

The Copenhagen Metropolitan 'Finger Plan'

A Robust Urban Planning Success Based
on Collaborative Governance

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The Long Shadow of a Post-War Expansion Plan

The metropolitan area in the Danish capital of Copenhagen has successfully avoided both urban sprawl and overly dense and chaotic urbanization. The early adoption of a comprehensive and adaptive urban plan has created a well-balanced, award-winning metropolitan area that combines residential neighbourhoods with green areas and access to public transport. The urban plan was drafted seventy years ago and still governs urban planning practices in the greater Copenhagen area.

Physical planning of urban developments is extremely complex due to conflicting pressures on land use, contradictory socio-economic dynamics, uncertain prognoses and outcomes, multi-level governance structures, and limited public planning capacities. In addition, comprehensive planning of housing and supportive infrastructures often fails because planning experts dream up ambitious master plans that have little or no bearing on local conditions, knowledge, and needs and only enjoy modest political and popular support. Finally yet importantly, socio-economic turbulence, shifting political priorities, and bureaucratic resistance may undermine stated planning objectives and preferred strategies for how to attain them. Against this background, it is surprising how successful the so-called 'Finger Plan' in Copenhagen has been in governing decades of urban expansion in ways that secure desired outcomes in terms of high quality urban living and continuous support for core planning objectives by elected politicians, public planners, private stakeholders, and citizens.

The Finger Plan was conceived in the optimistic post-war years from 1945 to 1948 when pressure on land use outside the city centre was still limited. It was initiated by the private Urban Planning Lab and implemented by a dedicated group of planners in the semi-independent Regional Planning Office. In today's terminology, it was a bottom-up policy initiative that managed to garner support

from local, regional, and national government officials as well as a broad range of interest organizations and civil society associations. Political support was so strong that the Finger Plan soon became the official planning doctrine of public authorities in the Copenhagen metropolitan area, effectively turning it into a top-down planning strategy.

The Finger Plan provided an ambitious and comprehensive plan for how future urbanization in the Copenhagen metropolitan area should cluster around regional traffic axes for trains and cars running outwards from the city centre along five fingers that created residential areas separated by green wedges. The Finger Plan was constantly challenged by new developments and superseded by higher than expected growth rates, but it was able to accommodate these by integrating new demands and adapting the original plan to changing circumstances.

This chapter analyses the conditions for, and the adaptive development of, the Finger Plan. The empirical analysis of the factors driving the successful formulation and implementation of the Finger Plan will pay particular attention to the question of timing, the development of a responsive policy design, the strength of metaphors, the process of collaborative governance, the role of leadership, and the ability to adapt to changing conditions. The discussion section introduces the notion of 'robustness' in seeking to understand the governance success of the Finger Plan. The chapter concludes with lessons learned.

Our empirical analysis of the Finger Plan is based on original planning documents and narrative historical accounts of the planning process by the involved actors. Over the years, the Danish Urban Planning Lab has made numerous efforts to collect historical accounts from all the main actors. These accounts are often rather personal and may tend to paint a rosy picture of the past, but there are so many different accounts that it is possible to cross-check facts and events and piece together a pretty solid interpretation of the planning process and its results and achievements. Unfortunately, the material tends to lapse into long technical planning discussions, with only rather scant information on governance issues. Our intention to interview some of the main actors to obtain further information about the governance process had to be abandoned since the key actors have all passed away. Fortunately, there are enough bits and pieces to assemble a good understanding of the political and administrative dynamics.

A Planning Success

Physical planning of urban environments is an important aspect of public policy and governance (Hajer and Wagenaar 2003). Successful planning produces a highly visible result in the form of cities with distinctive and well-connected neighbourhoods, well-functioning transport systems, and easy access to workplaces, shopping, public services, and recreational areas. By contrast, planning

failures—which are ubiquitous—result in urban sprawl, defined as dispersed and inefficient urbanization at the fringe of urban areas which results in sub-optimal land use, uneven development, and the loss of open farmland and nature. Urban sprawl begins as scattered, low-density, car-dependent settlement patterns but, after a while, continued expansion turns it into dense and incoherent urban environments characterized by unintended clashes between residential enclaves and polluting industries, lack of key public and private service functions, severe traffic congestion, limited access to green areas, and low quality urban living (Johnson 2001; Squires, 2002; Nechyba and Walsh 2004). In the United States, where urban planning is weak and limited, urban sprawl and overly dense and chaotic urbanization are considered major problems (Downs 1998). Stronger planning regimes in Northern Europe have made it possible to prevent urban sprawl and incoherent urbanization through the development and implementation of broad framework plans for current and future land use. They have also prevented the development of cities in which housing and industry compete for space, traffic congestion is the norm, and green areas and open nature are scarce.

Planning is important, but planning disasters are frequent due to a combination of uncertainty about future socio-economic developments, interest-based conflicts among key stakeholders, and shifting preferences and value judgements among the public and associated opinion formers (Hall 1980). Planning builds on an element of forecasting—perceived as a mechanical exercise in projecting future trends—that often turns out to be flawed. In addition, conflicts of interest between politicians, professional planners, bureaucrats, and private actors, including citizens, private firms, and civil society organizations, may erode support for even the most carefully designed master plans, thus preventing long-term planning. Finally, the popular image of what constitutes a good and liveable city may change over time, causing planners and politicians to halt or reverse existing planning strategies and invent new ones, only to revert to some version of an older strategy.

The ubiquity of planning failures should not, however, overshadow the many examples of successful planning. We can learn a lot from studying ‘the dog that doesn’t bark’, but we hardly ever scrutinize cases of successful planning (for a notable exception see Innes and Booher 2003, 2010). The latter are treated as unique, singular, and exceptional experiences that can neither be generalized nor learned from. We counter this trend by examining a genuine planning success that has managed to achieve its core objectives while maintaining broad-based political support.

Progammmatically, the Finger Plan has had a very positive impact on the lives of Copenhageners. Not only has it prevented urban sprawl, it has also prevented the construction of chaotic and congested cityscapes with a low quality of life. The Finger Plan has facilitated rapid urbanization in post-war Copenhagen without compromising the demand for distinct, coherent, and self-servicing neighbourhoods with easy access to fast and reliable transport to the inner city and to green

recreational areas situated right next to the residential areas. Private developers have no doubt cursed the strict enforcement of the core principle of the Finger Plan that prohibits the construction of shopping malls and new neighbourhoods in the attractive green wedges separating the urban fingers. By contrast, local sports associations, nature conservation organizations, and environmentalists have praised the protection of the green areas and their proximity to the residential neighbourhoods, as this enables local citizens to enjoy the healthy pleasures of outdoor activities.

The contemporary architect Jens Rørbech describes the Finger Plan as an 'ingenious plan for the metropolitan area' (Rørbech 2011). Indeed, most commentators consider the Finger Plan to be the biggest Danish planning achievement ever. It is a cultural icon that most Danish people have heard about. In 2006, it was included in the Ministry of Culture's national list of outstanding cultural heritage sites, and it continues to be the subject of celebration and discussion. In 2013 and 2014, the international global affairs magazine, *Monocle*, ranked Copenhagen as the world's most liveable city, mostly due to its grand urban design, and in 2017 the government invited public and private stakeholders to a debate about the need for future additions to the Finger Plan.

The policy *process* was expert driven, but still quite inclusive. As a result, the Finger Plan enjoyed widespread political, administrative, and societal support. Despite its character as a comprehensive master plan based on rigid principles about urbanization, land use, and centralized planning initiatives, the Finger Plan was successfully implemented throughout the post-war period. Over the years, new demands were incorporated, and adjustments in the face of new developments were made in a flexible manner and based on deliberation between a broad range of public and private stakeholders.

Politically, the popularity of the Finger Plan amongst Copenhageners, especially those who moved out to the suburbs to enjoy the fresh air and green environment as well as easy access to public transport, further enhanced support for the Finger Plan at different levels of government and among politicians from different political parties. The positive response both from local residents and elected politicians, and the international praise from foreign planning experts, convinced the planning authorities in the Copenhagen metropolitan area that the Finger Plan was close to perfect.

In terms of *endurance*, the Finger Plan's core principle of separating areas for housing development from open land was maintained in urban development plans throughout the 1950s, 1960s, and 1970s, and it continued to inform planning reforms in the 1990s and at the beginning of the new millennium. The most recent regional plan for the metropolitan area is called *Fingerplan 2018* (Ministry of the Environment 2018). The Finger Plan survived a minor attack in the late 1960s and early 1970s, when a state-sponsored plan introduced some disruptive planning ideas, and it has been adapted in several ways in response to

new demands and developments. However, its core principle is still intact and even the most recent attempt to improve cross-cutting transport between the fingers and expand the palm of the hand through land fill merely tends to confirm and consolidate the existing finger structure.

The Finger Plan with its urban fingers radiating from the city centre was inspired by the planet-city of London, but the fingers were prevented from spreading to the east by the sea that separates Denmark and Sweden. Cities like Helsinki and Stockholm have also concentrated urbanization along fingers, whereas Barcelona has created a green belt around the city to provide access to open nature. A green heart shared by a ring of surrounding urban areas is found in the Randstad region in the Netherlands. As such, the Finger Plan is a particular type of planning strategy that, like other planning strategies, aims to avoid unplanned urbanization that often results in an amalgamation of urban areas with few and fragmented green areas. Typical examples of the latter are found in Antwerp, Los Angeles, and Milan (Vejre et al. 2007). Compared to those examples, the Finger Plan governing urbanization in the Copenhagen metropolitan area is an undisputed success.

In a world where plans are constantly undermined, halted, reversed, and changed, the longevity of the Finger Plan is truly remarkable and an indicator of its success. We will try to explain this enduring success at the end of the chapter but let us not forget that the Finger Plan is literally supported by strong path dependency (Pierson 1995, 2000). When the S-train lines that form the core of the fingers were first built, and new housing developments began to cluster around the train stations, the path was laid for further expansion along the urban fingers, and the cost of changing and redesigning the urban structure became exorbitant. Moreover, after a few years, planners, politicians, and private developers soon began to think and act in terms of the Finger Plan, thus providing positive feedback that further reinforced the structure. New generations of planners were educated in the ideas and principles of the Finger Plan, local politicians sought to thicken and extend the finger that fell under their jurisdiction, and private developers knew exactly where they should buy land in anticipation of new urban developments at the tips of the fingers. While the original path dependency argument (David 1985) is that the contingently chosen path will prevail in the face of more optimal solutions, in the same way as the QWERTY keyboard survived the invention of new and faster keyboards, it is difficult to identify that kind of competition in relation to the Finger Plan. So far, there has been no real competition to challenge the Finger Plan and no alternative urban plan has claimed to provide a better and more efficient planning model for the Copenhagen metropolitan area. In other words, the highly successful Finger Plan has enjoyed almost total hegemony, except for a few skirmishes along the way.

The Historical Context for the Emergence of the Finger Plan

To provide some context for the emergence of the Finger Plan, let us briefly recount the political and socio-economic events leading up to post-war planning efforts. In 1848, a peaceful democratic revolution put an end to almost two centuries of absolutism in Denmark and paved the way for the formation of a constitutional monarchy. The absolutist king had built a strong and modern state that was now controlled by a democratically elected parliament and a government appointed by the king. Based on an efficient tax collection system and meritocratic recruitment of public administrators, which were both established by the absolutist state, the public sector slowly took the form of a Weberian-style bureaucracy based on hierarchy, specialization, rule-governed decision-making, and the separation of politics and administration. The continued devolution of powers and tasks to regional and local governments and individual public service organizations such as hospitals and schools meant that public bureaucracy was combined with a strong professional rule that gave the well-educated public professions inhabiting the public welfare institutions considerable power and discretion (Andersen et al. 2017).

Over time, the democratically controlled bureaucracy was supplemented by an elaborate system of collaborative governance that sought to bring relevant and affected actors from the state, market, and civil society together in public decision-making (Christiansen and Nørgaard 2003). The collaborative governance tradition was prompted by the coexistence of a strong and well-functioning state and a strong and well-organized civil society that called for the formation of arenas for cross-sector interaction. The collaborative tradition was also spurred by the rise of strong cooperative movements from the 1870s onwards. The farmers formed a cooperative movement in order to facilitate the transition from crops to animal farming, whereas the workers formed cooperatives in response to capitalist exploitation. The cooperative movements demonstrated that socio-economic problems could be solved through multi-actor collaboration. The development of the collaborative tradition in Denmark deepened with the gradual institutionalization of corporatist negotiations between employers and employees in the private labour market, and between the social partners and government officials in local and national policy-making. The elaborate system of corporatist negotiation was formed in the 1890s, institutionalized around the First World War, and further expanded during the 1930s and in the post-war era. It reached its high point in the 1960s and 1970s, and while the role and impact of tripartite negotiations has declined in the 1980s and 1990s, the role of loosely coupled networks that bring together a broad range of public and private actors seems to have increased at all levels of government, not least the local municipalities where politicians and administrators engage in extensive negotiations with local citizens and stakeholders (Torfing 2010).

Corporatist negotiations combined with a stable political alliance between social democrats and social liberals have played a key role in the expansion of the universalistic welfare state before and especially after the Second World War. Denmark has one of the most decentralized welfare states in the world. The subnational regional authorities are led by democratically elected regional councils, and are in charge of health, planning, and infrastructure; and the local municipalities are governed by elected municipal councils and have responsibility for service delivery, but also for local planning. Together, the regions and the municipalities spend almost two thirds of total public expenditure and deliver the lion's share of tax-financed welfare services to the citizens, although the latter are based on national legislation and state regulation that define minimum standards. Originally, devolution was spurred by the central state's promise to reimburse local governments that built public schools, public libraries, hospitals, social institutions, and so on. Today, the local municipalities are financed by a combination of block grants from the central government and locally collected income and property taxes.

In terms of urban planning in the metropolitan area, there were a few, lone attempts to plan urban development when King Christian IV expanded what today constitutes the inner city of Copenhagen in the first half of the seventeenth century. Recurrent fires and epidemics decimated the city and its population until a new growth era began in the second half of the nineteenth century. New neighbourhoods were built outside the urban fortifications that were later torn down. In 1856, the first building and construction law was passed in order to regulate the booming construction sector in Copenhagen. Two years later, the law was expanded to include construction work outside the city of Copenhagen (Hansen 2001).

As the population continued to grow at the beginning of the twentieth century, new land from the areas surrounding Copenhagen to the north, west, and south was prepared for urban development, and the construction of new neighbourhoods followed a carefully designed plan that emerged after an international architectural competition in 1908–9. This was a major breakthrough for urban planning in the metropolitan area that by now included several municipalities, of which the Municipality of Copenhagen was the largest. In 1925, the first national urban planning law was issued. The new planning law prompted the Municipality of Copenhagen to expand its administrative planning capacity (Lyager 2004). In 1939, the planning law was supplemented by a new building law that mandated all the municipalities in the Copenhagen metropolitan area to develop local plans for appropriate urban development and allowed them to expropriate land without monetary compensation. As part of the new law, the Ministry of Domestic Affairs appointed a Planning Commissioner who would discuss local plans with the municipalities and ultimately approve them. The growing emphasis on urban planning helped to ensure the construction of new neighbourhoods with proper

sanitation, adequate transport, and recreational facilities, but it did not prevent a layered and somewhat chaotic development of housing and industrial production sites at the outskirts of the new neighbourhoods (Hansen 2001).

In order to plan and regulate land use at the periphery of the new neighbourhoods, a new planning law in 1949 required local and regional authorities to make long-term development plans that distinguished between land zones, urban zones, and middle zones (Hansen 2001). The construction of new housing in the land zones was strictly forbidden. The new planning law, which was later expanded and renewed in the 1960s and 1970s, was an important condition for the emergence and longevity of the Finger Plan. While the regional authorities in the metropolitan area did not have the mandate to determine what should be built, how and where, they were able to use the zoning law to ban housing construction in certain areas.

The post-war planning endeavours in Copenhagen were driven by a young generation of architects who had begun to meet in their lunch breaks during the Second World War, and who longed for the German occupation to end so that a new era of rational planning could begin. The Danish planning-for-peace-in-wartime movement drew inspiration from Britain, where 'planning' was seen as a potent tool for reconstructing cities that had been destroyed by German bombs. This rational and analytical approach to planning was in particular inspired by Patrick Geddes' book *Survey before Planning* (1949). The title soon became a slogan for the new generation of urban planners (Lyager 2004).

The mandatory development of local urban development plans called for coordination across the municipalities in the metropolitan region to avoid conflicts and create synergies. There was a growing need not only for housing, but also for train lines, road construction, and recreational areas. In the 1930s, a series of independent expert committees had worked on housing development, railroad lines, traffic plans, and the preservation of large stretches of open land. However, there had been no coordination between the different planning initiatives and no attempt to assess the implications of one planning initiative for another. Hence, the call for inter-municipal coordination was complemented by an urgent need for cross-sectoral coordination of post-war planning efforts.

Social and political actors in the Copenhagen metropolitan region faced a formidable challenge. The absence of a comprehensive regional plan for an integrated expansion of housing, transport, and green areas would result in urban sprawl in fringe landscapes and a chaotic and layered urbanization outside the inner city. This would create an incoherent amalgamation of housing, business, and service functions without access to public transport and green areas. Urban sprawl onto open land and attractive sites along lakes and coastlines had been growing throughout the 1920s and 1930s, and could not be stopped by conservation, since only forests were deemed worthy of this (Vejre et al. 2007). In the urbanized areas in and around the inner city, there were several examples of

housing and industry located side by side in congested cityscapes with limited access to green areas. Planners, administrators, and politicians agreed that these unintended negative developments had to be stopped by a rational and comprehensive plan for the location of housing, business, service functions, transport lines, and green corridors. A holistic plan was needed that respected and combined all these functionalities while simultaneously facilitating and accommodating the expected growth of the Danish capital.

The post-war planning goal was accomplished by sticking to the 'central city concept' but letting housing and local service functions develop along five fingers stretching out from the inner city, which would constitute the palm of the hand. The fingers would expand along a new subway system (the so-called S-train system) that would be supplemented by roads running along the borders of the five fingers. The fingers would be separated by green wedges that provided easy access to nature and recreation for those living along the urban fingers. The Finger Plan is illustrated in Figure 12.1.

The Finger Plan turns the potential zero-sum game between rapid urbanization, efficient transportation, and nature conservation for recreational purposes into a plus-sum game by linking the different functionalities in ways that create synergies rather than mutual externalities. This is done by replacing the traditional layered expansion of big cities with a radial development where the different functionalities are placed side by side along the fingers.

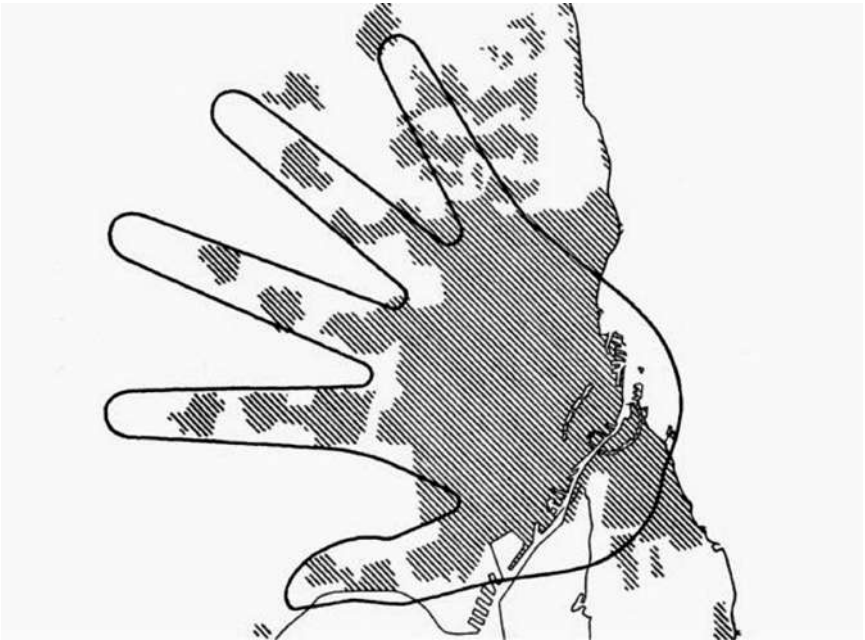


Figure 12.1 Illustration of the 1947 Finger Plan

Two leading planning experts, Steen Eiler Rasmussen and Peter Bredsdorff, initiated the process that led to the formulation of the Finger Plan. In March 1945—two months before the German occupation ended—they invited a broad range of interested people to an open meeting in the Danish Urban Planning Lab, which was a private forum for discussion amongst architects and planners. The topic of discussion was the need for comprehensive metropolitan planning. Soon after, the Danish Urban Planning Lab created the Regional Planning Office, an independent institution that was nonetheless co-financed by the local municipalities, the regional government, and several ministries. In 1947, the Regional Planning Office published a 'Sketch of a new plan for the greater Copenhagen Area' that came to be known as the Finger Plan (Regional Planning Office 1947). The sketch was not formally approved by elected officials, but was widely circulated amongst planners, bureaucrats, and politicians. It was crafted by a team of planners and architects led by Peter Bredsdorff, who also led the formulation and implementation of a number of local development plans from 1949 onwards, as well as the new General Plan for the metropolitan area that was adopted in 1952. While the state financed the local development plans and the City Councils endorsed them politically, the responsibility for their formulation and implementation was placed in the hands of the original team behind the Finger Plan (Lyager 2004). The new General Plan from 1952 was mainly an operationalization of the principles laid down in the Finger Plan in and through a series of local development plans that were assembled and mutually integrated.

Although elected governments at the local, regional, and national levels supported the development of the Finger Plan and formally approved the General Plan that governed its implementation, the Finger Plan was created through a bottom-up initiative by professional planners who enjoyed a high degree of autonomy. Drawing on recently developed theories of governance (Jessop 2002; Kooiman 2003; Sørensen and Torfing 2009), we can say that the involved government agencies played the role of a meta-governor that framed, supported, financed, and endorsed a networked governance process that took place outside the formal institutions of government, although it included a broad range of government actors.

Policy Design, Political Decision-Making, and Initial Implementation

The Finger Plan built on the assumption that growth in business and housing was inevitable and impossible to stop (Regional Planning Office 1947). The plan had to allow for continued population growth, but the growing number of people had to be directed to the west and south-west in order to protect the north that was already relatively developed at the time. It also built on an early recognition of

the need for fast and effective transport combining trains and cars, and for easy access to green recreational areas. The latter was already clearly stated in a 1936 inter-municipal white paper on the protection of green areas (Forchhammer 1936). As explained earlier, the challenge was to avoid incremental, unplanned urbanization where housing, business, and small pockets of nature were mixed up in a messy structure that prevented the development of an efficient public transport system. Fortunately, the planners had a keen eye for balancing urban areas with non-urban green areas, and for separating the two from each other while ensuring mutual proximity. As one of the chief planners argued: 'The most important thing in urban planning is to identify the areas that should not be urbanized' (Andersen 2001: 5).

Retrospectively, we can say that the Finger Plan builds on two simple design principles. The first principle is 'station proximity', which basically establishes that housing, business, and service functions should cluster in centres placed along radial railroad lines and roads, constituting the joints in the fingers. The second principle is 'green wedges', which establishes that the urban fingers should be separated by green areas in which no building or construction is permitted.

The simplicity of the Finger Plan's design was one of its major strengths. The two design principles were combined and condensed in the finger metaphor. The image of a hand with the palm resting on the compact inner city and the fingers spread out in different directions, indicating future urban developments, graced the cover of the original Finger Plan document from 1947, and has since been reproduced in an infinite number of planning documents. The Finger metaphor was simple, easy to communicate to policy actors and the general public, and captured the essence of the new plan in terms of the radial development of housing and transport separated by green areas. People understood it, liked it, and remembered it. The Finger Plan soon became a popular icon. People only needed to take a quick look at the map of the S-train system to be reminded of the Finger Plan that governed the rapid urbanization in Copenhagen. The finger metaphor communicated and travelled well. Today, it provides a well-known reference point in international planning debates (Hall 1989; Ravesteyn et al. 2005; Vejre et al. 2007).

When it was formulated at the end of the Second World War, the Finger Plan was visionary, bold, and highly ambitious in its insistence on a rational and comprehensive approach to planning. It would never have taken off if it had not gained early support from a political coalition of planning experts, local and regional governments, and several ministries. Motives for entering into this broad political alliance differed. Planners were driven by professional concerns for rational and comprehensive planning based on thorough quantitative and qualitative analysis. The twenty-five to thirty municipalities in the greater Copenhagen area clearly recognized the need to coordinate their local planning efforts, and the regional government was keen to develop a comprehensive plan for the

rapid urbanization that was expected in the post-war era following the baby boom after the Second World War and the optimistic embrace of the newly won peace. The Ministry of Labour and the Ministry of Social Affairs were desperate to initiate public construction work in order to reduce mounting unemployment. They knew that investments in housing development and transport infrastructure would please the building and construction sector, including the strong trade unions (Jensen 1990).

Back in the late 1940s and 1950s, there were no systematic attempts to involve local citizens in public planning. However, it is easy to imagine that Copenhageners were keen to move out of the dark and congested inner city and perhaps buy a one-family house in one of the new neighbourhoods that were nicely situated close to public transport, service functions, and green areas. In the local government election in 1946, the Communist Party, which had formed the backbone of the Danish resistance movement, did very well and captured 20 per cent of seats in the Copenhagen City Council. The communists secured the mayoralty for planning and development, and the new mayor immediately called for a general urban development plan and supported the idea of developing a larger regional urbanization plan (Theisen 2001). Political support for the Finger Plan was secured.

As already mentioned, everything started with a new generation of planners who met over lunch to discuss their grand planning ideas. In order to muster support from administrators and politicians from local, regional, and national government, the planners wrote pamphlets and newspaper articles and gave public presentations on planning issues wherever they were invited to speak, not least at the so-called 'office meetings' at the city hall where there was a lively debate over the prospects for urban planning in the metropolitan region (Lyager 2004). The Urban Planning Lab took the initiative to form the Regional Planning Office that became the vehicle for the formulation of the Finger Plan. Seven planners and five technical drafters were attached to the Regional Planning Office that was headed by Peter Bredsdorff, who was a visionary and hard-working leader who taught at the Academy of Arts and ran a small planning consultancy firm when he was not working on the Finger Plan (Jensen 1990).

An Advisory Board comprising more than fifty people from local municipalities, regional government, national ministries, interest organizations, and civil society organizations such as social housing associations and the national sports federation, oversaw the work of the planners. Annual meetings provided detailed information about the evolving Finger Plan but did not allow for much debate. They mainly served the purpose of disseminating information to the hinterland of the board members and building support for new ideas and proposals (Jensen 1990).

The plenary assembly of the Advisory Board formed a smaller Work Committee consisting of administrative leaders from municipalities, the capital region,

and the state, and a handful of independent experts from the planning, building, and transport sectors. The Work Committee met twice a month and was the focus of intense political debate. Professional, economic, and political interests clashed, and it is reported that Steen Eiler Rasmussen and Peter Bredsdorff had to use all their diplomatic skills to settle disputes and muster support for the emerging Finger Plan (Jensen 1990). Apparently, the only major defeat they suffered was that the Work Committee refused to ratify the Finger Plan document. This problem was soon turned into an advantage since the final document could now be written in a clear and straightforward manner without too many compromises and with a pointed and stirring foreword by Peter Bredsdorff.

The Finger Plan was further specified and operationalized in the General Plan from 1954 that provided the templates for its implementation. The General Plan was later superseded by the 'Principal sketch of a regional plan' from 1960 that estimated an increasing growth rate and put further emphasis on the development of the fingers towards the south and the south-west.

The Finger Plan was designed by architects and planners and then successfully sold to a broad range of stakeholders, including local and regional authorities that were responsible for its implementation, and to the ministries of labour, social affairs, and transport that monitored and financed its implementation. The nested planning structure involving close interaction between local, regional, and state planning continued in the subsequent decades in which the Finger Plan was implemented and adapted. The local municipalities were responsible for developing local plans based on local hearings. At the regional level, the Regional Planning Committee (1967–74), the Capital Council (1974–89), and the Capital Development Council (2000–6) had overall planning responsibility in the metropolitan area and maintained close relations with key for-profit and non-profit stakeholders that were involved in a large number of public committees. With the municipal amalgamation reform in 2007, regional planning responsibility was split between the local municipalities and the state. The Ministry of Social Affairs and the Ministry of Labour had ceased to play a role in the planning process since urban planning was no longer seen as a tool for boosting employment in the building and construction sector. The Ministry of Domestic Affairs that regulated the municipal sector had also lost influence to the new Ministry of the Environment that became the chief planning agency as planning was increasingly connected with environmental issues. As such, the most recent versions of the Finger Plan were formulated by the Ministry of the Environment.

The decisive step in the implementation of the Finger Plan was the construction of the five S-train lines around which the new housing and the related business and service functions would cluster and form small urban centres like the joints on a finger. There were already two S-train lines, so another three lines had to be built to complete the transport radials stretching out from the palm of the hand that comprised a dense urban area with surface traffic running in all directions

and a ring road that connected the industrial areas at the roots of the fingers. The construction of the S-train lines was carried out by the state-owned railway company, DSB, that would further extend the S-train lines when new housing areas were constructed at the tips of each finger. There were many discussions about the placement of new train lines and roads. Decisions were taken based on careful analysis of localities. Train stations were located so that local residents would have no more than fifteen minutes' walk to the nearest S-train.

When the S-train lines were first built and the new zoning law had banned housing in the green wedges, the development of new housing and service functions along the fingers almost took care of itself. Private investors constructed new neighbourhoods based on local plans developed by the municipalities. All in all, the implementation was relatively successful inasmuch as urbanization developed along the city fingers and the green wedges were protected from urban sprawl (Primdahl et al. 2006). However, one of the green wedges to the north-west came under heavy pressure from urbanization. It was repeatedly eroded due to uncoordinated municipal planning, and the remaining green space was only narrowly rescued when the four local municipalities came together and made a joint agreement to preserve it (Veje et al. 2007). While for the most part the size of the green wedges has been protected, the Finger Plan has been unable to prevent agricultural landscapes from being transformed from production to consumption landscapes. As such, hobby farmers and sports grounds have replaced full-time farmers and farmland. However, from the point of view of the residents, this might appear to be a positive development.

Absorbing Change: Adapting the Finger Plan

While the initial implementation of the Finger Plan was relatively frictionless, new demands started to emerge only a few years after the General Plan had begun to be implemented. Already in 1958, it was clear to everybody that both economic and population growth exceeded the predictions in the Finger Plan, which had been made during a downswing after the economic crisis in the 1930s and the war in the 1940s. At the end of the 1950s, a growing number of planners claimed that the Finger Plan had outlived itself and should be abandoned (Larsen 2004).

A new state-sponsored regional 'Principle Plan' from 1960 abandoned the Finger Plan altogether and proposed new housing developments and trade centres along a new high-speed railroad towards the south-west that would eventually open Copenhagen up towards the rest of the country (Larsen 2004). The Municipality of Copenhagen rejected this plan entirely because it would stimulate growth outside the Copenhagen metropolitan area. Soon after, it announced its own plan which proposed a combination of longer fingers with new joints, massive urbanization of the island of Amager situated south of the city centre,

and the construction of large shopping malls and housing complexes at the roots of the fingers.

The construction of large shopping centres and housing complexes along the freight train line connecting the roots of the fingers was opposed by the local municipalities and residents outside the city centre, who feared that new buildings and roads would diminish the green areas and create further traffic congestion. A lot of negotiations took place back and forth between the municipalities and the regional authorities, and in the end a compromise was reached to build a new urban centre outside Copenhagen in Høje Tåstrup on the railroad line to Roskilde, towards the south-west. There was much more space out there, and a new urban centre would alleviate the pressure on Copenhagen while still being located in one of the fingers. The plan was executed with considerable delay, but Høje Tåstrup never became a vibrant urban centre.

The idea of a massive expansion of housing on the island of Amager was promising. An architectural competition was held in 1965, and the winners provided detailed plans for the urbanization of Amager. The only problem was that the new plans required that Copenhagen Airport would have to be moved to a new place, preferably to the unpopulated island of Saltholm next to Amager. Preparing this small island for building and construction, and digging a tunnel to the new airport, would have been extremely costly, however, and the plans for the new neighbourhoods and airport removal were soon abandoned.

In the end, it was the economic crisis from the mid-1970s onwards that put an end to the dreams of massive housing expansion on Amager and the construction of large shopping malls and housing complexes along the freight train line. Denmark entered a long period of stagflation that put pressure on public finances and lowered demand for new housing. In addition, there was a growing concern for the uneven development of Denmark, with too much emphasis on stimulating growth in the capital region. This new discourse halted the plans for the construction of new highways in and around Copenhagen (Elle 2004). From now on, new highways were to be built in the western part of Denmark rather than in the metropolitan region to the east.

So, what remained of the new municipal plan was really an extension of the Finger Plan with longer fingers in each direction. New, and perhaps thicker, joints would be added along the southern finger to Køge and the south-western finger towards Roskilde. A new finger along the northern coast line to all the rich residential neighbourhoods was also added by extending the old S-train connection to Klampenborg. The train line was carried through to Elsinore, and new neighbourhoods expanded in Kokkedal and Humlebæk. The new northern finger figures prominently in recent representations of the Finger Plan model (Ministry of the Environment 2007: 17, 2013: 5). In some of these representations, one of the original fingers is depicted as a half finger, reflecting the fact that it was never extended as far as was originally planned (Ministry of the Environment 2007: 15,

2013: 2). Hence, fingers are modular and consist of sub-modules. They can be extended and shortened, and new fingers can be added. The urban fingers and their joints are highly flexible and scalable.

The 1980s saw a growing focus on urban regeneration in the inner city and in the adjacent bridge areas that had received scant attention from advocates of the Finger Plan, who were more concerned with the fingers than the palm of the hand. Bulldozer tactics were applied in some neighbourhoods, leading to popular and political protests and occasionally to uprisings. Alternative strategies focusing on renovation of existing buildings and the creation of green inner courtyards spurred gentrification as the original tenants could not afford to live in the renovated flats. Finally, the old industries along the harbour front closed down or moved out of town, and the harbour front area was gradually redeveloped with new and expensive housing and new corporate domiciles and office buildings (Mikkelsen 2004).

The return to the Finger Plan after the frontal attack in 1960 that was ultimately defeated by the economic crisis in the 1970s was further cemented by the new regional plan from 1989 that brought back the principles of the original Finger Plan while simultaneously emphasizing the need to connect the fingers with each other (Capital Council 1989). The next twenty years saw the construction of new large ring roads, speedy bus lines, and metro systems that cut across and connected the fingers at various points so that people did not have to return all the way into the city centre before they could connect with another finger towards their destination. However, linking the fingers through the creation of cross-cutting transport systems only confirmed the existence of the fingers, and there continues to be a total ban on all forms of urban development in the green wedges. Today, further urbanization in the palm of the hand is no longer possible, and only minor and carefully balanced urbanization is permitted along the fingers as long as it respects the principle of proximity to a train station (Ministry of the Environment 2007). S-train stations that are connected by cross-cutting lines of transportation have been given a new status as 'hub stations' around which particular service and business functions are expected to emerge and cluster (Ministry of the Environment 2013, 2017).

A new theme in regional planning is the creation and maintenance of transport corridors on Zealand, where Copenhagen takes up the easternmost region. According to a new state-sponsored plan (Ministry of the Environment 2017), the municipalities in Zealand are required to make a long-term reservation of land to enable future transport and technical infrastructure along two corridors, one stretching from north to south Zealand, and another traversing the island from east to west. If the Danish planning regime had been weak and had allowed the development of urban sprawl, the creation of these two transport corridors would have been impossible or would have required numerous expropriations.

Seventy years after the launch of the original Finger Plan, the regional plans from 2005, 2007, 2013, and 2017 all feature ‘Finger Plan’ in their titles. In addition, the ‘2007 Finger Plan’ talks about the Finger Plan as a celebrated cultural heritage artefact that will exert a strong influence on future planning. The Finger Plan is as influential as ever before, not least because it has been rearticulated as a key parameter in the global knowledge economy. Originally the Finger Plan was seen as a planning response to local challenges such as urban sprawl and soaring unemployment. Now, it is seen as a major asset in global competition in which the quality of the urban environment is a key parameter in the effort to attract highly qualified people and innovative businesses (Ministry of the Environment 2007: 8–12).

A recent report invites citizens and stakeholders to debate the future development of the capital of Copenhagen (Danish Urban Planning Lab 2017). The opening sentence declares that: ‘The Finger Plan is central for the development of the capital region’. The report goes on to list a number of challenges such as lack of affordable housing, the need for enhanced mobility for skilled labourers, demand for a liveable urban environment around the S-train stations, and the need to protect biodiversity and secure access to green areas. While all of these challenges call for new initiatives, they are all thought to be achievable within the overall framework provided by the Finger Plan.

Why the Finger Plan Was Successful

The Finger Plan was formulated through an effective combination of planning expertise and inclusive deliberation with stakeholders. It was implemented in an almost frictionless way, it succeeded in avoiding urban sprawl and incoherent urban layering, and it improved the living conditions of thousands of Copenhageners. A self-reinforcing feedback loop between the positive developments on the ground and the political support for its core ideas secured the longevity of the Finger Plan, which was gradually adapted to growth and new demands. In an attempt to explain the multidimensional success of the Finger Plan, we will first recapitulate the contextual factors that helped facilitate the successful formulation and implementation of the Finger Plan, before looking at the inherent qualities that contributed to its successful consolidation and adaptation.

Based on the analysis presented earlier, it is possible to identify a number of *contextual factors* that were conducive to the conception and execution of the Finger Plan and which help to explain its success. The first factor has to do with the timing of the Finger Plan, which could not have been better. The imminent end of the German occupation generated a huge enthusiasm for planning in the new era of peace and prosperity which seemed to be just around the corner. The negative, oppressive irrationality of the Second World War was to be replaced

by a positive, rational, and potentially liberating planning future. A window of opportunity was opening (Kingdon 1984) and the moment was seized by a dedicated group of architects and planners.

The second conducive factor was the high degree of professional autonomy within the Danish welfare state, which allowed a new generation of skilled and visionary planners to initiate the planning process, formulate an ambitious and comprehensive plan, and slowly generate political support for their bold ideas. Trust in the expertise of public sector professionals and their professional organizations, and willingness to listen to and discuss their public value proposals, certainly helped to get the Finger Plan off the ground.

The third factor spurring the development of the Finger Plan was the availability of positive planning experiences from other countries that the planners could translate to the local Danish environment. Inspiration for this exercise in holistic planning and its careful analysis of empirical trends and contexts came from England. The Finger Plan was greatly influenced by the planet-city model that governed the expansion of the London metropolitan area. However, foreign influences were adapted to the local geography so that the planet-city model with its 360-degree span became a 'finger-city' model with only a 180+ degree span.

The fourth and final factor was the pre-existing recognition of the need to preserve a number of green recreational areas, either through conservation or through the introduction of zoning laws. This recognition added a new and important item to the planning agenda that the Finger Plan could build on. Indeed, ideas about easy access to green areas resonated well with the hygienic welfare state discourse that called for 'light, air and cleanliness' (Schmidt and Kristensen 1986). Ideally, citizens should live in light-filled housing, breathe fresh air and live healthy, happy lives in well-planned suburbs. The Finger Plan clearly inscribed itself within this discourse.

The success of the Finger Plan cannot be explained merely by reference to these conducive contextual factors, however. We would therefore like to point out some of the *inherent qualities* of the Finger Plan that played a decisive role in producing and consolidating its supportive political constituency and adapting it to new developments while sticking to its core ideas.

First of all, the Finger Plan built on a simple programme theory that was easy to implement and generated the desired results. Urbanization should be directed away from the inner city and along a number of fingers separated by green wedges. Housing and local service functions should cluster around the stations on new train lines that would provide fast and efficient transport to workplaces at the roots of the fingers and in the inner city. Keeping the fingers thin would provide easy access to green areas for all the local citizens, thus enhancing their quality of life. Building the train lines and the supporting infrastructure in terms of radial roads at the borders of the fingers proved to be relatively unproblematic, and the

pressure on the green wedges was minimal due to the use of conservation and zoning laws that provided legal support for the Finger Plan.

Second, the simplicity of the Finger Plan allowed it to be captured by a single metaphor that provided an immediate and intuitive understanding of its content. The finger metaphor helped to popularize the otherwise technical and complex plan for the future urbanization of Copenhagen. The Finger Plan became a cultural icon with widespread popular support. The strong image of the palm of the hand resting on the inner city and the fingers spreading out in different directions constituted a ‘boundary object’ (Star 2010) that all the relevant and affected actors could contemplate and relate to, no matter where they came from. This helped to foster a joint policy dialogue among a plethora of public and private actors about the location, length, and thickness of the urban fingers, the prospects for further expansion at the tips of the fingers, the need to regenerate housing and business districts in the palm of the hand, and the future use of the land beyond the reach of the fingers. The finger metaphor is subject to flexible interpretations as the fingers are extended or shortened and new fingers are added.

This last observation brings us to the third and most important quality of the Finger Plan, that is, its robustness. Drawing on recent discussions of robust policy solutions (Ferraro et al. 2015; Haasnoot et al. 2013), we may say that urban planning is robust when it succeeds in turning problems, conflicts, and demands into design assets while simultaneously using modularity to enhance the future adaptability and polyvalence of the designed solutions. Robust planning is needed in the face of uncertainty arising from turbulence ‘where events, demands, and support interact and change in highly variable, inconsistent, unexpected and unpredictable ways’ (Ansell and Trondal 2018: 44–5). Planning contexts are turbulent and planning strategies aiming for a high degree of robustness by embracing the challenges and securing future adaptability provide an attractive response to turbulence. While ‘protective’ strategies aim to avoid turbulence or mitigate its effects by creating buffers, ‘resilience’ strategies aim to restore the previous equilibrium state by enhancing local capacity to bounce back when exposed to disruptive forms of turbulence. In addition, ‘robustness’ strategies seek to engage with turbulence in a proactive way by creating a dynamic equilibrium that allows disruptive change to unfold within an adaptive system that is capable of providing flexible responses to future challenges.

Robustness is a quality of policy solutions that helps to explain their success in the long term. Policy-makers may succeed in generating popular and political support for a new plan or policy solution that solves a pressing problem, but its long-term success depends on its robustness. Let us look at two defining elements of policy robustness in relation to the Finger Plan and see how they help to explain its longevity. The first element concerns the ability of a public policy to embrace turbulence by turning problems, conflicts, and demands into design assets (Ferraro et al. 2015). The Finger Plan does that in several ways.

Confronted with the rivalry between the local, regional, and national planning authorities, and the lack of inter-municipal coordination, the Finger Plan gives each of the planning authorities an important role in the comprehensive planning system. The state monitors and helps to finance the planning activities; the regional authority coordinates between the municipalities traversed by the fingers; and the municipalities focus on their own local planning efforts, such as developing residential neighbourhoods and urban clusters around the S-train stations. Everybody gets a say in the process and a piece of the cake. Moreover, confronted with the conflict-generating zero-sum game between urbanization and open land, the Finger Plan aims to turn the relationship between housing development and the conservation of green areas into a positive-sum game. It does so by insisting that easy access to recreational areas is key to ensuring the quality of life of residents in the new urban fingers. Housing and green areas form part of a higher level dialectical synthesis. Finally, confronted with the paradox between the political preference for public transport and the inevitable growth in private cars, the new train lines are supplemented with parallel roads that can lead car traffic towards the inner city. This is no 'either/or' solution, but rather caters for both scenarios.

The second element of robustness is the use of a modular design (Heaton et al. 2013) to adapt a public policy to future turbulence and to rearticulate its different elements within changing political frameworks that bring forth new goals and aspirations. We have already seen how the fingers constitute modules with sub-modular joints that can be extended, cut off, and multiplied in a highly flexible manner in response to changing demands. The modules can also be connected in new ways, for example through the construction of cross-cutting lines of transportation. As such, modularity helps to keep future options open, which is a key aspect of robustness (Padgett and Ansell 1993). Moreover, as time passes, the original concern for economic growth, housing development, and full employment becomes less and less important, while the environmental concern for preserving open land and living close to S-train stations, and thus being able to use public transport, increases. However, this is not the whole story since the most recent development rearticulates the Finger Plan as an important factor in attracting new businesses and smart people in the global knowledge economy. As such, the Finger Plan appears to be polyvalent in the sense that its different elements can be rearticulated and connected to different political projects and visions.

To further justify the claim that robustness is important for the success of the Finger Plan, let us look at a quote from one of the recent Finger Plans published by the Ministry of the Environment:

The urban finger structure appears to be a highly robust structure that has informed urban development in the metropolitan area since the first Finger

Plan emerged in 1947. It has created a remarkable connection between the general functions of the city and the transport infrastructure and created a cohesive recreational landscape that stretches well into the densely populated urban areas. It has been able to adapt itself to changing magnitudes of growth and to the significant changes in business, technology, prosperity and life forms that we have encountered since the middle of the previous century.

(Ministry of the Environment 2007: 12; our translation)

This quotation clearly ties robustness both to the ability to unify the concern for housing expansion and the preservation of green spaces, and to the ability to adapt to quantitative and qualitative change.

The successful design, metaphorical branding, and modular adaptability of the Finger Plan is first and foremost the result of efforts by dedicated, visionary, and skilful planners. However, the planners would not have been able to mobilize the necessary support for their planning ideas or to secure public responsibility for their implementation and adaptation had it not been for the early emergence and continued expansion of an elaborate system of collaborative governance that constitutes the last of four inherent qualities of the successful Finger Plan. From the very beginning, the architects and planners were conscious of the risks of being insulated from the political and administrative decision-makers, and they worked hard to communicate their ideas to the different actors in the 'authorizing environment' (Moore 1995), which included executive administrators, elected politicians, socio-economic interest organizations, and the general public. The bottom-up urban planning initiative had to be firmly anchored both in a horizontal network of relevant and affected actors from the state, economy, and civil society, and in a multi-level governance system in which local, regional, and national authorities had to agree on the overall strategy and division of labour.

The traditional system of top-down government gave way to a system of collaborative governance (Ansell and Gash 2008; Emerson et al. 2012) that combined professional planning expertise (craft work) with political strategizing and popular support (political work). While the planners can be credited with taking the initiative for the formation of this collaborative multi-level governance system (Bache and Flinders 2004), the formal institutions of government gradually took control over the planning process in the Copenhagen metropolitan area. They played the role both of participants in networked negotiations and of meta-governors that gave direction to the process and sought to align the different actors. The planners became a core part of the formal government institutions. In the process they lost some of their independent and autonomous status, although the Danish Urban Planning Lab continues to exist and still orchestrates important planning discussions.

Learning from the Copenhagen Experience

Policy-makers who manage policy programmes that are not delivering the desired results tend to look elsewhere to see if they can find inspiration for new and better solutions. According to Rose (1991), they engage in lesson drawing, which involves: (1) searching in time and space for promising alternative policy programmes; (2) abstracting the underlying cause-and-effect model in what is observed; (3) creating a lesson or new programme for action; and (4) estimating the consequences of adopting the lesson. There are limits to this kind of lesson drawing. As Kingdon (1984) points out, policy success often rests on a good deal of luck and the ability to exploit the timing of different events and favourable opportunities in the environment. Moreover, successful policy programmes may be difficult to reproduce in a new context with a different and perhaps less favourable set of conditions (Dolowitz and Marsh 1996). The contextual constraints are particularly clear in the field of planning where it is extremely difficult, and often impossible, to switch to a new urban master plan once the basic infrastructure and neighbourhoods are established. However, planners responsible for developing a new urban area may draw inspiration from successful policy cases and engage in lesson drawing.

It would not take long for an urban planner or policy adviser to identify the Finger Plan as a highly successful case of public planning in the face of rapid urbanization. The question then becomes: What lessons can other prospective planners draw from the Finger Plan? By way of conclusion, we will advance three propositions that draw key lessons from the Finger Plan.

The first proposition is that the Finger Plan built on a match between socio-economic challenges and local translation of inspiration from other countries, while at the same time exploiting contingent events such as the optimistic post-war sentiment to generate a breakthrough for comprehensive planning. This proposition is based on the analysis of the contextual factors. It confirms Pollitt and Bouckaert's model for public governance reform that aims to balance rational attempts to fit problems and solutions to each other while insisting on the importance of less rational events that open a window of opportunity (Pollitt and Bouckaert 2004).

The second proposition is that the robustness of the Finger Plan, which pertains both to its ability to turn problems into opportunities and to its future adaptability and polyvalence vis-à-vis new demands, developments, and political visions, explains its longevity. In the case of the Finger Plan, adaptability is ensured through modularity that enables flexible expansion that adds to the size and complexity of the comprehensive planning system, but without compromising its basic principles.

The third proposition is that support for the well-crafted and robust Finger Plan was ensured by the development of a system of collaborative governance that combined horizontal relations and vertical connections. Multi-actor collaboration enabled the visionary planners to sell their new and bold ideas to executive administrators and elected politicians, and to anchor the implementation and future adjustment of the Finger Plan in public authorities that had the money and organizational capacity to make things happen. The collaborative system of governance created a productive interface between craft work and political work. Professional insights merged with political brokerage, communication, and resource mobilization. The finger metaphor helps to create a boundary object that all the different actors, including the general public, could relate to and discuss.

Successful public governance is often measured in terms of its cost efficiency and its capacity for effective problem-solving. This chapter adds a new and interesting evaluation criterion in terms of policy robustness. Although robustness features prominently in a handful of social science contributions (Hood 1991; Leifer 1991; Marshall 2008; Schoon 2008; Capano and Woo 2017), we need more research on how public governance in general and planning in particular can provide robust solutions in the face of turbulence, and how modularity may help to enhance future adaptability and polyvalence. Concept building must be followed by comparative case studies that allow us to understand the different forms and aspects of robustness, and the role that modularity and other flexibility enhancing mechanisms play in securing robustness.

Additional version of this case

The case study outlined in this chapter is accompanied by a corresponding case study from the Centre for Public Impact's (CPI) Public Impact Observatory—an international repository of public policies assessed for their impact using CPI's Public Impact Fundamentals framework. CPI's framework provides a way for those who work in or with government to assess public policies, to understand why they were successful, so key lessons can be drawn out for future policy work. The case can be easily located in the CPI repository at www.centreforpublicimpact.org/observatory.

References

- Andersen, K. 2001. *Ældre Byplanlæggere 1954–2000* (Copenhagen: Byplanhistorisk Udvalg).
- Andersen, L. B., C. Greve, K. K. Lausen, and J. Torfing. 2017. *Offentlige Styringsparadigmer: Konkurrence og Sameksistens* (Copenhagen: DJØF Publishers).

- Ansell, C. and A. Gash. 2008. 'Collaborative Governance in Theory and Practice'. *Journal of Public Administration Research and Theory* 18(4), 543–71.
- Ansell, C. and J. Trondal. 2018. 'Governing Turbulence: An Organizational-Institutional Agenda'. *Perspectives on Public Management and Governance* 1(1), 43–57.
- Bache, I. and M. Flinders (eds). 2004. *Multi-Level Governance* (Oxford: Oxford University Press).
- Capano, G. and J. J. Woo. 2017. 'Resilience and Robustness in Policy Design'. *Policy Sciences* 50(3), 399–426.
- Capital Council. 1989. *Regionplan* (Copenhagen: Capital Council).
- Christiansen, P. M. and A.S. Nørgaard. 2003. *Faste Forhold-Flygtige Forbindelser: Stat og Interesseorganisationer i Danmark i det 20. Århundrede* (Copenhagen: DJØF Publishers).
- Danish Urban Planning Lab. 2017. *Hovedstaden 2030* (Copenhagen: Danish Urban Planning Lab).
- David, P. A. 1985. 'Clio and the Economics of QWERTY'. *American Economic Review* 75(2), 332–37.
- Dolowitz, D. and D. Marsh. 1996. 'Who Learns What from Whom: A Review of the Policy Transfer Literature'. *Political Studies* 44(2), 343–57.
- Downs, A. 1998. 'How America's Cities are Growing: The Big Picture'. *Brookings Review* 16(4), 8–12.
- Elle, S. 2004. 'Trafikplanlægningen I København 1954–2004'. In S. B. Jensen, J. Harvest, and M. Briiel (eds). *Københavns Skitse til en Generalplan 1954* (Copenhagen: Byplanhistorisk Udvalg), pp. 33–8.
- Emerson, K., T. Nabatchi, and S. Balogh. 2012. 'An Integrative Framework for Collaborative Governance'. *Journal of Public Administration Research and Theory* 22(1), 1–29.
- Ferraro, F., D. Etzion, and J. Gehman. 2015. 'Tackling Grand Challenges Pragmatically: Robust Action Revisited'. *Organizational Studies* 36(3), 363–90.
- Forchhammer, O. 1936. *Københavnsegnens Grønne Områder* (Copenhagen: Gyldendal).
- Geddes, P. 1949. *Cities in Evolution* (London: Williams and Norgate).
- Haasnoot, M., J. H. Kwakkel, W. E. Walker, and J. Maat. 2013. 'Dynamic Adaptive Policy Pathways: A Method for Crafting Robust Decisions for a Deeply Uncertain World'. *Global Environmental Change* 23(2), 485–98.
- Hajer, M. A. and H. Wagenaar (eds). 2003. *Deliberative Policy Analysis: Understanding Governance in the Network Society* (Cambridge: Cambridge University Press).
- Hall, P. 1980. *Great Planning Disasters* (London: Weidenfeld & Nicolson).
- Hall, P. 1989. *Urban and Regional Planning* (London: Unwin Hyman).
- Hansen, E. 2001. 'Byplanlovene'. In K. Andersen (ed.), *Ældre Byplanlæggere 1954–2000* (Copenhagen: Byplanhistorisk Udvalg), pp. 9–20.

- Heaton, L., F. Millerand, D. Delon, F. Schmitt, L. Marseault, and J. Deschamps. 2013. 'Encouraging Open Community Innovation: Outils-Réseaux's Modular Approach'. In J. Lundström, M. Wiberg, S. Hrastinski, M. Edenius, and P. Ågerfalk (eds), *Managing Open Innovation Technologies* (Berlin: Springer), pp. 93–106.
- Hood, C. 1991. 'A Public Management for all Seasons?' *Public Administration* 69(1), 3–19.
- Innes, J. E. and D. E. Booher. 2003. 'Collaborative Policymaking: Governance through Dialogue'. In M. Hajer and H. Wagenaar (eds), *Deliberative Policy Analysis* (Cambridge: Cambridge University Press), pp. 33–59.
- Innes, J. E. and D. E. Booher. 2010. *Planning with Complexity* (London: Routledge).
- Jensen, S. A. 1990. *Fingerplanen* (Copenhagen: Byplanhistorisk Udvalg).
- Jessop, R. D. 2002. *The Future of the Capitalist State* (London: Polity Press).
- Johnson, M. P. 2001. 'Environmental Impacts of Urban Sprawl'. *Environment and Planning* 33(4), 717–35.
- Kingdon, J. W. 1984. *Agendas, Alternatives, and Public Policies* (Boston: Little, Brown).
- Kooiman, J. 2003. *Governing as Governance* (London: Sage).
- Larsen, L. 2004. 'Fingerplanen'. In S. Jensen, J. Harvest, and M. Briiel (eds), *Københavns Skitse til en Generalplan 1954* (Copenhagen: Byplanhistorisk Udvalg), pp. 29–32.
- Leifer, E. M. 1991. *Robust Action* (New York: Garland).
- Lyager, P. 2004. 'Generalplansforudsætninger'. In S. Jensen, J. Harvest, and M. Briiel (eds), *Københavns Skitse til en Generalplan 1954* (Copenhagen: Byplanhistorisk Udvalg), pp. 5–16.
- Marshall, G. 2008. 'Nesting, Subsidiarity, and Community-Based Environmental Governance Beyond the Local Scale'. *International Journal of the Commons* 2(1), 75–97.
- Mikkelsen, J. K. 2004. 'Hvor Langt Holdt Generalplanskiten?' In S. Jensen, J. Harvest, and M. Briiel (eds), *Københavns Skitse til en Generalplan 1954* (Copenhagen: Byplanhistorisk Udvalg), pp. 33–8.
- Ministry of the Environment. 2007. *Fingerplan 2007* (Copenhagen: Ministry of the Environment).
- Ministry of the Environment. 2013. *Fingerplan 2013* (Copenhagen: Ministry of the Environment).
- Ministry of the Environment. 2017. *Fingerplan 2017* (Copenhagen: Ministry of the Environment).
- Ministry of the Environment. 2018. *Fingerplan 2018* (Copenhagen: Ministry of the Environment).
- Moore, M. H. 1995. *Creating Public Value: Strategic Management in Government* (Cambridge, MA: Harvard University Press).
- Nechyba, T. J. and R. P. Walsh. 2004. 'Urban Sprawl'. *Journal of Economic Perspectives* 18(4): 177–200.

- Padgett, J. F. and C. K. Ansell. 1993. 'Robust Action and the Rise of the Medici, 1400–1434'. *American Journal of Sociology* 98(6), 1259–1319.
- Pierson, P. 1995. *Dismantling the Welfare State? Reagan, Thatcher and the Politics of Retrenchment* (Cambridge: Cambridge University Press).
- Pierson, P. 2000. 'Increasing Returns, Path Dependence, and the Study of Politics'. *American Political Science Review* 94(2), 251–67.
- Pollitt, C. and G. Bouckaert. 2004. *Public Management Reform: A Comparative Analysis* (Oxford: Oxford University Press).
- Primdahl, J., A. G. Busck, and C. Lindemann. 2006. *Bynære Landbrugsområder i Hovedstadsregionen 2004: Udvikling i Landbrug, Landskab og Bebyggelse 1984–2004* (Copenhagen: Center for Skov, Landskab og Planlægning).
- Ravesteyn, N. V., W. Hornis, F. Verwest, and H. Thorborg. 2005. *Het Gras bij de Buren. De Rol van Planning bij de Bescherming van Groene Gebieden in Denemarken en Engeland* (Rotterdam: NAI Publishers).
- Regional Planning Office. 1947. *Skitseforslag til Egnspan for Storkøbenhavn* (Copenhagen: Regional Planning Office).
- Rørbech, J. 2011. *Fingerplanen og Transportkorridorerne*. <https://erhvervsstyrelsen.dk/sites/default/files/EndeligRørbechNotatomFingerplanogtransportkorridore.pdf>.
- Rose, R. 1991. 'What is Lesson-Drawing?' *Journal of Public Policy* 11(1), 3–30.
- Schmidt, L. H. and J. E. Kristensen. 1986. *Lys, Luft og Renlighed: Den Moderne Socialhygiejnes Fødsel* (Copenhagen: Academic Publishers).
- Schoon, M. L. 2008. *Building Robustness to Disturbance: Governance in Southern African Peace Parks* (Bloomington: Indiana University Press).
- Sørensen, E. and J. Torfing. 2009. 'Making Governance Networks Effective and Democratic through Metagovernance'. *Public Administration* 87(2), 234–58.
- Squires, G. D. (ed.). 2002. *Urban Sprawl: Causes, Consequences and Policy Responses* (New York: Rowman & Littlefield).
- Star, S. L. 2010. 'This is Not a Boundary Object: Reflections on the Origin of a Concept'. *Science, Technology, and Human Values* 35(5), 601–17.
- Theisen, F. 2001. 'Generalplanskitsen 1954'. In K. Andersen (ed.), *Ældre Byplanlæggere 1954–2000* (Copenhagen: Byplanhistorisk Udvalg), pp. 21–3.
- Torfing, J. 2010. 'Local Forms of Governance in Denmark: The Revenge of the Supplement'. *Journal of Power* 3(3), 405–25.
- Vejre, H., J. Primdahl, and J. Brandt. 2007. 'The Copenhagen Finger Plan: Keeping a Green Space Structure by a Simple Planning Metaphor'. In B. Pedroli, A. Doord, G. Blust, M. Paracchini, D. Washer, and F. Bunce (eds), *Europe's Living Landscapes* (Zeist: KNNV Publishing), pp. 310–28.