

A close-up photograph of a person wearing a grey turtleneck sweater. They are holding a handful of blueberries in their left hand, and a single blueberry is falling from their right hand. The background is blurred.

## SUSTAINABLE DEVELOPMENT AND BUSINESS

Markus Kallifatides and Lin Lerpold (eds.)

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MARKUS KALLIFATIDES AND LIN LERPOLD (EDS.)



SSE INSTITUTE FOR RESEARCH

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**Chair:** Professor Richard Wahlund

**Director:** Johan Söderholm

**Address:**

Stockholm School of Economics Institute for Research (SIR)

Box 6501, SE-113 83 Stockholm, Sweden

Visiting address: Sveavägen 65, Stockholm City

Phone: +46(0)8-736 90 00

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*This book is dedicated to Marie Ehrling for her long commitment to enabling studies of management practice conducted by researchers at the Stockholm School of Economics. Her commitment to research has also greatly contributed to our mission of science-based education and, thus, our students' education. Marie has also acted as an important executive within the sustainability field. She is deeply knowledgeable of the dynamic nature between business and society, encompassing both challenges and opportunities, some of which this book addresses.*



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Stockholm, December 2016

*Markus Kallifatides and Lin Lerpold*

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<sup>1</sup> Up until 2009, the Annual Book was produced by Ekonomiska forskningsinstitutet (EFI), the predecessor to SIR.



## Market practice, policy practice: The quest for urban sustainability

LARS-GUNNAR MATTSSON AND ÖRJAN SJÖBERG

### Sustainable markets in a dynamic urban setting

Although sustainable urban development has been high on the agenda for quite some time, not least as ‘reflected in high-level policy endorsements of the “eco-city”, “sustainable city”, “smart city” and related sister terms’ (Joss et al. 2015: 6), urban environments are as much the source of the problem as part of the solution. As Rees (2012: 247) pointedly argues, ‘modern cities as presently conceived are inherently unsustainable’. If true, and much points in this direction, this is of some consequence at a time when global levels of urbanisation are at an all-time high and increasing.

On the one hand, major urban areas tend to sustain high levels of consumption (e.g., Holden 2004; Bradley et al. 2013). On the other hand, new approaches to urban design do indeed ‘hold promise for a significant reduction in environmental impact’ (Newton 2011: 1). This includes a wide range of opportunities, such as improving the utilisation of existing infrastructure, lowering costs in supplying public transport and the potential of using big data for sustainability ends. However, it is also an increasingly common view that higher densities, digital solutions and green technologies might not be the panacea they are often thought to be (Gordon and Richardson 1997; for a review see Ewing and Hamidi 2015). Also, leaving the second law of thermodynamics aside, and thereby ignoring the dissipative nature of urban areas (Rees 2012), smart city approaches to urban design will likely not compensate for the higher levels of consumption – of energy, of building materials or everyday consumer goods – often observed in major cities. Indeed, there is little to indicate that the ecological footprints of urban areas in general and

that of major metropolitan areas in particular are about to be cut back within any reasonable time frame, despite the observation that urban areas may have certain advantages as seen from a sustainability angle.

This is of some consequence, not least from the point of view of policy interventions and societal strategies to combat climate change and other outcomes of unsustainable development. Such interventions often take the form of technological ‘green fixes’ (Holgerson and Malm 2015) sponsored by public policy. Development, implementation and further adaptation of new technology depends on the actors and resources that reside in markets. Thus both public policy and markets and the interaction between them matters. We argue that to understand conditions for sustainable development, much more needs to be known about this, since market economic principles, in one form or the other, dominate the global economy. Both policy and markets are embedded in and affected by institutions, markets themselves being an institutional arrangement (e.g., Boyer and Hollingsworth 1997).

In line with this, we adopt a practice perspective, that is, we focus on what policy actors and market actors actually do in their respective domains and how these practices are interconnected and may produce change (e.g., Kjellberg and Helgesson 2006, 2007; Whittington 2006; Nicolini 2009; Araujo et al. 2010). In discussing the role of markets for sustainable development, as in this chapter with reference to urbanisation, it is therefore important to consider how markets are influenced by public policies addressing sustainability – and vice versa (Mattsson 2016b). Policy can encourage or impede specific market behaviour, for instance through subsidies, taxes, product bans, rules for public procurement, urban planning norms and so forth. New technologies and new business models developed and implemented in markets might in turn stimulate new policy initiatives.

Neither markets nor policy exist in isolation. Markets are part of wider systems, “networks of markets”, comprising both cooperative and competitive relations. Likewise, policies are part of wider policy domains (and may additionally be the object of lobbying). A focal policy might be supported by or counteracted by other policies. For instance, competition policy might support or counteract innovation policy. Local policies might be affected by national policies that in turn are dependent on international or even global policies.

Empirical studies of market practice have shown that interaction and exchange relationships between actors are of crucial importance to achieve

operational efficiency as well as effectiveness in terms of innovation (e.g., Kjellberg 2001; Håkansson and Waluszewski 2002). Both cooperative and competitive direct and indirect relationships extend across markets as traditionally defined. This is the case as regards technical innovation as well as globalisation. Thus, what happens in a market is induced or else influenced by actions, resources and outcomes in other markets. The degree to which this might be material for specific outcomes is an empirical question that has received an affirmative answer in many studies. Such studies have also developed conceptual frameworks focusing on interdependencies and interaction in markets (e.g., Håkansson and Snehota 1995; Håkansson et al. 2009).

The need to situate markets and market actors in relevant contexts or settings as regards urbanisation is also a conceptual issue. By focusing on the shift of population, as opposed to viewing the urban as something static, we are better able to capture economic change. This is of some consequence as economic activities in markets, interacting with policy, both follow from and might be instrumental in inducing urban growth or decline.

This contribution thus sets out to situating sustainable markets in a dynamic urban context, in which public policy practice interacts with market practice. Focusing on markets as parts of wider systems of markets, and public policies as parts of wider domain of policies, it asks how one might trace effects across this system. As soon as we endorse, in the spirit of the Brundtland report (WCED 1987), the multi-dimensional nature of sustainability in an urban setting, we inevitably not only encounter the traditional trade-offs that economics makes explicit but also the often conflicting needs that the goals of environmental, social and economic sustainability generate. Thus we need to consider the role of markets not only for economic and technical innovation, but also for social innovation. This is a tall order, to be delivered in small, or very small instalments. We will, as an illustrative empirical case, use the urban development project Hammarby Sjöstad and related developments initiated by the City of Stockholm, focusing on some of the efforts by the city (politicians, planners) to induce the business sector to use more sustainable market practices, including implementation of sustainable technologies.

We define a sustainable market to be a market that supports sustainable development, while an unsustainable market does not. The notion of sustainable development implies that dynamism is a necessary attribute of sustainable market practice (Mattsson 2016a). Empirical studies, with results that



might be interpreted to show the existence of sustainable markets in the relative sense, include work by Sweet (2000), Håkansson and Waluszewski (2002), Geiger et al. (2014) and many others.

### **In an increasingly urban world**

Urban areas are ‘a key to sustainability’, or so the originators of the idea of ecological footprints suggest – though in the very same breath, they proclaim that cities ‘cannot be sustainable’. On the one hand, as ‘*no city or urban region can achieve sustainability on its own ... cities have become entropic black holes drawing in energy and matter from all over the ecosphere*’ (Rees and Wackernagel 1996: 236–237, italics in the original), creating an abundance of waste and degraded resources in its wake. On the other, there are a number of advantages of cities which might render them potentially more sustainable, as affected by policy and market practices, if not sustainable in an absolute sense, than other forms of settlement. This includes economies of scale in the use of resources, the management of any resulting waste and the recycling thereof, better prospects for a shift to non-fossil fuel modes of transport and more efficient use of land (Mitlin and Sattertwate 1996: 42–43; also e.g., Meyer 2013). Thus, allowing for the notion of outcomes being more or less sustainable – as opposed to sustainability being a binary issue of either being sustainable or not being sustainable (e.g., Berger 2014) – we may ask whether cities are a more sustainable (or at least less unsustainable) form of settlement than are others, such as rural settlements or small towns.

Posed in this way, urban solutions contributing to more sustainable/less unsustainable outcomes would qualify as improvements and, to the extent that markets contribute to this movement in the right direction as seen from the vantage point of sustainability, they would qualify as sustainable markets (e.g., Mattsson 2016a: 342–343). Whether they also allow for truly sustainable development is of course yet another issue, one that is made more complicated for the fact that there are several sustainability goals that might not be easily aligned with each other (e.g., Spaiser et al. forthcoming). Furthermore, temporal change and spatial variation in sustainability concerns need to be taken into account.

But what about urbanisation, the seemingly relentless movement from rural to urban and from small urban to larger such centres? Whether or not we put faith in the statistics that suggest that 54 per cent of the global population reside

in urban areas (2014), and that the urbanisation level is poised to increase to 66 per cent by 2050 (UN 2015: 7), the issue at stake is really whether adding people to high-density settings will do more good than harm. Already today, according to a widely circulated statistic, urban areas are thought to account for more than two-thirds of humankind's use of energy and to contribute more than 70 per cent of energy-related greenhouse gas emissions (e.g., UN-Habitat 2011: 51–52), but any such calculations are fraught with uncertainty and we may in fact arrive at the opposite inference. Thus, for instance, Dodman (2009) concludes that cities have lower per capita emissions than do the countries where they are situated, while Rybski et al. (forthcoming) maintain that scaling effects might at least in developed economies make urbanisation desirable from a climate change mitigation point of view. This in part depends on whether we assess production or consumption (e.g., à la urban ecological footprints) – we should assess both – but differences in lifestyles (in part hinging on levels of income) seem to reduce any advantages urban areas might have with respect to per capita greenhouse gas emissions (e.g., Heinonen and Junnila 2011).

What we do know is that much current urban growth takes the form of adding to slums (e.g., UN 2015: 2; Eriksen 2016: Ch. 5). This is almost by definition not socially sustainable, but is also likely to contribute adversely to other dimensions of sustainability. In the high income part of the world where the utterly unfavourable conditions typically characterising informal settlements are less of a problem (although they are present also there), transportation is a major source of environmental impact, but so is the building and running of the built environment itself. To the extent that we add to both population and the stock of buildings and infrastructure, urbanisation per se is not a solution but a problem. Only if the additions to existing urban areas will contribute towards reducing the overall per capita impact – urban and rural – can it be seen as positive contribution. Which is not to suggest that smart, green solutions should not be attempted; what it does suggest however is that such solutions have to be very successful to compensate for the increase in urban areas and population. The built environment, and its relative low level of plasticity, makes this more complicated still, as the turnover is low and the contribution of the new, no matter how superior, will only be of marginal significance; retrofitting of energy and other infrastructural systems, therefore, is an important adjunct to the introduction of high-performing new buildings (e.g., UNEP 2007; Onat et al. 2014; Bouzarovski 2016). The observation that construction

itself contributes as much to greenhouse gas emissions as do the everyday maintenance and use of that which has been constructed (be it buildings for commercial, industrial or residential use or infrastructure), does make the introduction of new types of facilities less attractive than it might at first seem (for a Swedish example, see Liljenström et al. 2015).

That there are opportunities here that could be exploited for sustainability ends is not to be denied, though. In part, it depends on the rate of change, but in part it also depends on the qualities and characteristics of the new additions or replacements. Precisely because of the slow-changing nature of the built environment, decisions made at the time of construction will have long-term effects, and for this reason it is imperative that they meet high standards. But there is more to it than just the direct use of energy by buildings and transportation or construction materials. By way of just one example, while the connection between urbanisation and the food system, be it in terms of sourcing, food security, or consumption patterns, is not entirely straightforward, the design of urban areas may induce both less waste or its opposite, just as it may privilege car-based transport or walkability (e.g., Seto and Ramankutty 2016). Add to this the consequences of phenomena ranging from food deserts (e.g., Shaw 2006) to income and peer effects (Sakha and Grohmann 2016) and it is quite clear that the characteristics of urban areas are likely to impact overall outcomes. As such, effects can also be found in consumption and investment decisions at the level of individuals and households beyond food or the favoured mode of commuting, as for instance studies on spatial peer effects in the adoption of photovoltaic energy systems have shown (Graziano and Gillingham 2015), we may begin to appreciate that urban size as well as the rate of urbanisation, and the form that urban growth takes, might be of some consequence. Indeed, research on urban energy use suggest that the urban form itself may play a part (Holden and Norland 2005; Creutzig et al. 2015).

Thus, urbanisation may have both negative and positive sustainability consequences, and it is important to understand how policy and market practices may interact to push development in a positive direction, or in the wrong one. Here we will also point to the important, potentially growing role of civic society as affecting both policy practice and market practice, for instance by multi-stakeholder initiatives to reduce the dominance of shareholder value in market practice (e.g., Öberg et al. 2015; Mattsson 2016b).

Important as the rate of growth, size and urban form are, there is more to urbanisation than this – and the additional dimension we have in mind might make a difference when it comes to thinking about issues of sustainability. This is the case because size and form are often used as independent variables in assessing the degree to which localities, activities and, not least, the behaviour and proclivities of urbanites have an impact on sustainability outcomes. Yet urban centres must not be thought of as isolated entities, or at most as entities sitting at the centre of an urban hinterland. Whether large or small, increasing in size or declining, urban centres are also bound together in a dynamic system of interaction at the core of which we find a division of labour, or sorting, which reflects the differentiated ability of firms and economic activities to weather the likewise differentiated costs across the urban hierarchy; this in turn suggests that resource heterogeneity within markets and across market networks are relevant to urbanisation processes. We are accustomed to thinking about urban hierarchies in terms of population size distributions or administrative functions, but also as seen from the vantage point of economic structure, urban places differ in a regular and systematic fashion. Not only are cities typically the home to a wider range of economic activities and industries than are towns and smaller settlements, and often offer both wider and deeper labour markets (i.e., a broader range of occupations with a larger number of positions within each, respectively), but over time they tend to see a succession of activities.

It is useful to think about this in terms of the product or industry cycle, which incidentally was first formulated based on observations in one of the great metropolitan centres of the world, New York (Vernon 1966: 196). The larger the centre, the more likely the place of origin for new industries (greater innovative prowess, better market conditions, a wider pool of not just entrepreneurs but also professionals and skilled workers, etc.), but as competition starts to erode the earning power of pioneering firms, they are induced to look for new locations of production. Much can be said about this ‘settlement-size, industrial sorting process’ (Moriarty 1991: 1573), suffice it here to note that the process of relocation of incumbents, and the replacement of incumbent firms and industries by others, has a long history and seems to be a trait common in market economies (for a recent review, see e.g., Hagström and Sjöberg 2015). Underlying this process are productivity and earning capacity – high levels of either one of which, or both, are required to weather

high levels of costs and/or competition from as yet more successful firms and industries. The result is a process of filtering or sorting across the urban hierarchy, as reinforced, if we accept the argument by Sassen (2001), by a process of centralisation of capital and ownership.

At the level of the individual, and at least when disregarding any intra-city social polarisation as might result (e.g., Sassen 2001: Ch. 9; but also Nørgaard 2003), this translates into higher wages and perhaps also an urban wage premium reflecting the existence of agglomeration economies and learning effects (Glaeser and Maré 2001; Puga 2010). Put differently, it does not come as a surprise that larger urban centres are not only more likely to see a greater demand for local transportation services but are also likely to support a different set of lifestyles and patterns of consumption than do smaller urban centres, where incomes for the most part are lower (as are, quite likely, the level of education and other similar expressions of sorting; Shapiro 2006; Eeckhout et al. 2014). This has implications for anyone taking an interest in urban sustainability, including the role that markets serving the various communities that make up the urban archipelago might play in furthering sustainability goals. One such implication, which can both be a threat to sustainability but also a part of the solution, is the nature and diffusion of ideas. Irrespective of where they originate, there is a tendency for new ideas and fashions to spread across the urban system from the top down. This form of expansion diffusion is known as hierarchical diffusion (Gould 1969): once something takes hold, it subsequently filters from the source through the urban hierarchy. Another form of expansion diffusion, labelled contagious, is perhaps more likely within an urban area. In either case, more or less sustainable lifestyles and patterns of consumption might therefore take hold in ever wider circles, geographically and socially, once they have come to be seen as desirable beyond the source of origin. The role of markets, but also the opportunities to create and shape markets, in allowing for emulation across groups of consumers should not be neglected.

As seen from the vantage point of sustainable markets, the argument set out so far has further implications. For one thing, it helps define the markets where our analysis might usefully begin. Two that immediately can be identified as being of critical importance are the markets for real estate – be it industrial, commercial, or residential – and labour. With the former comes an equally immediate connection to capital markets in their various guises, with

the latter a link not only to real estate in the form of places of work and housing but also to consumer markets and transport services. Energy markets therefore are another candidate for our attention, as are those of construction materials and the systems put in place to supply the necessary physical and social infrastructure, including that for managing waste. Depending on the objective of the research, the analysis can be driven quite far. Also, if we restrict ourselves to the dominating framework in economic theory, defining a market as supply from a specific “industry” and demand for this supply (architectural services, transport equipment, building contractors) it is evident that building projects, of both traditional and innovative nature, involve output from all these industries and many more.

The forms and tools of governance are a natural adjunct to such observations. Similarly, policies that leverage markets, or influence them one way or another by means of the rules they set or the norms they embody, are as a result of importance. But not least in an urban setting, we also need to think of policy practices that are integral to the implementation of governance structures and mechanisms. This includes land administration and town planning, both in their capacities as policy tools and a focal point of professional practices. Not only is urban (re)development typically a project-based activity, which crucially depends on the availability of land and its qualities (such as location), the process of real property formation links owner, property rights and markets in land and buildings in a structured process. As well as setting the conditions for the establishment and transfer of titles, along with planning itself, this process is furthermore part and parcel of any transformation of the use of real estate as might be permitted. Since all these practices differ across countries and time (for the Nordic countries, see Kort og Matrikelstyrelsen 2006; Mattsson 2011), the specific setting is critical, but this is also true of institutional arrangements more generally.

### Urban markets

So far, in addition to having outlined the options in defining a sustainable (as opposed to an unsustainable) market, we have also identified the markets which it would be useful to set out from. This should allow us to begin discussing the role of urbanisation and the role of markets in urban sustainability outcomes.

As already made clear in the previous section, ‘well-functioning markets depend on detailed rules’ as one of the pioneers of market design has put it (Roth 2007: 118); these rules, which combined can be thought of as making up the institutional environment, result in an institutional arrangement (in this case a market) which assumes a specific form and method of operation depending on the nature of the set of rules and norms that pertain. With rules and norms also come enforcement characteristics and thus any (threat of) sanctions as might be applicable. There are many examples of how public monopolies in services sectors (like telecom, schools, health care) have been abolished and markets have been shaped and reshaped, involving not deregulation but reregulation. Sorting out what these rules are is largely an empirical issue, ideally to be arrived at through ‘a deep, substantive understanding of the domain at hand’ (Reiss 2016: 298). But since theorising is important in policy practices (cf. various aspects of competition laws) to make relevant inferences it is equally important to consider the possibilities of additional precisions as to what markets are.

Markets perform more than resource allocation. Markets also may perform innovation and (co)create value. In market practice, present exchange practice and deployment of new business models will affect prices, as well as the interdependence between markets and in turn sustainability. Markets are shaped and reshaped, also subject to the strategy on the part of participating agents. By way of an example, contemporary developments in the application of information and communications technology such as the role of technical platforms that serve to change business models for service providers might have an effect on sustainable development in urban areas (Andersson and Mattsson 2015).

On the basis of this understanding, we will now turn to an example illuminating what an analysis of sustainable markets might entail. We have selected the notion of sustainable cities as the starting point, using the policies and developments on the ground within the City of Stockholm. As such, our material primarily deals with the impact of policy decisions and policy practice on markets and their contribution to sustainable outcomes; material outcomes of influences in the opposite direction are of course also conceivable and relevant. The case highlights the technical opportunities for improved sustainability performance that primarily digital technologies afford, and the *problématique* of fitting it into a pre-existing environment, but also illustrates the importance of recognising that ambitious targets and successfully execut-

ed strategies and plans are products of their time. It also indicative of how various interests might be entangled.

### **Smart sustainable city, Stockholm style: A green municipality leading the way?**

In 2010, Stockholm assumed the role as the European Green Capital, the first one ever. At once both rewarding cities for past performance in terms of attaining high environmental objectives and encouraging them to aim for ambitious goals in the field of sustainable development for the future, the Green Capitals of Europe are to set an inspiring example thereby promoting the adoption of best practices. The focus is very much on environmental issues, with climate impact and environmental management being core concerns. Not surprisingly, other sustainability goals are pushed into the background, ‘eco-innovation and sustainable employment’ just about being the only area where environmental concerns are matched by social sustainability. Yet, in reports and promotional material published by the city, this is often – be it by design or not – equated with sustainable urban development, or more specifically ‘Stockholm’s approach to sustainable urban development’ (e.g., *Stockholms stad 2011: 30*) is suggested to be environmental sustainability and little else. Does this imply that other sustainability goals are irrelevant, already achieved, or expected to follow from “green” achievements? This is the first question we ask in this short section, the second one being if initiatives launched depend on administrative or planning practices in their entirety or whether markets are leveraged in some way (e.g., through procurement strategies or incentives).

It might be unfair to criticise the city for not being ambitious enough or not putting equal emphasis on the full range of sustainability goals. Sweden, including its capital, is after all a relatively egalitarian society which has made environmental stewardship a priority. This is evident not least in Stockholm, which has earned high marks in a variety of competitions and evaluations (e.g., Floater et al. 2013; *Stockholm stad 2015a: 17*). However, it is not just that other sustainability goals have until recently been left outside the scope of the main sustainability strategy of the city. Also, or so critics remark, the environmental perspective is narrow in the sense that greenhouse emissions are only taken into account if produced in Stockholm (Axelsson 2012), energy efficiency of buildings in use takes the upper hand relative the consequences of



construction itself (Lind et al. 2013) and there is little sense of how to prioritise across a large number of desirable interventions (Hårsman and Wijkmark 2013). As a result, even though mobility issues figure quite prominently (there is a mobility strategy, just as there is a climate strategy) and although some documents acknowledge the importance of retrofitting (e.g., Stockholm stad 2015a: 12–14), one easily gains the impression that two new urban districts alone will be able to make all of Stockholm environmentally friendly. Similarly, although the main current policy document as approved 19 October 2015, the Vision 2040, carrying the title *Ett Stockholm för alla* (A Stockholm for everyone), does in fact discuss social and economic sustainability – indeed it aims at an inclusive, financially and democratically sustainable city (Stockholm stad 2015b) – as does the current city plan (Stockholm 2010a; a new one is expected in late 2016), there is no indication or acknowledgement that there might be important and potentially unresolvable trade-offs at play, nor that policy practices and market practices, or the interaction between the two, matter. The potential importance of civil society representation in multiple stakeholder initiatives as efforts to bridge policy and market practice is not acknowledged in these reports (cf. Öberg et al. 2016). In that sense, the notion of green fixes seems equally relevant to Stockholm as to other cities in the country where environmental programmes have been vigorously promoted in policy documents (as in, e.g., Malmö; Holgersen and Malm 2015).

It is not that Stockholm is oblivious to other potential interventions. As per the same strategic vision document, Stockholm is also to be ‘the smartest city in the world 2040’, which includes considerations of economic, ecological, social and democratic sustainability. And the budget for 2015 readily acknowledged the urgency of building a socially inclusive and sustainable city, with a commission set up for that purpose (Stockholm stad 2014a) and a number of background reports having been commissioned (e.g., Dahlin 2015; Legeby et al. 2015). So far, however, just as is the case with the environment being the main focus for its initiatives on sustainability, arguably the most prominent aspect of a smart Stockholm is the focus on digitalisation and (at least up to a few years ago) “green IT”, with the municipality also priding itself on being the largest supplier of open data in the country (Stockholm stad 2016).

For now, most initiatives in the area of digitalisation focus on the physical infrastructure needed for it (through AB Stokab, owned by the holding company of the City of Stockholm, Stockholms Stadshus AB) and the use of digital

solutions in municipal activities. This adds to the environmental solutions tried out in the brownfield redevelopment zones of Hammarby Sjöstad, launched in the mid-1990s, and Norra Djurgårdsstaden, started in 2011 and promoted internationally as Stockholm Royal Seaport (a third one, Västra Liljeholmen/Lövholmen, is part of the general plan for Stockholm; Stockholms stad 2010a). In addition to this, the GrowSmarter project, funded by the EU, includes Stockholm as one of three “Lighthouse cities” (the other two being Barcelona and Cologne) which are to try out new technological solutions in the areas of energy, mobility and infrastructure, the reduction of emissions being the key objective. In Stockholm’s case, the district of Årsta has been selected as the primary site.

All of this is no doubt needed, because, as has been pointed out by Bradley et al. (2013: 178), the ecological footprints of Stockholmers compare unfavourably with those of the rest of the country’s population. The prospects for achieving some success in changing this might not be that easily forthcoming, however, not only because the impact of these laudable initiatives has yet to move from relatively small-scale projects to the city as a whole, but also because the unidimensional focus on technical solutions to the exclusion both of other sustainability goals and the limits of technical solutions that take current patterns of consumption as a given. It is as if all problems are solved by engineering. True to form, the new residential areas Hammarby Sjöstad and Norra Djurgårdsstaden have typically been promoted as a good fit with Stockholmers’ preferred lifestyles, primarily because of the ease with which residents can act sustainably.

Such solutions, which decidedly can help cities reduce their climate impact, appear to be particularly useful in the operation of transport and the heating of buildings (e.g., Kramers et al. 2014) and could as such no doubt find support among smart city initiatives in general. The Stockholm version of this, as espoused by the “green IT” programme and the “e-strategy” of the city (Stockholm stad 2010c and 2013, respectively), has focused on improving the energy efficiency of IT systems themselves and on leveraging IT for more sustainable solutions compared to the status quo. Thus, actions are restricted to the municipal administration and the companies controlled by the city itself (e.g., AB Familjebostäder, AB Stockholmshem, AB Svenska Bostäder, Micasa Fastigheter i Stockholm AB, Skolfastigheter i Stockholm AB, and Stockholm Globe Arena Fastigheter AB in the area of real estate), not beyond.

This is also true, at least initially, as regards the solutions for the intelligent transport systems that the city promotes. In either case, the use of procurement as a tool for achieving sustainability goals through markets is recognised, but unless it leads to changes in those markets or some form of demonstration effects, the impact does not extend to the city in its entirety.

Another item of the green IT strategy, strategic transport planning, does have that capacity. Yet, other than Stockholmsförsöket (the Stockholm trial) on congestion charging initiated in 2003 and now made permanent (see e.g., Congestion Charge Secretariat 2006; Eliasson 2014 and the literature cited therein), city-wide initiatives have been rather low-key and evaluation results have been not widely disseminated. And while quite a few companies, including IBM, which delivered a significant part of the systems needed for implementing congestion charges, have been involved, there is no systematic evidence that public procurement has had widespread effects on the business sector's mode of operations (but then, at least to the best of our knowledge, there appears to be little evaluation of any such effects that might have materialised).

The auditing commission of the municipal authorities, Stadsrevisionen, has not as far as we are aware specifically looked into the IT strategy of the city, of which the green IT strategy is now (a seemingly rather minor) part, but then the current version of the strategy, Digital förnyelse (Digital renewal), has not run its course (Stockholms stad 2013). The procurement policy in general – as noted above, an important part of the green IT strategy – has been scrutinised by the commission, but it notes that the opportunity for procuring innovative solutions has barely been used. The one case mentioned relates to the removal of construction waste in Norra Djurgårdsstaden, but then the possibility of such objectives is a very new element of the procurement policy (Stockholms stad 2014b). As for environmental policies and the assessment of environmental impact, policies and routines are said to be in place, but follow-up and evaluation are not systematically conducted (Stockholms stad 2015c). This is also the assessment with respect to improved energy efficiency in the real estate sector under the control of the municipal authorities conducted a few years earlier: goals have partly been met, but not in full, and evaluation and follow-up still leave quite a lot to be desired (Stockholms stad 2010b). What would be of particular interest is if it could be shown to have spawned a response amongst entrepreneurs and, if so, whether this also implies that new markets have been or are in the process of being created.

As for the environmental initiatives created by the development of new urban districts, the results appear mixed. For even as Hammarby Sjöstad has been hailed as a truly innovative eco-district, and as such it has received much attention nationally and internationally, assessments as exist are not universally impressed. Thus, to the extent that the achievements of Hammarby Sjöstad can be evaluated, Pandis Iverot and Brandt (2011) suggest that it has been successful relative its environmental objectives (metabolic flows have been reduced in comparison with other districts), but the evaluation is rendered difficult because not all goals as originally set are matched by valid and reliable data with which to conduct the assessment. Individual parts of the efforts to build advanced systems allowing for substantially reduced impacts, such as in water management, have been evaluated in greater detail; while generally positive, and with important lessons for the future, the picture is somewhat mixed, not least when trade-offs between environmental effects and financial considerations have to be taken into account (e.g., Hellström 2005). Also at a more general level, conflicts with respect to environmental management goals have been identified (Svane 2008) and Rutherford (2008: 1878) notes that along the way non-environmental sustainability goals, such as social integration, were dropped altogether. Thereby the focus shifted still more firmly onto the environmental, where energy efficiency and recycling have taken pride of place.

As for the other major eco-district, Norra Djurgårdsstaden, it is simply too new to have generated much in the way of evaluations, at least of the academic variety. However, Svane et al. (2011) report that some important learning generated by the Hammarby Sjöstad brownfield development fed into the designs for Norra Djurgårdsstaden. This is at once both salutary and serves to underline that we need to see developments in context, not least time-wise (both with respect to timing and sequence). All projects, no matter how ambitious and successful, are likely to reflect the knowledge and priorities of the time. It also appears that this transfer of experience and insight is not primarily carried out through the intermediation of market, but rather as an outcome of planning practice; at most, they are imposed on markets.

Given all of this, and given our focus on how policy practice and market practice interacts to promote sustainable development, one may therefore well ask, why market practice is not explicitly part of the narrative or analyses to any important extent. Does it not have a role in these developments? Neither

the smart city nor the eco-districts are purely public-sector affairs, not least because a large number of private-sector contractors, embedded in market networks, have taken part in the developments. Even so, positive effects – favourable sustainability impacts, provision of public goods – seem to issue primarily from policy practice. There are many business firms that have taken advantage of the benefits that new technologies afford, including IT solutions and big data. Such technologies are to an important extent developed in and applied in market networks for business purposes. It may or may not promote sustainable development; it is really an empirical issue, as is also the case with the beneficial effects, or otherwise, of policy solutions and interventions. Yet there is no denying that market practices can come into conflict with policy practice. An example, to be found in Hammarby Sjöstad, is the reaction of building contractors to the environmental goals set by the city. The reaction was often negative – the goals were simply too ambitious, technically complex and expensive given the size of the project – and this despite the fact that contractors had a considerable say in choosing the technologies and technical solutions to be used as long as they achieved the set goals, and at times the chosen technologies offered support in the form of subsidies (e.g., Bylund 2006; Green 2006).

This could be, one might assume, a result of the cost of moving away from the tried and tested mode of operation, but also because of the uncertainty of being able to make use of such investment for future projects. Not only is there a temporal dimension that might imply a change of focus or priorities; the ability to use the new solutions in other development projects across the wider urban hierarchy is not self-evident. On a more positive note, the developments of eco-districts in Stockholm appear to have led to an expansion of the cleantech sector locally (Weber and Reardon 2015); if so, this is in line with other recent findings elsewhere in Sweden where municipal initiatives with respect the development of green services do spill over to the for-profit sector (Hermelin 2016). Firms involved in the quite diversified cleantech industry might be able to disseminate and further develop technologies aimed at sustainable development, in interaction with other market actors. Thus, local policy practice might help strengthen market practice for sustainable development outside the local area.

### So where does this take us?

Time and again in our inquiries of the literature, we have found disagreements about whether urbanisation is good or bad for sustainable development and if and how specific policies lead to its desired outcome. We would even argue that there is a distinct lack of serious discussion of the role of markets in terms of the sustainability outcomes of urbanisation and how policies interact with markets towards sustainability ends.

Markets are complicated phenomena, at quite some remove from the demand and supply schedules of introductory economics. It is not that demand and supply, and the market as a price making and allocation mechanism, do not matter – they certainly do, not least in an urban setting, as everything from lifestyle-induced patterns of consumption to the supply of urban living space and infrastructure bear witness to – but in order to assess the role of markets in sustainability outcomes, we need to move beyond that.

To this end we have adopted a practice framework, in which policy practice interacts with market practice. We have highlighted the fact that markets do not operate in isolation from other markets and that policies to address sustainable development need to interact with markets for markets to promote sustainable development. Also, individual policies are not isolated from other policies that might support or counteract the focused policy. The empirical question of whether markets are good or bad for sustainable development needs to be handled in a suitable conceptual framework.

Yet, even if the sustainability outcomes of markets interacting with urbanisation could be established with a measure of confidence, the mere fact of being better than the alternative is not to be equated with being good enough. It might represent an improvement over other options, but it might only serve to put off the inevitable for some (undisclosed amount of) time; indeed, as Brooks (2016: 119) recently has argued, it might not even be a problem that can be solved: ‘a future environmental catastrophe is an event we might at best postpone, but not avoid.’ If urban areas are the ‘entropic black holes’ that Rees (2012: 261) suggest they are, sustainable markets understood as markets that improve upon the status quo will be of little consequence, at least in so far as they are conceived as devices for achieving less unsustainable outcomes. Instead, it would lead to the question, what would sustainable markets that allow for true sustainability look like?

Conflicting sets of goals and priorities also serve to highlight that interests, be they material or ideational, matter. Without entering that debate, looking forward, we should perhaps think of sustainable markets in terms not only of the potentially conflicting goals of the sustainability agenda, irrespective of it being approached from the (somewhat worn?) perspective of the Brundtland report or from the current sustainable development goals, the SDG 2030. In addition to that we might benefit from thinking, as does Brooks, in terms of the dual agenda of conservation and adaptation. Add to this that the market, sustainable or not, is as much a process as a place (or 'place') where buyers, sellers and other market actors meet. Market practices and policy practices capture the market as well as non-market dimensions of actions that might impact market behaviour and its effects on sustainable development. By way of some examples, and just for training our thoughts with respect to sustainability, is it a question of how to go about inducing less wasteful uses of both non-renewable and renewable resources? If so, what role could markets play – and what is it that they cannot do? Or is it rather an issue of immediately pushing for sustainability in some absolute sense? If so, would there be a role for markets at all? However, since we live in a market economy, it is the role of policy practice to interact with market practice to make it matter. It would be a case of being zealots to a fault, doing nothing simply because we cannot achieve the ultimate goal with the insights, tools and resources currently at hand. In the meantime, it is an issue of how we are to mitigate the effects of processes that have already been triggered but also those that might result from our attempts to find workable compromises under conditions of uncertainty with respect to outcomes.

As a result, the manner in which actors consciously go about creating and shaping markets, and also the very performativity of markets, both come across as important inputs to our understanding of how sustainable markets work and the effects they might have. Here we have a long way to go, but we have also emphasised that we need to consider the parallel and interacting case of policy practices and how they might influence the workings and effects of markets in terms of sustainability criteria, before we might be able to successfully address the issues of origin and outcomes. The case of Hammarby Sjöstad, which has attracted a considerable amount of attention, reinforces our observation that the interaction between policy practice (what is done, not only what is said in policy documents) and changes in market practice is hardly ever treated.

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