retirement villages, aim to cater to the needs of the elderly. However due to their exclusive nature, such developments often increase the segregation of older people, both physically and socially, from the broader community, thus eroding wellbeing and social cohesion.

This exclusion both increases material waste through the construction of separate age specific environments, as well as the wasted intangible capacity of elderly people to contribute and participate within their local and broader communities. This paper will explore the often overlooked capabilities of older people to contribute and have an active role within their communities that are often wasted due to an unaccommodating urban fabric.

Keywords: social sustainability; population ageing; intergenerational engagement; urbanism; resilience
Introduction

Population ageing is an issue affecting many societies around the world, and the way our cities and urban fabric adapt to this will affect the way many people live as the grow older and their physical and social needs change. This paper explores the intangible element of waste in its effect on the human experience due to the conditions of the built environment. First the paper re-conceptualises waste to include the wasted opportunities of human capacity and relates this to the dismissal of the elderly by society. In the second part, the paper contextualises the concept of intangible waste around the issue of population ageing and discusses issues created as a result of low-density suburban development.

The third part of the paper proposes a new form of intergenerational living as a social innovation to urban living. The innovation builds upon a number of theories for intergenerational engagement in combination planning recommendations to improve the resilience of urban environments and proposes a scenario where the social capacity of the elderly is not lost. Finally, the impact of intangible waste is considered in its relationship to material waste.

Intangible waste, wellbeing and the human experience

When considering the term ‘waste’, we often think of the noun or physical object, and thus its relationship to material or resource waste: rubbish, refuse, litter, junk etc. Falasca-Zamponi refers to the circa 1300 definition of the word as ‘useless expenditure’ and compares it to the attitude we have towards waste today: that it is something unusable and unwanted, that has exhausted its lifestyle, and is without any value (Falasca-Zamponi 2011, 17). This is reinforced by the description of waste given on the Unmaking Waste 2015 conference website, that ‘waste is created when we no longer value something we create, possess or use’. Subsequently, if waste is born out of entities we consider to be valueless, it is conceivable to broaden our understanding of the term to include the overlooked or unrealised value of something, as well as the resultant wasted opportunities to utilise this in a valuable way. As such, we can begin to conceive that certain elements of waste are not materially quantifiable; these elements are what I refer to as intangible waste. One such example of intangible waste, which will form the focus of this paper, is the wasted capacity and social capital of elderly people who lose the ability to participate in their communities as they age due to an unaccommodating urban fabric.

Princen, Maniates and Conca illustrate the role consumerism has played in fuelling intangible waste in today’s increasingly commodified world, where ‘…personal relationships, self-provisioning, culture, artistic expression, and other sources of human well-being’ are replaced by marketable goods and services (Princen, Maniates and Conca 2002, 3). In other words, our material obsession of such goods has contributed to a corrosion of the human experience. In the global context of increasing interest in wellbeing, many experts, including the Organisation for Economic Co-operation and Development (OECD), are calling for the measurement of a society’s progress to place more emphasis on these fundamental elements of the human experience (OECD 2013; Salvaris 2009; Giovannini 2008). For this reason, it is clear that when addressing the broader issue of ‘waste’, considering material waste alone is fundamentally shortsighted.

In considering intangible waste in its effect on the human experience, I refer to the work of Sen in his capability approach framework. As cited by Crocker and Robeyns, the
framework concerns people’s ‘capability to function’, or the effective opportunities that are made available to an individual or community, to undertake the actions and activities they want to engage in, and to be whom they want to be (Crocker and Robeyns 2009, 63). Many factors contribute to the wasted capacity of elderly people in society, such as the physical conditions of the urban fabric, as well as the social dismissal by a society that values its citizens according to their economic productivity; no longer economic “units of production”, the elderly are often seen as a burden rather than a valuable social asset. However, in terms of the social capital they can offer, it is my argument that elderly people can play a vital role in the social fabric of the community, as they traditionally have in many cultures throughout history, and that this their capacity to do so is currently overlooked.

Population ageing and the urban environment

Population ageing is a global issue, which is affecting most developed countries due to a combination of lower fertility rates and increasing life expectancy. According to a 2014 report by the Australian Bureau of Statistics, Japan, Italy, Greece, Sweden and Hong Kong already have populations where the number of people aged 65 years and older exceeds the number of people aged 0 to 14 years, with Australia projected to join them in this statistic by around 2030 (ABS 2014). Furthermore, Australia has seen an increase to its median population age by 4.0 years in the last two decades to 37.3 years in 2014, with Tasmania and South Australia being the fastest and second fastest ageing states respectively (ABS 2014). As such, as ageing populations around the world continue to grow, so too does the potential for the wasted capacity of elderly people. This section of the paper will examine how the design and planning of the urban fabric has impacted on the way elderly people are able to access, contribute to, and participate in, their local communities as well as broader society. It will then demonstrate how the prevalent outcomes of such planning have caused a corrosion of social cohesion and thus fuel intangible waste.

A major issue that will have great implications on the ageing population is the effect of many years of low-density suburban planning. The development of suburbs has always been marketed towards the nuclear family, offering a quiet environment and healthier way of life as an escape from the ‘ills of the city’ (OCFP 2005, 2). Today, suburban and outer-suburban areas form the staple housing supply for many people in major cities. In many ways, Australian cities (as well as many cities in the US and other developed nations) reflect modernisation and the trend towards car-dependent mobility: outer suburbs are highly dispersed with irregular, fragmented street patterns, filled with single detached dwellings on individual lots, with a lack of urban centres (SJB Urban 2011). Additionally, they are geographically large, and pedestrian and public transport is rarely adequately integrated into planning beyond the central to middle urban/suburban areas. After many decades of such development and as the population ages, we are seeing many resultant prevalent issues in regard to access and mobility beginning to emerge.

Taylor and Buys observe that ‘most of Australia’s ageing population lives in low-density suburban environments located outside metropolitan urban centres…[where] they intend to ‘age in place’…’ (Taylor and Buys 2014, 56). This type of development presents a major and fundamental problem in terms of mobility for people as they age and eventually lose their ability to drive. This is compounded by the lack of public transport services to many suburban areas. Many older people will be at risk of

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**Footnote:**

5 The lack of public transport can often be attributed to low density conditions. This is because the public cost of investment in the infrastructure required to implement such transport services is offset by the intensity of users. The low density conditions of many suburbs often translates into a lower intensity of users...
becoming physically stranded, from vital services, amenities, shops, centres, medical care et cetera, as well as socially isolated from their community and support networks. This is of particular concern in relation to the issue of intangible waste, as each of the elements just listed represents a wasted opportunity for an elderly person to interact with, participate in, and therefore have a contribution to their local community. That is, their personal capacity and thus, overall wellbeing is reduced.

In response to issues of access and mobility presented to the elderly by family orientated suburbs, many age-specific developments have emerged. Whilst traditional high-care providers (such as nursing homes) were born out of necessity to serve the frail elderly, contemporary low- or self-care retirement villages provide an active, self-contained and commodified “lifestyle package” (Campbell and Luscombe 2008). Many different models exists, with most offering included services such as grounds maintenance, as well as optional services that residents can select according to their need, such as cooked meals, laundry, and limited healthcare. Whilst such communities provide great lifestyle benefits to their residents, Bosman argues that their long-term sustainability is questionable, as they are generally located on the urban fringe at great distances from major health services, amenities and centres, therefore reinforcing already prevalent urban form issues relating to car-dependency and social isolation and segregation from the broader community (Bosman 2014; Bosman 2012).

In terms of how this helps to corrode social cohesion, and thus, fuel intangible waste, two observations can be made. Firstly, short-sighted planning considers only the economic opportunity for developers to sell housing packages to targeted demographics (young families, ‘double-income-no-kids’ (DINKS) etc.); the development of many suburbs has been reduced down to the production and sale of a marketable good, as opposed to the building of vibrant communities. Manzini suggests that such a long period of the marketisation of ‘common goods’ has lead to the evolution of what he names ‘remedial goods’, that is, a range of marketable products and services that aim to normalise our heavily deteriorated way of life (Manzini 2002, 144-145). This leads me to my second observation, that through the development of the retirement village typology of aged-living, which can be seen as such a ‘remedial good’, a cultural trend has developed whereby the elderly are effectively removed from society once they become too much of a burden to accommodate within it, indiscriminately removing with it any social capital they may offer. In short, the impact of such segmented planning has led to a fragmented society, where there exists an untapped opportunity for elderly participation in a more cohesive, age friendly city.

Social innovation: a return to intergenerational living?

The full impact of the wasted opportunity to engage with our elderly in the urban environment affects not just the elderly, but all members of society. Historically, the elderly have lived in close proximity, often, in many cultures, within the same house. This allowed for regular interaction between generations, where strong familial as well as social relationships could be formed. Grandparents could babysit the children whilst their parents were at work; wisdom was passed onto children through the teaching of local values and cultural history; the working generation was able to provide support for their parents as they aged. The combination of these factors naturally ensured that intergenerational solidarity and community resilience was strong. This traditional form of multigenerational housing has seen a decline over the past half century (although in
recent years this has begun to increase again) and many older people are now “empty nesters”. They often live only with their partners or alone and depend on the traditional notion of neighbourliness, where they can receive practical assistance from friends and neighbours’ (Taylor and Buys 2014, 56) as they age. However, as suburban development grew, so did a culture that prioritises individualism, privacy and self-containment, and thus, the opportunities for such intergenerational relationships, neighbourliness and community resilience today are often wasted. If such opportunities were not lost, it prompts the question of whether a return to an intergenerational living model could be implemented in contemporary society.

Whilst multigenerational housing is no longer prevalent in many modernised cities, its concept presents an opportunity for social innovation in housing that may assist in improving social cohesion between generations by harnessing the social capacity of our elderly population. The concept of expanded intergenerational living takes the ideals of multigenerational housing and applies it to a greater urban area, for example, a block of flats, a street, or local neighbourhood. By building upon the benefits that traditional multigenerational housing offers to intergenerational relationships, expanded intergenerational living is a way of approaching urban design with the intent of encouraging interaction and engagement between young and older generations. The work of Kaplan, Henkin and Kusano supports this notion, in their definition of intergenerational engagement as ‘social vehicles that create purposeful and ongoing exchange of resources and learning among older and younger generations’ (Kaplan, Henkin and Kusano 2002, xi). In order to do this, a paradigm shift is required in the way we perceive the elderly; instead of being dismissed as a burden, where their social capacity is wasted, the elderly’s social capacity is seen as a key component to community resilience. By taking this kind of approach, we acknowledge that elderly people can continue to have an active contribution to society beyond retirement, for example: sharing wisdom or knowledge of social histories to younger generations; volunteering for community programs or events; providing care to children whose parents work etc. Furthermore, engaging the social capacity of the elderly has the potential to open new avenues for innovation in ensuring that their own needs are met. However, such innovation is also dependent on the performance of the urban fabric in response to the physical and social needs of a variety of users and the ability to adapt to imminent demographic change, that is, its resilience.

For many of us, the urban fabric constitutes the social-ecological system in which we live, and as such, is subject to the same resilience factors as any other system. Authors Salt and Walker remind us of three factors that are important in maintaining the resilience of a social-ecological system: diversity, modularity, and the tightness of feedbacks (Salt and Walker 2006). If we consider the built environment not as a stand alone element, but as part of greater social-ecological system that fundamentally exists to support human activity (as opposed to economic productivity for example), we can begin to identify issues that pose risks to the system’s resilience before their effects are irreversible. For example, multigenerational housing of the past proved resilient in maintaining intergenerational solidarity by enabling mutual care to occur between young and old generations. In ensuring the resilience of an expanded intergenerational living model on a larger scale, Salt and Walker’s three resilience factors can be considered:

- **Diversity** in housing stock would ensure communities had the capacity to accommodate people at all stages of life. This is in contrast to targeting vast areas of the urban environment to specific “markets” (eg, ‘professional couples’, families, or retirees), which drastically inhibits intergenerational interaction.
• The modularity of services, such as an evenly dispersed network of amenities and urban centres can improve access by encouraging walkability and reducing car dependency. This is in contrast to ‘big-box’ commercial developments that consolidate many services into one complex (such as large suburban shopping centres and malls). Furthermore, if any one centre were to fail (for example, close down), a number of other centres in close proximity could absorb the impact and minimise inconvenience to the surrounding area.

• Tightness of feedbacks refers to ‘how quickly and strongly the consequences of a change in one part of the system are felt and responded to in other parts’ (Salt and Walker 2006, 121) and is highly dependent on diversity and modularity. For example, an elderly person who lives by herself may rely on the social network she develops with her surrounding neighbours to maintain human connection or to call on if she is in need (such as checking in during a heatwave or providing assistance in response to a sudden health concern). However, if the physical form of her neighbourhood is not conducive to walkability, or the houses do not have an active frontage to the street, her connection (or tightness of feedback) to her neighbours and thus, support network, is reduced.

By considering the capacity elderly people can offer to their communities in conjunction with Salt and Walker’s three resilience factors from the outset, we can begin to innovate new solutions to ensure all generations are able to be accommodated for. Manzini argues that another supportive element of community resilience is the restoration of "common goods”, which he describes as follows:

‘Examples of common goods range from basic physical resources, such as air and water, to social resources like a neighbourhood community or the civic sense of its citizens, to more complex resources such as the landscape or an urban public space or a “sense of security” in a town.' (Manzini 2002, 144)

Manzini further elaborates that the restoration or preservation of such common goods are essential to curbing material consumption through a reduction in marketable products and services (Manzini 2002). The same can be said for reducing intangible waste, as the notion of using such common goods inherently encourages users to actively participate in community activity. One example of ability of common goods to encourage such activity is the concept of the neighbourhood park. Technically, a park could constitute an open area with no trees, landscaping, seating etc, however such a place would not attract many people. Conversely, by providing even basic amenities, such as places to sit, drinking fountains, shaded and children’s play areas, many different age brackets can be encouraged to spend time there – elderly people can take a walk knowing there will be places to rest, children can have places to play, others may read a book or do exercise.

Parallel effect on material waste

So far throughout the paper we have covered the importance of reducing intangible waste in relation to the human experience, and the role that social innovation can play in achieving this. However, the consequence of not acting to reduce this intangible waste can also simultaneously affect material waste. As discussed throughout, developments that are targeted towards, and clustered around, specific demographics create low-resilience urban environments. As the population ages, the response to such urban environments has been the development has been age-specific housing such as retirement villages in order to counteract the issues created by non-age-
friendly residential models. In referring back to Manzini, we can identify the retirement village typology as a remedial good that is sold to the elderly as an improvement to their quality of life. However Manzini reminds us of the true nature of such remedial goods:

‘The common character of remedial goods is that their use or consumption is not improving the ‘quality of life’ or opening new possibilities for the user (as it could be the case for a new washing machine for a person that, until then, had washed by hand). What they do is simply to (try to) restore a degree of acceptability to a context of life that has been degraded.’ (Manzini 2002, 145)

Aside from not truly being the improvement to quality of life that they claim to be, such remedial goods represent the wasted opportunity to deploy our resources into a more long-term vision for the development of resilient, socially inclusive environments. As a result, such failure to act on the issue of intangible waste has very real impacts on the material waste of natural resources through the “doubling up” of residential developments in the form of marketable, self-contained retirement communities.

Conclusion

The texts and ideas explored in this paper begin to explore some of the more complex elements of waste in the way it can affect the human experience. In the context of creating urban environments that support elderly people’s capacity to contribute to their communities, the paper has demonstrated the importance of resilience, and the role it can play in both corroding and protecting social cohesion. Furthermore, in examining intergenerational engagement as a model innovation in housing, the paper has illustrated a gap that exists for future innovation in the planning and design of age-friendly urban environments.

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Public and Collaborative services; building capability, agency and trust

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The premise of this paper explores the scenario of collaborative services, a network of services a community may establish to share with one another. The paper will look particularly at the capacity of collaborative services to reduce waste-making. The paper will focus upon intangible waste, i.e., that of wasted human capacity, opportunity or capability and the ways in which such waste can be avoided or mitigated through the social innovations established in collaborative service networks.

The scenario of Collaborative Services indicates how, through local collaboration, mutual assistance and shared use we can reduce significantly each individual’s needs in terms of products and living space and optimize the use of equipment, reduce travel distances and, finally, lessen the impact of our daily lives on the environment. The scenario also gives an idea of how the diffusion of organizations based on sharing, exchange, and participation on a neighborhood scale can also regenerate the social fabric, restore relations of proximity and create meaningful bonds between individuals.

A collaborative services network is supported by the design of urban spaces which can be shared by community to pool resources. For this reason, the presence of urban places which support a collaborative services model, has a significant affect upon the relative opportunity afforded to members of the community to connect with one another and develop further capabilities, or for such opportunities to be wasted and thus human capabilities and capacities are overlooked. Citing Sen and Nussbaum, Sennett (2012, p292) suggests that ‘people’s capacities for cooperation are far greater and more complex than institutions allow them to be’ and this paper will argue that collaborative services offer opportunities for cooperative capacities to be explored.

The paper will explore this through reference to the work of Jegou & Manzini (Collaborative services:2008), Staszowski & Manzini (Public & Collaborative : 2013) and a range of international social innovation case studies visited; in San Francisco in 2014 and at the SIX summer school in Vancouver Canada (2014) and Johannesburg South Africa (2014)

Keywords: collaborative services, social innovation, capability; enhancing agency, community, trust
Introduction

This paper explores the scenario of collaborative services and will look particularly at their capacity to reduce waste-making. Examples for discussion will focus upon intangible waste and the creation of systems which reveal opportunities for idling capacity to be unlocked for use, particularly previously untapped potential in human capability. Two of the case study examples to be discussed; Strathcona Business Improvement Association (SBIA) Resource Park & the Sophiatown Heritage and Cultural Centre in Johannesburg, were visited by the author whilst attending the SIX (Social Innovation Exchange) annual summer schools in Vancouver (May 2014) and Johannesburg (November 2014) respectively.

Collaborative services are a network a community form to offer services to one another. Based on sharing, exchange, and participation on a neighbourhood scale, the operation of the network can also regenerate the social fabric, restore relations of proximity and create meaningful bonds between individuals. Furthermore, the Scenario of Collaborative Services indicates how, through local collaboration, mutual assistance, shared use we can reduce significantly each individual’s needs in terms of products and living space and optimize the use of equipment, reduce travel distances and, finally, lessen the impact of our daily lives on the environment. This reduces waste as the capacity of items (eg. Lawnmowers, kitchen appliances) and the capability of people (eg, the enthusiasm of young and the wisdom of the elderly) are recognized and exercised more fully within the network. In rational economic terms, this may be considered optimizing efficient use of resources. In social capability terms, this allows people to contribute more meaningfully to their neighbourhoods and be recognized, valued and honored for the skills they possess and contribution they can make. A further overview of the many forms collaborative services can take is outlined in the following pages. For now, whilst the main focus of this paper will be on mitigating the loss of intangible resources and recovering them from becoming unnecessary waste, it may be useful to begin with a Canadian example which was established to reduce tangible waste, because collaborative services offer reduction in both tangible and intangible wastes. This example is the Strathcona Business Improvement Association (SBIA) Resource Park - a site visited by the author in May 2014 which allows the SBIA and its members to work together with the local community to reduce waste, share resources, and create new opportunities in the neighbourhood. The SBIA Resource Park was built through a tremendous volunteer effort and support from Metro Vancouver and the City of Vancouver.

Strathcona Business Improvement Association (SBIA) Resource Park

Located in downtown Vancouver, Strathcona is the oldest residential area with 9,000 residents and more than 7,000 employees. Strathcona’s Business Improvement Association (BIA) is a non-profit organisation that represents business and commercial property owners in the Strathcona area. The BIA has a vision for Strathcona to be seen as a model of positive change and sustainability which is what led them to establish and operate Vancouver’s first resource park. Following the success of a zero waste challenge with residents, they decided to partner with Metro Vancouver to see if they could encourage Strathcona businesses to do the same. Importantly, Metro Vancouver recognized that businesses themselves are “really the experts when it comes to working out how they can reduce their waste”, (Peter Cech: video: see ref at end of paper) so they supported them to establish their own systems for resource recovery and sharing.
The result is a resource park which is an urban hub of waste diversion, food production and resource preservation on a site which houses eight sheds for storing Resource Exchange materials, collected recyclables that are picked up by a commercial hauler, and a micro-industrial composting facility. The Resource Exchange program collects materials and items no longer in use from Strathcona businesses, and makes them available to other community members who have a use for them. As the value attributed to the recovered resources grows, SBIA can afford to employ people to collect the recovered resource, thus creating ‘green’ jobs.

The achievement of a resource recovery facility is a familiar and celebrated story, yet, most importantly for the purposes of this paper, is that the assets that the City of Vancouver recognize as vital to make a project like this replicable and increase the impact, are “people, partnerships, and the will of capable organizations like Strathcona who can take the necessary leadership role in making it happen” (Gerwing nd). As Kira Gerwing explains, “this means that human resources that are ready, willing and able to do the work are vital and valuable”. The City of Vancouver recognized and appreciated that whilst the catalyst for establishing the resource Park was focused on tangible resource recovery, the social innovation of collaborating businesses also recovers human capability. It is instructive that the City recognized that people and their relational qualities are of primary importance for replicability (for more on this point, see http://strathconabia.com/resource-park-resource-exchange/).

Valuing the recovery of collaborative capability

The consequences of overlooking human capability and the ability to foster relational qualities which lead to collaborative efforts is a significant area of waste in contemporary society. And yet, responding effectively to the scale of global contemporary challenges will require the utilization of previously untapped human capability and competencies. Citing Sen and Nussbaum, Sennett (2012, 292) suggests that ‘people’s capacities for cooperation are far greater and more complex than institutions allow them to be’. Collaborative services such as the Strathcona example offer opportunities for cooperative capacities to be explored. It is vital that such human capacities for innovation are not wasted and overlooked but rather encouraged, and assigned value in programs or studies which seek to measure and evaluate success. As Sennett warns ‘modern times are ill-equipped to meet the challenges posed by [the] demanding sort of cooperation. Modern society is de-skilling people in practicing cooperation’ (Sennett 2012, 8). It is vital therefore that initiatives which develop skills of co-operation are promoted and valued highly.

There are many other examples of citizens who mobilise to participate in creating a new society in an everyday fashion, starting up or engaging in new initiatives concerning for instance mobility, waste management, and so on (Staszowski & Manzini 2013, 92). In order to do this, they need first to recognize idle or underutilized capacity in items which could be more efficiently used, or underutilized capability in people who could contribute meaningfully in their community if offered the opportunity. Manzini & Jegou (2008) suggest that facilitating access amongst a large range of users in a community can be enhanced by following five guidelines; (1) enhance local visibility, (2) fluidity management (support participation by proper infrastructure in order to reduce the time needed to be dedicated to the service), (3) reducing cognitive cost (reduce the need for forethought, and allow more instant use through quick information exchange supports), (4) offering different levels of involvement, and (5) supporting
collective use (develop products for multi users that compensate the burden of self managed collective resources)’ (Manzini & Jegou 2008).

**Capability, Agency & achievement**

Significantly, in the context of recognizing opportunity and mobilizing a response to it, is Amartya Sen’s ‘Capability approach’ which outlines a particular approach to wellbeing and advantage in terms of a person’s ability to do valuable acts or reach valuable states of being. Sen describes the ‘Capability approach to a person’s advantage as being concerned with evaluating it in terms of his or her actual ability to achieve various valuable functionings as part of living’ (Sen 2008, 271). As Sen describes ‘Some functionings are very elementary, others may be more complex, but still widely valued, such as achieving self respect or being social integrated’ (Sen 2008, 271). With respect to freedom Sen suggests that ‘the freedom to lead different types of life is reflected in the person’s capability set. The capability of a person depends on a variety of factors, including persona characteristics and social arrangements’ (Sen 2008, 273). Furthermore Sen suggests there are four different concepts of advantage (1) Wellbeing achievement, (2) ‘agency achievement’, (3) Wellbeing freedom, and (4) ‘agency freedom’ (Sen 2008, 275). For the purposes of recognizing opportunity, and mobilizing a response to it, ‘agency freedom’ and ‘agency achievement’ are particularly important and will be discussed further.

**Collaborative Services**

Collaborative Services stand for considerable change in our everyday lives. These social groups or Creative Communities are part of a deeper transformation currently underway in our society, like the development of a distributed and participatory economy. They give birth to a form of everyday Diffused Social Enterprise (Manzini & Jegou 2008, 25). The following offers a brief overview of the many forms collaborative service can take.

Some collaborative services operate as family like services provided through common family skills and available appliances in the household. Examples of these include a walking bus (mutual sharing of the responsibility of walking children to school), home laundry, micro nursery, family take away. With respect to Sen’s ‘agency achievement’ these ‘family like services’ indicate the achievement of personal agency in mobilizing a response to a difficulty or challenge. By distinction from a mainstream system in which an individual procures services in exchange for a fee or via a welfare system providing a public service, this informal system of exchange empowers those who become involved to exercise their agency and enable themselves and others to achieve their desired ends in innovative ways by sharing their capability and time.

Other collaborative services are based on the sharing of domestic infrastructure or extended home spaces. Examples of this include a multi user laundry, collective rooms (for parties, or sewing), private car-sharing, open handworkshop, or a washing restaurant. Other collaborative services are based on elective communities where circles of people organize to provide mutual help. Examples of this include neighbourhood libraries (for tools, kitchen appliances etc) active shopping list, kids clothing swap. Other collaborative services are based on service club models based on open workshops and the involvement of passionate amateurs. Examples include a wood atelier, second hand fashion Atelier, Gardening clubs. Other collaborative
services are based on Direct Access Networks where people organize to get products and services directly, cutting out the middle service sector.

Looking at the examples of the types of services one can observe that they are diverse in their nature and in the way they operate, but at the same time they also have a very meaningful common denominator: they are always the expression of radical changes on a local scale. In other words they are all discontinuities within given contexts, in the sense that they challenge traditional ways of doing things and introduce new, very different (and intrinsically more sustainable) ones (Manzini & Jegou 2008, 29).

In order to disrupt, create the discontinuity and introduce new ways of doing things, one needs to value the agency of individuals and their capability. As Sen describes ‘The functionings relevant for wellbeing vary from elementary to complex ones such as being happy, achieving self respect and taking part in the life of the community’. Sen’s claim is that ‘the functionings make up a person’s being, and the evaluation of a person’s wellbeing has to take the form of an assessment of these constituent elements [...] assessing the person’s success in the pursuit of all the objectives that he has reason to promote, then the exercise becomes one of evaluation of ‘agency achievement’, rather than of well-being achievement’ (Sen 2008, 276). In this manner ‘the assessment of agency success is a broader exercise than the evaluation of well-being’ (Sen 2008, p76). To achieve or catalyse the foundation of collaborative services, Sen’s notion of ‘agency freedom’ and ‘agency achievement’ appear to be valued preconditions which need to be supported lest they be overlooked or unintentionally wasted.

While all human organizations tend to possess relational qualities to some degree, for collaborative organisations these are not an option, they are the pre-condition of their very existence. Peer-to-peer collaboration calls for trust, and trust calls for relational qualities: no relational qualities means no trust and no collaboration, and consequently no practical results from collaborative services. Manzini & Jegou (2008) therefore suggest that preserving relational qualities is important in establishing collaborative services, and to this end, they offer a further five guidelines: (6) promote availability, (7) keep the relational scale, (8) enhance the semi public status, (9) provide support for participation and (10) build trust based relationships. These acknowledge that the underlying characteristic of collaborative production and services comes directly from their origin: they call for direct action by the people involved and are based on their capacity/willingness to act; through actively seeking to resolve their problems, people generate the side effect of reinforcing the social fabric and improving environmental quality. Manzini & Jegou also note that, most importantly, they are forms of organization where, everybody being active, the distinction between producer and user roles blurs (Manzini & Jegou 2008, 33).

**Urban Settings**

With respect to urban spaces which facilitate collaborative services, discontinuity which challenges traditional ways of doing things occurs as the role of the public authority evolves from top-down initiator of urban development to an open governance posture. Open- source governance allows policy making to be open to citizens’ involvement towards an improved democratic process. It refers also to open and continuous action-research where the core idea is less focused on decision making and more on the animation of the stakeholders participation process (Staszowski & Manzini 2013,149). This latter focus also supports Sen’s notion of ‘agency achievement’ and is aligned with unearthing and activating citizens’ previously untapped capacities, as the innovation in
the system gives them opportunity to participate and apply their talents and exercise their competencies in ways previously not afforded to them.

**San Francisco POPOs: privately-owned public open spaces**

A collaborative services network is supported by the design of urban spaces which can be shared by the community to pool resources. For this reason, the opening up of underutilized space and the intentional creation of urban places which support social connectivity have a significant affect upon the relative opportunity afforded to members of the community to connect with one another and develop, share or further their capabilities. Sen describes this as ‘Agency Freedom’ (Sen 2008, 275).

In San Francisco, an interesting model of privately-owned public open spaces (POPOS) have emerged in the form of plazas, terraces, atriums, small parks, and even snippets, provided and maintained by private developers and occurring mainly in the Downtown office district area. Prior to 1985, developers provided POPOS under three general circumstances: voluntarily, in exchange for a density bonus, or as a condition of approval. The 1985 Downtown Plan created the first systemic requirements for developers to provide publicly accessible open space (as a part of projects in C-3 Districts). The goal was to provide downtown quality open space in sufficient quantity and variety to meet the needs of downtown workers, residents and visitors. POPOS provide a great value to workers, residents and visitors of the Downtown which would be lost if the spaces were not readily identifiable and accessible, so since 2012 a new well-designed logo brands these POPOS to help the public understand the individual spaces as part of a larger network.

Whilst this system of POPOs may have initially been established through requirements of the downtown plan, the ‘agency freedom’ afforded by these spaces to those who frequent the city was evident, as observed by the author on a June 2014 tour (over 2 days) to 52 of the downtown POPOs, because over 85% were occupied by more than 3 people. With respect to Sen’s capability approach, the provision of spatial conditions which afford people ‘agency freedom’ is a vital precondition to ‘agency achievement’. This example illustrates, as Staszowski & Manzini observe that ‘Citizens are increasingly becoming part of the process of creating the *res publica*. Both policy makers and civil servants are starting to realize that the old models of policy making are becoming inadequate to contemporary society’s needs and challenges. [There is a discernible] shift towards new models that lead from a welfare state towards a partner state’ (Staszowski & Manzini 2013, 91). Papnikolaou describes this as “a transformed state that moves from being a patron of corporate interests to being a supporter and organizer of the networks productive activities”. (Papnikolaou as quoted in Staszowski & Manzini 2013, 91). Urban spaces that allow for social connection, are vitally important for social cohesion, ‘agency achievement’ and avoiding wasted human capability since ‘The way we build and organise our living environments can help or hinder social connection. At worst, failed approaches can ‘build in’ isolation, with long-term damage to quality of life and physical and mental health’ (Kelly et al 2012, 4).

**Sophiatown in Johannesburg South Africa**

Sophiatown in Johannesburg South Africa provides another interesting urban space example of Sen’s ‘agency freedom’ and ‘agency achievement’ as important components of nurturing capability and rebuilding social capital and youth participation. Sophiatown was known between 1930-1950 as a symbol of unity and diversity in what
was an increasingly racially divided country. It was in this tiny suburb that South Africans of every group co-existed in a peaceful, if chaotic manner. During the 1950s however, the government began a brutal campaign against 'black spots', and racially integrated areas, such as Sophiatown, became casualties of the government’s new system of forced removals under the Native Resettlement Act (a precursor to the Group Areas Act). From February 1955 Sophiatown was systematically destroyed – schools and shops, cinemas and swimming pools, houses and churches – everything became dust. The legacies of immeasurable suffering as a result of the forced removals and subsequent segregation remain embodied in the contemporary fabric of Sophiatown, as observed by the author during a November 2014 visit.

Today the Sophiatown Heritage and Cultural Centre is run in partnership with City of Johannesburg and exists to promote the revival of Sophiatown as a place where all are welcome, where learning and nurturing are everyday activities, and where people are inspired to build their dreams in peaceful ways. (Sophiatown.net, trevorhuddleston.org and centre brochures procured by the author during November 2014 visit to the centre)

To that end the centre provides an urban place for social innovation where people’s capabilities are valued and encouraging and nurturing them is a priority. For this reason the centre is an outstanding example of unmaking waste[d] human capability, and recovering and reviving capability instead. The Sophiatown Heritage and Cultural Centre is run by the Trevor Huddlestone Memorial Centre (THMC), which has a 12 year history of work with youth, focusing on training and skills development among young people, and its programs work as a catalyst for young people to learn, take action and achieve their goals for life, while linking to and serving, the wider community. In October 2014 the THMC launched the Sophiatown Green incubator, a youth-focused incubator for small businesses in the green economy sector. Unlike some ‘youth programs’ which seek simply to keep teenagers busy, the intention of the Green incubator and other THMC programs is to engage and enable Sophiatown’s youth in the making of its future. In this manner their approach is also consistent with Sen’s ‘agency freedom’ and ‘agency achievement’ as important components of nurturing capability. The THMC has engaged and enabled Sophiatown’s youth in being creators of the solutions, rather than imposing a view or plan from outside the community.

Conclusion

Worldwide we are currently witnessing the rise of services co-produced by common citizens, civil servants and policy makers, i.e. what we call people-powered public services. One could assert that these initiatives can be read as a paradigm shift, which leads from the idea of the welfare state as we know it- with all the different configurations this concept assumed in the different geographical, economical and socio-political contexts in which it has developed- towards something new. This emerging idea of state, based on the direct participation of citizens in the co-creation of public services, has been recently defined in different ways: for instance as “partner state” and “relational State” (Staszowski & Manzini 2013, 90).

The (Vancouver) SBIA Resource Park and Sophiatown examples were both partnerships between the State and community enterprises seeking to innovate in the creation of new people-powered models to serve their needs. Both invested in people and enhancing human capacity and capability in creating a new future. This paper has also presented some of the preconditions necessary to reveal ‘agency freedom’ and ‘agency achievement’ in individuals in order to avoid unnecessarily ‘wasting’ their capabilities.
UK designer Hilary Cottam discusses this new model of state, for the creation of public services which are ‘shared, collective and relational’ as a shift from the welfare state towards a new social pact amongst citizen and state, in which the private citizen is incrementally more and more actively involved in the policy making process (Cottam 2012, np). The San Francisco example of POPO’s utilised a similar, though distinct model which deployed the state’s capacity to legislate development requirements to ensure that a portion of privately developed assets were leveraged for public or ‘common’ good. In all three cases new forms of social innovation have emerged in responding to community needs. Primary in the models they’ve created is recognition of human capability and the importance of supporting and enabling that capability rather than allowing it to be wasted. In this respect, these forms of social innovation are unmaking waste.

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Towards more adaptable housing design: Lessons from Victorian London

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Architecture

Retrofit and adaptation of existing housing are an important part of the challenge to “unmake waste” and widely accepted as necessary for a more sustainable future. The implications of this need for adaptability, however, are rarely considered in the design of new buildings. An example of existing housing that has a long and successful track record of adaptations is Victorian housing in London. Are there lessons that could be learnt from it and could some of its principles be applied to a more open and adaptable approach to housing design?

The paper will provide a critical view of current housing design practices in the UK and contrast these with particular aspects of Victorian housing. The author will draw on conclusions relevant to this topic from his PhD thesis on speculative housing in late 19th and early 20th century London and suggest a number of key points that could inform planning and design practices.

Keywords: Adaptable design, Victorian architecture, housing, London
Large-scale retrofit, reuse and adaptation of existing buildings is a key challenge for the construction industry in order to make our buildings more energy efficient, accommodate changing use patterns and ultimately to unmake waste that would otherwise be generated by the demolition and construction of new buildings. The scale and importance of this challenge is widely evidenced in the literature and media and is reinforced by government legislations and initiatives, for example the ‘Green Deal’ in the UK and the KfW programme in Germany (DECC 2012, CCC 2013, Power 2011). The implications of this challenge are numerous for the way we practice and train as architects. The professional self-image of architects and architectural educators has traditionally been largely defined by the creation of new buildings, rather than by the updating of old ones. This is reflected, for example, in the neglect of retrofit as a course topic in architecture schools (Farrell 2014, 62). A recent UK government-commissioned review of the built environment therefore recommends that “architecture schools should include refurbishment and low-carbon retrofitting of old buildings in their curriculum and project work and conservation and heritage issues in course content” (Farrell 2014, 113). A large market share in the construction industry is already coming from retrofit, adaptation and extension, and this trend is likely to continue. Architects could be well placed to offer the right kind of expertise, if that type of work is taken more seriously and its status is raised in the profession. A good starting point for architectural educators would be to make retrofit, adaptable reuse and heritage (theory and practice) a more central part of our curriculum in architecture schools.

Although this paper is not about retrofit and the reuse of existing buildings, questions relating to these practices inform the argument raised shortly. These questions include: If we accept the need for existing buildings to be adapted and updated, what does that mean for the way architects design new buildings? Wouldn’t we also need to accept and take into account that new buildings are subject to future change – for the same reasons: to accommodate different uses, habitation patterns and energy-saving technologies? As architects, however, we still seem to hold on to an idea of creating architecture as finished products, built for eternity. Most of the housing recently built in the UK seems conceived as such (Figure 1).

This point became particularly apparent to me when I visited ‘Accordia’ in Cambridge, an award-winning recent housing development. I went to see it not long after it was completed because of the high quality of its architecture. It is undoubtedly carefully designed and beautifully detailed. Yet, during my visit, I couldn’t shake off the feeling that its architecture is also very inflexible, to an extent that there is even something totalitarian about it - with no room for its inhabitants to make even minor changes. The architecture is ‘perfect’, but it is also an inherently inflexible kind of perfection. As I walked around the estate, I realized that the conflict between architectural vision and habitation had already begun, which has since also been documented in the architectural press (Figure 2). Another project, which illustrates this point, is Newhall Be by Alison Brookes Architects. The scheme has been nominated for a number of architectural awards but the architecture seems equally unforgiving to alterations (Figure 3). These projects are high-profile and award-winning architecture, but the same points apply even more so for most run-of-mill housing developments in the UK, which are designed to be just as inflexible, but often do not have the same architectural appeal to start with.

Victorian speculative housing was an important influence for Accordia and also Newhall Be. This influence can be seen, for example, in terms of their typology (e.g. terraced houses, semi detached houses) and their window proportions. It is also expressed in the architects’ project descriptions and presentations (Brooks 2009). In recent years in
particular, Victorian housing has attracted much admiration from architects and planners in the UK.\footnote{It should be added that Edwardian housing could be included here as it shares many characteristics with Victorian housing and the two are often seen together. The Victorian Society in the UK, for example, is also responsible for Edwardian buildings, whereas the 20th Century Society deals with buildings from after the First World War.} It is not only used as an inspiration by many practicing architects but was also chosen as having the greatest legacy of any period in a recent survey (Figure 4, Hurst 2008). Furthermore, some have begun to discuss and research its qualities and how this could inspire more sustainable housing design today, such as a recent research project initiated by Richard MacCormac (2005).

Much has been written about how new buildings, and housing in particular, could be designed to be more adaptable. There have also been many studies of examples of flexible or adaptable architecture - from Habraken (1972, 2000), Brand (1994) to Schneider & Hill (2007). However, only few of those, such as Habraken (2000), touch on ways architects could successfully apply certain lessons from historic examples such as 19th century housing to contemporary architecture. Victorian housing in London has a proven track record of successful adaptations over a long period of time. Much of the housing has been transformed and reused for over 100 years and has remained desirable, which attests to its sustainable use of building materials. Are there principles that we could learn from in its design, to inform more adaptable and flexible housing architecture today? In order to answer that question, we would first need to develop a better understanding of the 19th century historic precedents that goes beyond merely an imitation formal characteristics, such as typologies or proportions, which is what architects have focused on so far. I propose that there are other criteria that play an important role in how well the housing has been accepted over its life span.

At this point, I turn to some results of my PhD thesis research that discuss the planning and design of late Victorian and early 20th century housing in London (Kroll 2013). There are four points I highlight in relation to adaptable housing design, which are generally overlooked or misunderstood in the literature.

Firstly, Victorian housing is sometimes presented as particularly repetitive and monotonous, for example by Raymond Unwin (Figure 5). And this is how it could appear at first glance if it is the only style of architecture in the area. However, while there is a degree of standardization in its development patterns (e.g. terraces, semis, detached houses etc.), the buildings are not the same in their detail, but are in fact rather diverse and varied. The basic pattern of development was standardized and repetitive but the design of the buildings allowed for customization and its design language had therefore a degree of flexibility built in.

The reasons for these variations can be found in the process with which the estates and houses were developed, designed and built. It is easy to understand this process when walking down a street of Victorian houses in London. Often, one can see a number of houses built by one builder to one kind of design; the next few houses are built by another builder to a different design (Figures 6 & 7). However, pattern and height of development safeguard architectural coherence. This kind of variation had its root in the nature of leasehold development at the time, which favoured the allocation of plots to a number of different builders, rather than entire estates to large volume house builders, as would typically be current practice in the UK (Figure 8). In the case of the Athlete’s Village in Stratford, London, for example, a large-scale residential development, the same general contractor constructed all of the buildings. Variety in the architecture was introduced, with varied success, by appointing a different architect for each of the buildings.
A second point is that, at least in London around the turn of the century, houses were not built by simply reusing designs out of so-called pattern books. Contrary to popular assumptions, the evidence suggests that houses were generally custom designed for each stretch of houses built by a particular builder (Kroll 2013, 9). The designs were, of course, influenced by precedents – from examples in literature, surrounding areas, or even from designs previously used by the same builder, but there is no evidence that the majority were identical copies of designs from books. Although there were repetitive patterns, such as plot widths, the individual house designs varied. At the start of the planning of a Victorian estate, the end result was often not yet designed in detail, only some key parameters of the development were, such as roads, plot position, width and heights (Figure 9). The remainder of the housing design was often determined by various parties who had a stake in the build-up of the estate. This approach means that such housing estates did not have the same deterministic, fixed architectural vision that Accordia and many other recent housing developments have.

Finally, while the previous points concern the overall estate layout, the next point is related to the detailed design and construction of the houses and how that relates to their adaptability. The external walls of the houses were built in masonry, following the London Building Acts of the time for reasons of fire prevention. The solid masonry construction of Victorian housing means that insulation can be added without the need to rebuild or removing the existing walls. The inside, however, such as floors, stairs, and also many of the walls, are constructed in timber. This makes them particularly easy to alter internally, while the external envelope is durable and remains unchanged. There are countless examples of Victorian housing in London that has been adapted to suit different use and accommodation patterns (Figures 10 & 11).

I propose that architects and urban designers can learn from the design and planning of Victorian housing beyond an imitation of its forms (e.g. window shapes) and instead apply its principles, such as those mentioned above. It would be about learning from approaches that have proven to be successful rather than a pastiche of Victorian architecture.

This paper recaps current thinking on work-in-progress research, which is a continuation of how results from my PhD thesis could be related to current housing design practices. There are different outcomes in preparation as next steps. One is a chapter about lessons from a particular Victorian housing estate in London, the Minet estate, which is to be published as a detailed case study in a forthcoming edited book ‘Mobilising Housing Histories: Learning from London’s Past’ (Guillery 2016). Another chapter in the same book co-written by Sofie Pelsmakers discusses the possibilities for sustainable retrofit and adaptation of Victorian houses in more detail. Furthermore, I am working on integrating issues around the topic of designing for flexibility and future adaptability into design studio projects at UniSA. For next semester, students are working on a site in Goolwa, adapting an existing house, as well as designing a new one, with the aim to test and explore proposals for more open, adaptable, future-proof and therefore less wasteful contemporary housing design.

Perhaps, a key challenge for architects today is not only to update our professional self-image from designers of the new to those also responsible for reuse, adaptation and redesign of the old. The challenge also seems to be to update our professional self-image from designers of architecture that is finished and set in stone, to one that is adaptable and inherently open to change.
Class war breaks out in Accordia as wealthy seek ban on alterations

14 March, 2013 | By Martin Fulcher

Figure 1: Article in AJ about the struggle between some residents of Accordia, Cambridge, UK, who are customizing their homes in different ways, and others, who would like to ensure that it remains unaltered (Fulcher 2013).

Figure 2: Newhall Be housing, Essex, UK, designed by Alison Brooks Architects. The façade is in the process of being repainted because of a mistake in choice of colour, presumably by the contractor (photo by Alison Pooley).
**Figure 3**: Illustration from article in Building Design (Hurst 2008, 1).

**Figure 4**: Illustration showing a map of an area in Fulham, London, from Raymond Unwin’s *Townplanning in Practice* (1909, 5) to illustrate the presumed monotony of Victorian speculative housing.
Figure 5: Turn of the century houses in Calais Street, London, by different builders.

Figure 6: Terraced Houses in Upstall Street, London, built in the early 1890s. The architectural detailing and design of the houses on the left and those on the right varies because they were built by two different builders. Such variations were common in Victorian streets and estates.
Figure 7: An auction map from Lewisham, London, 1906, selling buildings plots in chunks to different builders, which was common practice also in the 19th century (Prior Collection, Item 1586q, Lewisham Archives).

Figure 8: Example of a late Victorian layout for a housing estate in Lewisham, London (Prior Collection, Lewisham Archives).
Figure 9: Adapted interior of Victorian terrace in Highbury, London. Design by Coffey Architects (Source: www.coffeyarchitects.com).

Figure 10: Adapted Victorian house in Hackney, London. Design by Platform 5 Architects (Source: www.platform5.co.uk).
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