



Centre for
Public Impact
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UNLOCKING URBAN **CLIMATE** TRANSITIONS

A case study of Gothenburg



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ABOUT THE AUTHORS

CARL MOSSFELDT

For the past twenty years, Carl Mossfeldt has focused on governance issues related to the sustainability transition. He was the CEO of the Tällberg Foundation, working at a global level with institutional change processes in the public and private domain.

Carl has also been engaging with a more local perspective on the climate transition, focusing on Gothenburg, his place of birth. Carl acted as a strategic advisor to several CEOs of municipal companies in Gothenburg and was subsequently employed in a strategic position to help accelerate the climate transition in the city. During this time, Carl also held key roles in academic research and educational projects in Gothenburg, focusing on complementary aspects of the city's development and sustainability challenges.

He was a board member of the international research initiative, Mistra Urban Futures, based in Gothenburg. Carl is also a World Fellow at Yale University.

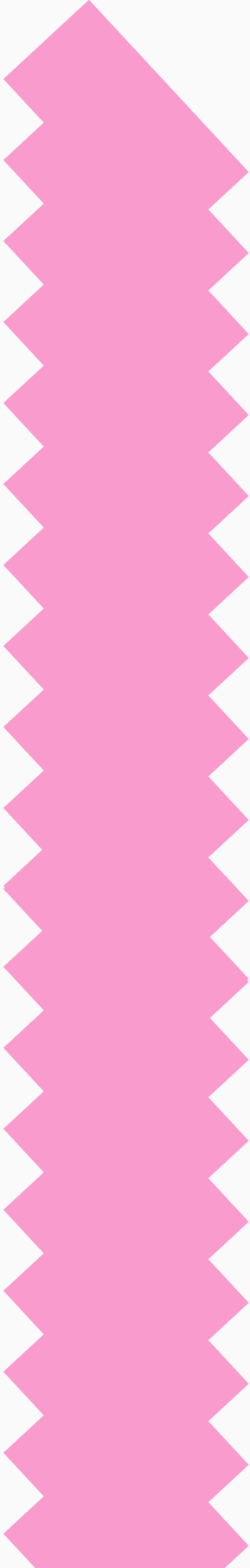
CENTRE FOR PUBLIC IMPACT

Centre for Public Impact (CPI) acts as a learning partner for governments, public servants, and the diverse network of changemakers leading the movement to reimagine government so that it works for everyone.

Founded by the Boston Consulting Group, CPI supports cities with the organisational, informational, financing, and community engagement approaches needed to accelerate and sustain climate action.

For CPI, working with cities to catalyse climate action has been rewarding and challenging, with the complexity of systems change and the practicalities of local government's limits at the core. The team is always looking for new ways to understand the complex challenges cities face so that they can better serve as a learning partner to governments and help accelerate climate action.

FOREWORD



At CPI, we work to spark change, to reimagine government, and to steward a new era of governance that works better for everyone. Despite increased activity, numerous initiatives, and growing awareness of climate action, it is unarguable that we need to continue experimenting, listening to new ideas, and challenging mindsets.

When we met Carl Mossfeldt in late 2023, we agreed that there was an approach, well practised in other sectors that use political economy analysis, that was not being systematically applied to cities and their climate journeys: an analysis of the political, economic, and historical pathways and lock-ins that prevent transformative change.

Using his hometown of Gothenburg to illustrate a set of assertions that might be applicable to other cities, Carl and our team at CPI have developed this report. Our hope is that, in reading this, you find it interesting, perhaps it shifts something in your mind, and most of all, we hope that you have a moment of affinity or curiosity – “I wonder if these are the challenges we’re facing?”

If we can recognise parts of our own cities’ challenges in those of others, we can source alternative pathways and futures, and imagine and create truly transformed, resilient urban spaces for everyone.

We are always interested in hearing reactions, thoughts, and ideas, so please get in touch with us at climate@centreforpublicimpact.org.

Happy reading,

CPI'S CLIMATE ACTION TEAM

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EXECUTIVE SUMMARY

The world is in the midst of a deep and far-reaching energy transition. While the pace of this transition is impressive in many ways, more is needed to meet scientifically-set climate targets. There is an urgent and intense need to remove obstacles to the transition and improve support structures for key actors.

In this effort, urban environments must be given a special focus, as cities account for more than 70% of global greenhouse gas emissions but struggle to implement ambitious initiatives. Plenty of learning is already taking place in this area, spotlighting barriers such as limited access to finance, siloed administrative practices, and lack of effective processes for public engagement.

Complementing existing research, this report highlights critical and neglected problems that threaten to hold effective urban transitions back.

THREATS TO URBAN TRANSITIONS



Lock-ins

Political and administrative decision-making processes at a municipal level risk getting stuck in infrastructural and political “lock-ins”. This keeps a city on a “business as usual” development path and steers it away from more ambitious transition initiatives.



Capabilities

The problem originates in the new momentum for change in the global energy and industrial systems, which requires leaders to adopt new perspectives and build new capabilities that do not fit easily with established municipal practices.



Risk Sharing

This new strategic landscape requires new alliances and risk-sharing agreements - with the state, EU-/federal-level actors, and global business and finance - to assess, mitigate, and manage the risks inevitably involved in the transition.



Incentives

The challenge of building new alliances, combined with weak municipal accountability structures, means that municipal leaders face incentives to concentrate on less ambitious operational initiatives, even when these reinforce existing path dependencies.

This report draws on Carl Mossfeldt's experience working with and within the city administration of Gothenburg, Sweden, to illustrate the challenge. In Gothenburg, the "lock-in danger" manifests around the energy system, which is highly efficient but also deeply integrated with the uncertain futures of global fossil energy and bioenergy flows.

Given this uncertainty, alternative development scenarios for the local energy system must be built out and considered, including the possibility of more radical shifts that may require significant changes to local infrastructure. This case study shows that such shifts would require a coordinated systemic response from the city, which it currently lacks the capability to implement. Consequently, municipal leaders face incentives to play down the likelihood that such shifts will take place. In the worst case, a political lock-in emerges when a more radical approach is taken off the political and administrative agenda altogether.

This report argues that the problems and potential solutions in Gothenburg are broadly applicable to other municipalities, supported by other case studies documenting different aspects of these problems. The underlying issue that unites these cases is the governance gap that has emerged in recent decades between the operational focus of municipalities and the uncertain strategic landscape of global business and finance. This problem receives insufficient attention, resulting in too much hope placed on what municipalities can accomplish on their own in the climate and energy transition, through efforts to build organisational capability. Correspondingly, insufficient attention is paid to transition risks and to the need for systemically focused capabilities that can help mitigate such risks and unlock more effective climate action.

At its core, the problem reveals a democratic deficit. Risks faced by communities and possible opportunities are not adequately explored in the public debate. This calls for new regulatory efforts and the entry of new public, private, and civic voices into this debate.

To overcome these challenges, support programmes for cities should evolve beyond city authorities, which can be limited by political lock-ins. Three key approaches are necessary: in the short term, diverse groups should collaborate to analyse systemic risks; in the long term, we must build capabilities within the transition system and introduce regulations or incentives to foster transformation.



INTRODUCTION & KEY INSIGHTS

THE CONTEXT: NEW LEARNING TO UNLOCK URBAN TRANSITIONS

Intense focus on urban climate and energy transitions has led to a flurry of action at the city level. Yet, cities struggle to implement the more ambitious infrastructural changes that the climate crisis demands. For example, a recent ICLEI report highlights the risk that municipalities get “stuck in a planning cycle, whereby multiple rounds of climate planning and goal updates pass without demonstrable reduction in greenhouse gas emission”.¹ There are also emerging concerns that the European Union (EU) mission programme for “100 smart and climate neutral cities by 2030” is not having the full impact hoped for.²

The situation calls for new questions and perspectives, and this report contributes to this direction. The purpose is to surface fresh ideas and spark discussions about possible blind spots in the current approaches to supporting cities in accelerating climate and energy transitions. We hope to mobilise action to build new support programmes that help address the challenges highlighted in this report.

A CASE-BASED APPROACH TO HIGHLIGHT INTANGIBLE OBSTACLES

A case study approach allows for an in-depth exploration of the challenge, including the informal pressures and intangible obstacles that might be missed in studying a cross-section of cities. This report focuses on the climate and energy transition in Gothenburg, Sweden. A mid-sized European port city, Gothenburg has a strong industrial legacy, broad public infrastructure ownership, and a thriving high-tech sector. As such, findings from Gothenburg are likely to be relevant elsewhere.

At the same time, Gothenburg has unusually good conditions to muster an effective and proactive response to the climate and energy transition, through a strong fiscal position and a capable administration. For this reason, difficulties that emerge in Gothenburg could be even more challenging in other places.³

¹ See ICLEI, The ambition gap: from intent to implementation in local climate action, 2023

² See EU Mission assessment report

³ In the language of Bent Flyvbjerg, this makes Gothenburg not only a typical case to study, but also an extreme or deviant case. See Bent Flyvbjerg, Five Misunderstandings about case based research; April 2006 Qualitative Inquiry 12(2):219-245

THE FOCUS: THE RISK OF INFRASTRUCTURAL AND POLITICAL LOCK-INS

The report focuses on the risk that administrative and political leaders at a municipal level get stuck in infrastructural and political “lock-ins”, undermining incentives to push more ambitious transition initiatives and exerting pressures that keep a city on a “business as usual” development path.⁴

Lock-ins occur when political and administrative city leaders face change pressures that demand a system-level institutional response they do not have the capability to put in place. This may, for example, involve new political and commercial alliances with other levels of government or global business actors, which can alter the strategic context within which different municipal actors operate. Getting such a response in place requires policy capability at a system level, which is different from the more internally focused organisational capabilities generally focused on in municipal development efforts.⁵

Such situations present political and administrative leaders with an uncomfortable dilemma: either they embark on costly and politically risky ambitions to build an adequate system-level response, or, they play down the risk of business as usual and concentrate on operationally focused initiatives, which they can implement and are easy to understand for voters, but may reinforce existing path dependencies. The case study shows that the pressures on political and administrative leaders to opt for the latter path can be overwhelming. The result is that ongoing reinvestment programmes and sustainability efforts increase, rather than reduce, existing path dependencies. In extreme cases, political lock-ins can emerge when the need for more radical initiatives is taken off the agenda altogether.

While the report illustrates these challenges in Gothenburg, it references other case studies which show similar problems in Baltimore, New Haven, and the Ruhr area of Germany. Hence, more attention must be directed at building the new system-level capabilities needed to respond.



⁴ For a recent full treatment of “lock-ins”, see Jenny Goldstein et al, “Unlocking “lock-in” and path dependency: A review across disciplines and socio-environmental contexts”; World Development, Volume 161, January 2023

⁵ For an academic treatment of “systems level capabilities”, see Susana Borrás, et al., The transformative capacity of public sector organisations in sustainability transitions; Environmental Innovation and Societal Transitions; as well as X. Wu, et al., Policy capacity: A conceptual framework for understanding policy competences and capabilities, Policy and Society (2015)

KEY TAKEAWAYS FROM A CASE STUDY OF GOTHENBURG, SWEDEN



PART ONE

The challenge of a globally integrated transition

The case study begins with the new strategic landscape that has emerged in the recent decade, marked by the shift in the global energy and industrial systems away from fossil fuels and towards new non-fossil-based energy and industrial systems. While this situation represents progress in the fight against climate change, it poses new challenges to political and administrative leaders in a city like Gothenburg. In particular, they now need to plan and implement the city's climate and energy transition in the context of highly uncertain broader development trends.

Part one illustrates what this new dynamic transition challenge looks like in Gothenburg. It shows how the local energy system, characterised by an efficient integration of local energy flows, must now take into account the uncertain and rapidly shifting global flows of energy, materials, and capital. The new dynamic transition challenge is not merely to ensure that the local energy flows and infrastructure interplay in ways that eliminate local CO₂ emissions, but to do so while ensuring that this fits within the context of uncertain and shifting global development patterns. This implies the need for a pivot in the focus of municipal political and administrative leaders, from leading local action to reading global developments and spotting opportunities in the emerging landscape.

Practically, this means that the starting point for the energy and climate transition in cities should not be "How can we make this city, as it is, carbon neutral?", as this makes too many assumptions about what the city is, both physically and institutionally. Instead, the starting point should be: "What new infrastructural and institutional arrangements are needed in the region for the people and communities to continue to thrive in a world moving towards carbon neutrality?"

KEY TAKEAWAYS FROM A CASE STUDY OF GOTHENBURG, SWEDEN



PART TWO

The need for a coordinated systemic response

The second part of the case study illustrates the dynamic transition in Gothenburg in greater detail, to clarify the new system-level capabilities required for an adequate response.

This part begins by showing how ongoing global pressures threaten to unravel the synergistic interplay of infrastructure that currently makes the local energy system so efficient: the energy port, the refineries, the combined heat and power (CHP) plants, the district heating system, the electricity networks, and the housing and industrial structures.

Two scenarios demonstrate what new possible equilibria may look like for the energy system:

- In the first scenario, global technological, regulatory, and market developments mean that carbon capture and bioenergy have become competitive in Gothenburg, allowing the city's current energy infrastructure to continue profitably.
- In the second scenario, global trends make both carbon capture and bioenergy uncompetitive in Gothenburg, pushing instead a more radical shift of the energy system towards electrification and efficiency measures. This second scenario implies the need for a more significant renewal of the underlying infrastructure.

These scenarios illustrate the challenges political and administrative leaders in Gothenburg face in navigating the new dynamic transition landscape, and the new kind of system-level capabilities needed.

This includes the analytical capability to assess the transition risks faced by different parts of the municipal system and how they correlate, as well as the operational capability to build the new partnerships and alliances required to manage and mitigate these risks.

KEY TAKEAWAYS FROM A CASE STUDY OF GOTHENBURG, SWEDEN



PART THREE

The difficulty of mobilising a systemic response

The third part of the case study argues that implementing the new system-level capabilities is hard. Such capabilities tend to emerge in the interplay of different political and administrative actors as part of broader societal trends, making them difficult for any one actor to pinpoint and implement. To illustrate this, the case study explores how the governance landscape in Gothenburg has evolved over recent decades.

First, the “old governance model” of the city is described as a local version of the broader corporatist governance model that emerged in Sweden in the post-war period. In this model, the system-level capabilities were largely anchored in the political sphere, where they took the form of an ongoing negotiation between organised labour and big industry, mediated by the Social Democratic Party.

Jointly, these groups reached into most spheres of society. The broad overlap of interests among them thus gave broad legitimacy to the “mission-based policies” that emerged. This, in turn, allowed the Social Democratic Party to impose these policies on the municipal and state administration, ensuring efficient systemic implementation.

Thereafter, the demise of this “old model” is described as the result of globalising economic pressures which fragmented the underlying coalition between industry, labour, and the Social Democratic Party. This undermined the system-level capabilities that existed in the past.

This section also describes how reforms have been pushed in Gothenburg in recent decades to develop new ways to ensure mission-oriented strategic coordination of public efforts. Crucially, these reforms have focused on building internal municipal organisational capability, so it should be no surprise that they have not had the desired strategic effect.

Instead, a power and accountability vacuum has emerged around strategic questions in the city, with the operational focus of the administration drowning out more strategic concerns.

KEY TAKEAWAYS FROM A CASE STUDY OF GOTHENBURG, SWEDEN



PART FOUR

The transition dilemma and risk of lock-ins

The last part of the case study argues that these observations present political and administrative leaders in Gothenburg with a “transition dilemma”. While new system-level capabilities are needed to respond proactively to the emerging systemic infrastructural pressures, it is challenging to put such system-level capabilities in place, given recent global and local institutional and governance trends. Faced with this dilemma, there may be overwhelming pressures on municipal leaders to play down transition risks and focus on operational efforts, as a way to avoid risky governance reforms. At the extreme, a political lock-in emerges, where more radical transition initiatives are taken off the political table altogether.

It is important to note that the forces taking Gothenburg in this direction are structural, with no connection to the skills or motivation of the individuals involved.

Framed this way, it is clear that the informal and partly hidden pressures that push a city towards path dependencies and lock-ins are not unique to Gothenburg. Evidence from case studies on Baltimore, New Haven, and the Ruhr area underlines this.

This suggests that the broader problem is the governance gap that has opened up in recent decades, between operationally focused municipal practices and the globalised industrial and financial systems that increasingly set the terms for local developments. More generally, the problem reflects the struggle of these industrial cities to renew themselves institutionally for a new post-industrial era.

Part four ends by noting that the problems of path dependencies and lock-ins reveal a democratic deficit, as they imply that there are risks and opportunities at a municipal level not adequately explored in the democratic process.

Importantly, this democratic deficit does not stem from a lack of public engagement per se but rather from the fact that important information never enters the democratic debate because the right questions are not asked.

IMPLICATIONS AND **WAYS FORWARD**

These findings have potentially far-reaching implications, as they indicate that our democratic institutions might respond to new strategic threats like the energy and climate transition through lock-ins rather than renewal. New support efforts and interventions are needed to unlock urban climate transitions.

THREE EFFORTS STAND OUT AS PARTICULARLY IMPORTANT

1



New actors, research, and systemic analysis

New coalitions of private and civic actors must step forward to help fill governance gaps that municipal, state, and EU-/federal-level actors are slow in responding to. These actors can play a crucial role in identifying transition risks through methods like systems mapping, deep citizen engagement and visioning approaches that identify risks, explore transition scenarios and reimagine pathways forward. These groups offer a valuable distance from entrenched political barriers, especially where this involves highlighting uncomfortable risks. This would necessarily require research and development (R&D) resources directed to these independent groups, allowing them to develop the necessary context-specific relationships and understanding.

2



Support to municipalities

State and EU-/federal-level actors must proactively support municipalities to develop new capabilities and governance tools to identify and respond to transition risks, including how to: analyze global trends and their local risks and impacts; develop dynamic transition strategies that indicate realistic ways forward; and break down internal silos and foster strong partnerships with regional and state actors to implement such strategies. This would pave the way for more robust cooperation and risk-sharing arrangements between different levels of government, helping to close the gap between municipal climate policies, regional development policies, and state and EU-/federal-level industrial policies. Here, an evolved version of the “City Climate Contract”⁶ developed at an EU-level could play an important role, alongside peer-to-peer learning networks.

⁶ See “EU Mission: Climate-Neutral and Smart Cities”; European Commissions Research and Innovation

3



Regulatory reforms

Once risks are identified and validated, systemic change will require the support of regulatory reform to ensure “transition risks” – understood broadly as hidden threats to the interests of people and communities – are adequately considered in the political and administrative processes even when they have uncomfortable implications for public actors. This would shift the balance of incentives in the democratic process, making political and administrative leaders more likely to respond to the transition with institutional renewal rather than political lock-ins.

Overall, these efforts would aim to fill the governance gaps that threaten to generate lock-ins, by altering incentives for existing actors and bringing new voices into the public debate.

The hope would be to enrich the democratic debate and empower local constituencies to shape their own compelling narratives about the risks and opportunities in a rapidly shifting world, the sometimes painful decisions to navigate these, and the new partnerships and alliances required to unlock urban climate transitions.



A CASE STUDY OF GOTHENBURG, SWEDEN



PART 1 – THE CHALLENGE OF A GLOBALLY INTEGRATED TRANSITION

1.1. WHY GOTHENBURG?

A TYPICAL MID-SIZED EUROPEAN CITY WITH A HEAVY INDUSTRIAL LEGACY



The image shows a map of northern Europe with the location of Gothenburg marked.

Gothenburg is a mid-sized European port city located on the west coast of Sweden. Approximately one million people live in the extended region.

Originally founded in 1622 as a trading and military outpost, the city grew significantly during the industrial period starting in the mid-19th century. In the early 1930s, Götaverket, the city's main shipyard, claimed to be the world's largest shipyard. In the 1950s and 1960s, more advanced mechanical industries emerged as powerful engines of growth, with SKF and Volvo as the most prominent examples.

Now, the city hosts a world-leading electro-mobility cluster and a growing medical and biotech industry. However, Gothenburg is also marked by heavy infrastructural legacies of the earlier industrial period in the form of two major oil refineries, the largest trading port in Scandinavia, and several isolated housing projects.

HISTORICAL LIBERAL TRADITIONS SHAPED BY THE MORE RECENT SOCIAL DEMOCRATIC INFLUENCE

Gothenburg combines a strong liberal tradition rooted in the trading and commercial history of the city with what has, in the post-war period, been an increasingly powerful influence of the labour unions and the Social Democratic Party.

These political tendencies have given rise to a political and administrative model that combines public ownership of basic infrastructure with a pragmatic and results-oriented approach to its management.

HISTORICAL LIBERAL TRADITIONS SHAPED BY THE MORE RECENT SOCIAL DEMOCRATIC INFLUENCE

Historically, this model has proven very effective at helping the city renew itself through mission-oriented public investments and infrastructural programmes. For example, the city weathered the shipyard crises in the 1970s remarkably well, as more advanced economic activities, primarily linked to the automobile industry, emerged and took their place.

Similarly, when Volvo cars was sold to Ford in 1999, many people feared the end of the city's industrial success, only to be proven wrong by the emergence of a new high-tech economy built around electromobility and supported by Chinese capital.

1.2. THE CLIMATE AND ENERGY TRANSITION IN THE CITY

AMBITIOUS CLIMATE GOALS AND THE GAP IN EXISTING POLICIES

Gothenburg has adopted an ambitious climate target: "close to zero" territorial emissions by 2030. The city is also part of the EU mission to create "100 smart and climate-neutral cities by 2030". These climate ambitions run ahead of the national goal of carbon neutrality by 2045.⁷

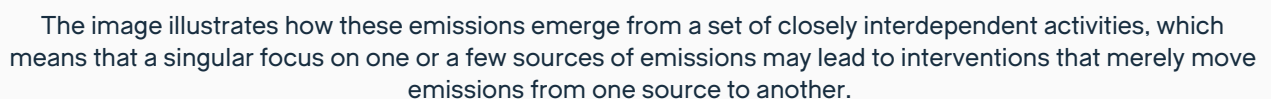
Meeting these goals is no small challenge. Currently, the city's territorial carbon emissions are roughly 2m tonnes and have been steady for over a decade. Roughly half of the emissions come from the two oil refineries in the city owned by the international companies Preem and ST1. The other half is divided roughly into emissions from traffic (0.6m) and the city's two major CHP plants (0.4m).

There are some positive developments. Decisions to build a new bio-fueled boiler at the location of the existing gas-based CHP plant could reduce carbon emissions by roughly 0.2m tonnes, as long as the gas boiler is not also required to run to meet rapidly growing electricity demand. There are also intentions to develop carbon capture for the CHP plants, but investment decisions still need to be finalised. Moreover, the broader trends towards electrification of road transportation push the city in the right direction. Yet it is evident, as confirmed by internal and external assessments, that the city is not on track to meet its climate goals.⁸

⁷ See EU Mission: Climate Neutral and Smart Cities, https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en

⁸ See Uppföljning av mål och delmål i Göteborgs stads miljö- och klimatprogram 2021-2030 samt Klimatrådets rapport 2023

MAIN SOURCE OF TERRITORIAL EMISSIONS, GOTHENBURG 2018–21. SOURCE: SMHI



The city's territorial carbon emissions result from its broader energy and industrial cluster. Thus, a systemic perspective must be adopted, focusing on how the overall energy and industrial system can evolve to eliminate carbon emissions while allowing the city to thrive.

Furthermore, the extent to which the local energy system is integrated into broader global flows of oil, gas, electricity, and biofuels must also be considered. The 15m tonnes of crude oil – equivalent to roughly 150 TWh of energy – which land yearly in the western part of Gothenburg's port illustrates this dependence on global energy flows. This oil is carried by pipelines to the two refineries in the city, which jointly produce roughly 10m tonnes of diesel and petrol. Then, trucks and trains transport these to the Scandinavian market or ship them out to international markets. In the refining process alone, 1m tonnes of CO₂ is released locally. At the same time, 1.2 TWh (Terrawatt hours)⁹ of waste heat is generated and effectively reused in the city's district heating system, where it adds a third of the total heat.

Similarly, the main CHP plant in the city, Rya kraftvärmeverk, is gas-fired and ties the local energy system into the European gas markets. It is the indirect result of the national decision to connect the country's west coast to the European gas network during a period when Sweden's nuclear programme was in doubt. The plant is a major source of electricity and heat, producing 260 MW or 1.25 TWh of electricity and roughly 1.3TWh of heat. The other main CHP plant in the city runs on waste. Regional household waste makes up less than half of the waste incinerated. The rest comprises commercial waste, mainly wooden and plastic waste from building sites. Such waste flows are traded on the open market as fuel. Roughly 26% of these commercial waste streams are imported from the UK.¹⁰ This plant, which produces 230 MWh of electricity and adds another third of the heat to the district heating system, ties the local energy system into global flows of waste and biomaterials.

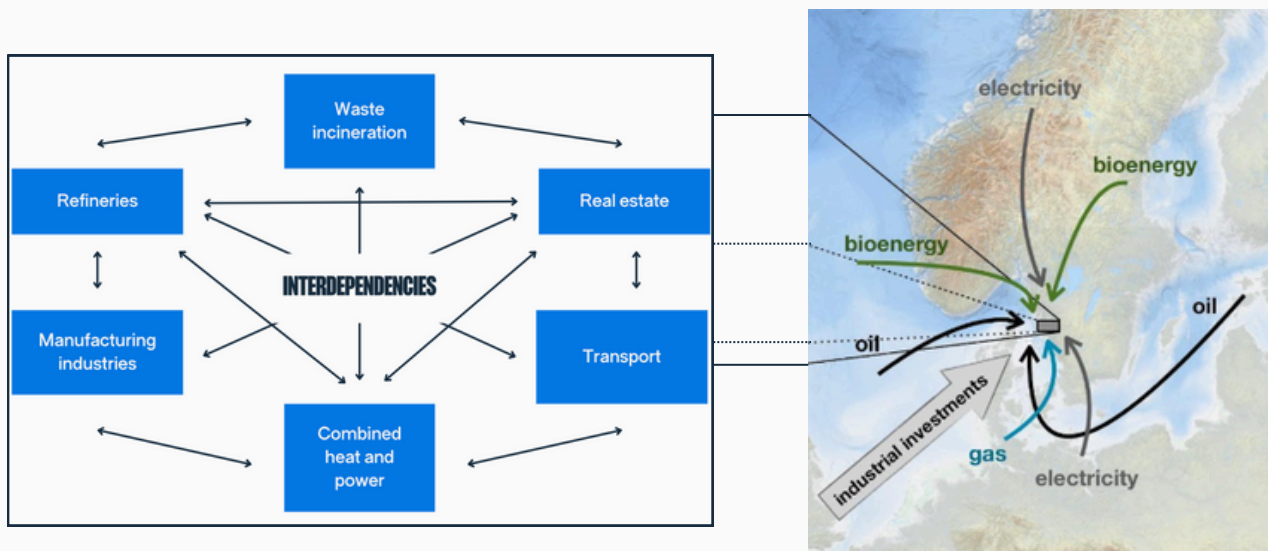


⁹ Terawatt hours, abbreviated as TWh, is a unit of energy representing one trillion watt hours. A kilowatt hour is equivalent to a steady power of one kilowatt running for one hour. [Glossary: Terrawatt Hour](#)

¹⁰ In 2023, Renova incinerated 485 500 tonnes of waste in total. 220 000 tonnes was commercial waste, out of which 40 272 tonnes were imported from the UK and smaller amounts from Norway, Denmark and Poland. The remaining volumes were biological waste. See Renova, Hållbarhetsredovisning 2023

The efficient integration of these energy flows in the local system means minimal electricity use in the heating system, reserving the already strained electricity supplies for industrial needs. This is important to the city's electromobility cluster, which is amid a boom driven by global investments into this sector and new transition industries such as biofuels and biomaterials.

Furthermore, it illustrates how energy supply depends on uncertain global and regional flows of oil, gas, biofuel, non-bio waste and electricity, while energy demand depends on uncertain global capital flows into local and regional industrial developments. Hence, the local energy system must be optimised as an integrated nexus of broader and highly uncertain global flows of energy, capital, and material goods.

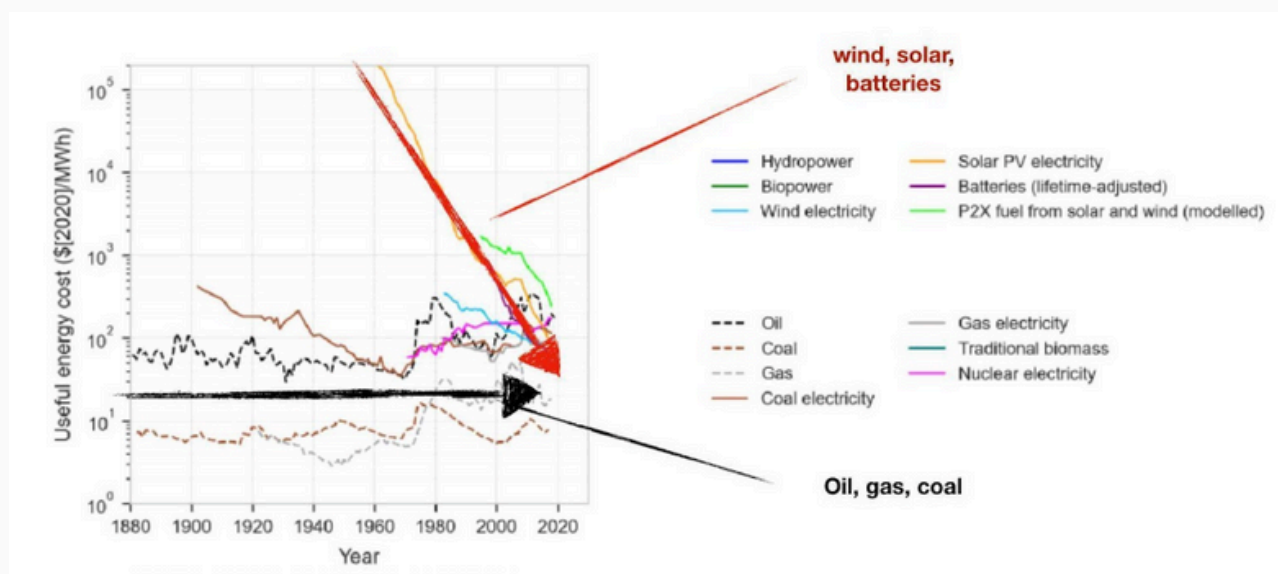


The image illustrates the new dynamic transition challenge, whereby the local interplay of energy flows and infrastructures must be optimised in relation to uncertain and shifting global flows of energy, materials, and capital. While existing administrative capacities may be adequate to manage the first part of this problem, new system-level capabilities are required to manage the new problem.



1.3. THE NEW DYNAMIC TRANSITION CHALLENGE

NEW GLOBAL CHANGE PRESSURES



The image shows the learning curves of different energy technologies and how these have driven the cost of “useful energy”, i.e. the energy that can be put to productive use from wind solar and batteries to parity with that from fossil fuels. Source: Oxford University, School of New Economic Thinking.

In recent years, the global energy transition has picked up momentum in Gothenburg. The relatively new technological breakthroughs in solar power, wind power, and batteries are driving this at the global level, making fossil-free energy systems cost-competitive with fossil-based systems. In turn, this has knock-on effects on the broader global energy and industrial landscape, as global investment flows shift in favour of new emerging production techniques, new industrial clusters, and thus new geographies.

Generally, these developments represent a huge success in the fight against climate change. In no small part, they are the result of public action, initially in Europe and China but more recently also in the US: proactive R&D investments, risk-sharing in early industrial development phases, and ever tighter regulatory pressures. At the same time, these developments have given rise to a more dynamic strategic landscape that presents a city like Gothenburg with real challenges.

THE NEED FOR NEW PERSPECTIVES

In this new uncertain landscape, Gothenburg must address its integrated climate, energy, and industrial transition from a dynamic perspective. The impact of transition initiatives, as well as their costs and associated risks, will largely depend on how broader global development trends play out locally. Thus, what the city can and should do to help accelerate the transition crucially depends on what new structural openings emerge. A city like Gothenburg can no longer focus merely on leading local climate action; it must also add a new focus on reading global development trends, assessing the risks these pose locally, and preparing for more ambitious transition initiatives required to respond to these developments.

A NEW VERSION OF AN OLD CHALLENGE

In principle, this is not a new situation. Cities have always constituted local manifestations of broader global technological, commercial, and political developments, such as new productive methods, trade flows, and energy sources. However, in times of more rapid and radical shifts, this dependency on external global trends becomes more visible and important. This can be illustrated by looking sweepingly at the broader historical developments that have shaped Gothenburg and the different technological transitions that they manifest.

When the city was founded in 1622, the underlying driver was the breakthroughs in sailing technologies that opened new transatlantic trading routes. This positioned Gothenburg as a new military and trading outpost, as it offered a protected ice-free port to the west, where national rivers met the North Sea. The early city thus allowed the Kingdom of Sweden to engage with the emerging trading opportunities that were beginning to rival the traditional trading cartel, the Hanseatic League, that had dominated the earlier period of trade around the Baltic Sea.

When Gothenburg began to expand rapidly in the early phase of industrialisation, the underlying driver was the arrival of steam power. However, it was the new national infrastructural systems – the canal network, railroad and, later on, regional and national electricity grid – that allowed national industrial production systems to emerge. As a result, wood and iron ore from the north of the country could be brought to Gothenburg, where engineering know-how and industrial capital allowed these basic resources to be turned into advanced mechanical goods and shipped to international markets. Thus, the port of Gothenburg turned from being primarily a trading outpost oriented to the west to becoming the industrial hub of a broader national production system reaching north and east into Sweden.

Similarly, the more recent expansion of the city in the post-war period was largely powered by the new global oil flows and the emergence of a personal automobile culture in Europe and the US. More advanced industrial clusters based around the car industry thus emerged on top of the engineering know-how and capital structures underpinning the shipyards. This necessitated the expansion of the industrial port to the west of the city and the establishment of an oil terminal and two oil refineries. This rapid oil-fueled development drove the construction of several modernist housing projects, around which the early district heating systems were built. The latter would later be integrated into a city-wide heat network connected to the refineries.

The idea that cities must be understood as largely the product of external trends and forces is well established. However, it is relatively rare that technological shifts have such a profound and rapid impact on a city's development, which only happens in periods of more radical global technological and political shifts. There are reasons to believe that we are now in the midst of such a radical transition.



A CASE STUDY OF GOTHENBURG, SWEDEN



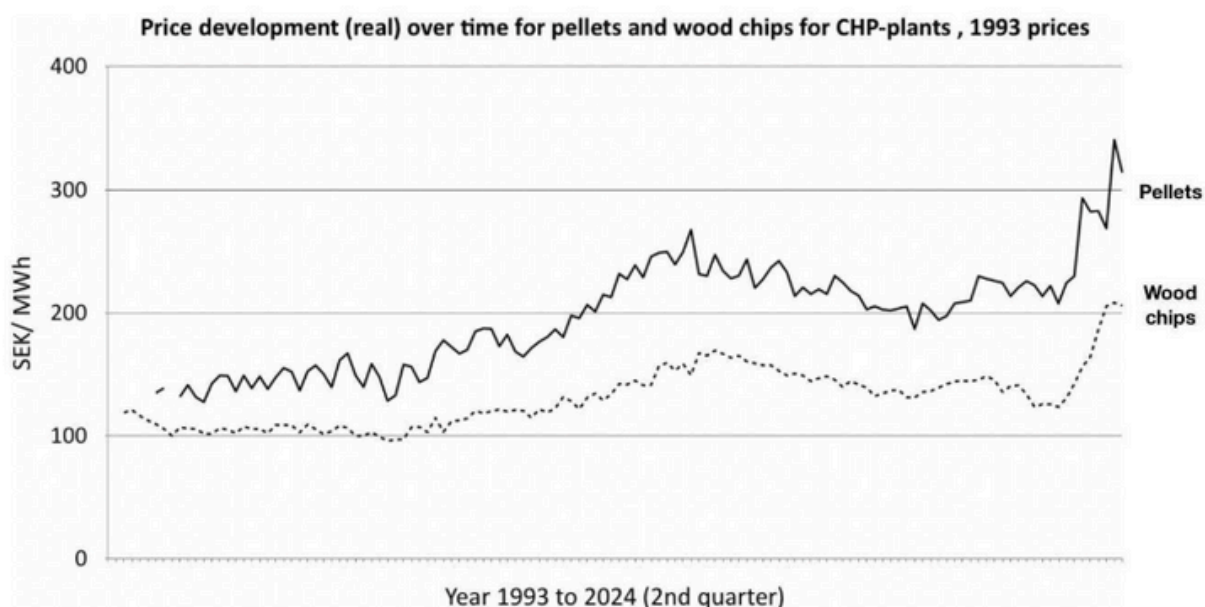
PART 2 – THE NEED FOR A COORDINATED SYSTEMIC RESPONSE

2.1. EMERGING CHANGE PRESSURES IN THE CITY

EMERGING CHANGE PRESSURES MANIFESTING IN GOTHENBURG

The pressures of the global energy and industrial transition are already visible in Gothenburg. For example, battery production has been a focus for the local car industry, with a new, large battery plant under construction next to the old Volvo production site in the North-western area of the city. It was initially a joint venture between Volvo, now under Chinese ownership, and Northvolt, the Swedish battery start-up, with Volkswagen and Goldman Sachs as the main equity holders. However, with the recent financial troubles of Northvolt, Volvo is currently exploring new partnerships, highlighting the many uncertainties of the transition.

Similarly, the refineries are interested in testing large-scale production of bio- and electro-fuels, which would require large volumes of green hydrogen. In a scenario where all these industrial developments would take place, electricity demand would dramatically increase.¹¹ This has pushed the need for new grid infrastructure and new generation capacity high up on the political agenda. These potential developments would give Gothenburg's combustion-based district heating system new strategic relevance, as it provides a way to heat the city with minimal demand on the already strained electricity system.



The graph shows the evolution of wood chip and pellet prices for CHP plants in Sweden, illustrating the long-term price increase and the recent dramatic rise in prices following the Russian invasion of Ukraine and the European gas crises. Source: SCB; author's analysis.

Climate concerns combined with steep price increases triggered an urgent move away from natural gas usage, which in turn led to the addition of a bio-fuel boiler to the Rya kraftvärmeverk CHP plant. This reduces the city's reliance on gas, but increases its exposure to the risk of rising prices for biofuels. Prices have shot up in recent years, and they may increase further as Europe transitions away from fossil fuels and the demand for bio-based feedstock for petrochemical processes is expected to rise.

¹¹ Behovsanalys av elanvändning, produktion och distribution i Västra Götaland på kort och lång sikt. Kunskapsunderlag till Länsstyrelsen; Susanne Ackeby, Lovisa Axelsson, Maria Edvall, Lina Eriksson, RISE Rapport : P120009:01

DIVERGING FORCES THREATEN TO UNDERMINE EXISTING SYNERGIES

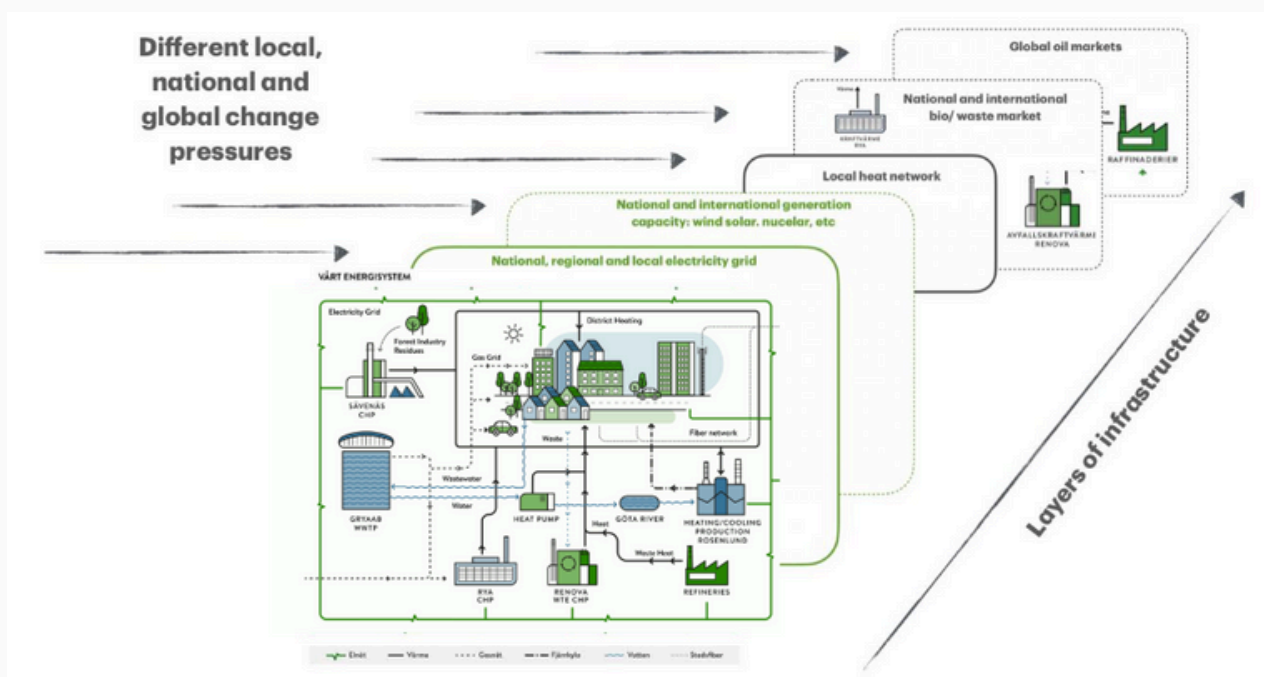
Different actors and governance mechanisms control the development of the various parts of the energy system, making a smoothly managed transition especially complex.

While the port, CHP plants, and district heating system are municipally owned, the refineries are controlled by privately-held foreign groups, who are now planning investments requiring new electricity supplies. The electricity grid is divided into three parts: the local grid, owned and operated by the municipal energy company in Gothenburg; the regional grid, owned and operated by state-owned Vattenfall and private group Ellevio; and the national grid, owned by the national agency Svenska Kraftnät.

In addition, the parts of the energy system owned by the municipality and the state are deeply integrated into international markets, making their operations dependent on global flows and price fluctuations. For this reason, the CHP plants are tied to national and global markets for gas, waste products, and biofuels. The electricity grid is integrated into a system with different national and international generation capacities: the local CHP plants; the national nuclear plants; the hydro-dams in the North; expanding wind power capacity; and the European electricity markets.

Each of these parts, or “layers”, of the local energy system is governed by different actors who operate locally, regionally, nationally and globally, and are subject to different and possibly divergent pressures. Therefore, the dynamic transition challenge poses a short-term challenge for Gothenburg: how will the new global change pressures affect the different parts of the energy system?

The concern is that the synergies of the city’s different kinds of energy infrastructure may turn out to be short-lived, requiring more substantial and systemic changes going forward.



The image illustrates how different layers of the local energy system are affected by several local, national and global change pressures that threaten to undermine the effective integration of the system. Source: Göteborg Energy; author's analysis.

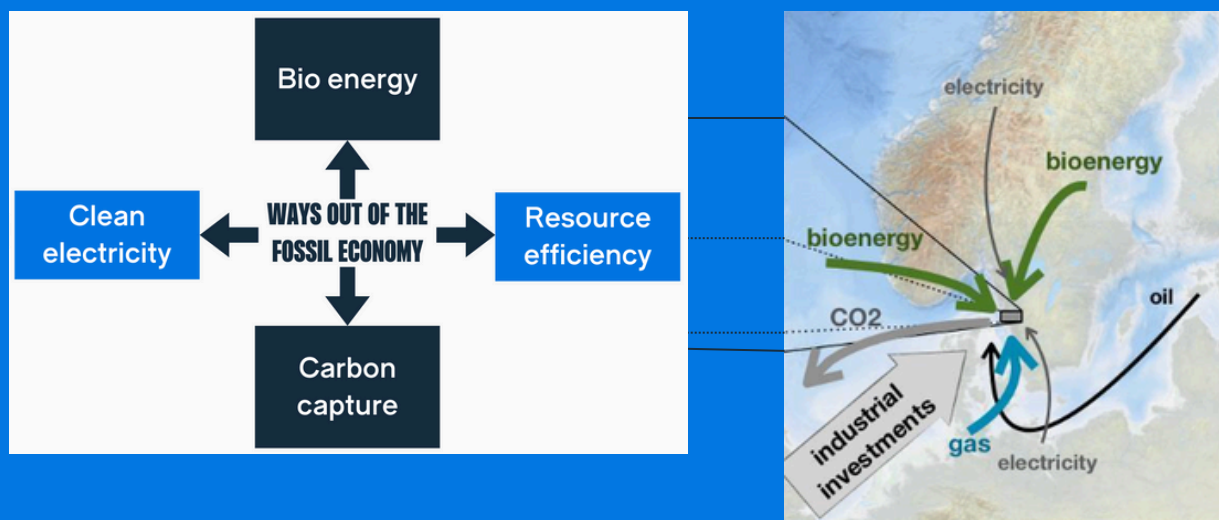
2.2. ALTERNATIVE DEVELOPMENT SCENARIOS

CHARTING TRANSITION PATHS IN UNCERTAINTY

Two scenarios illustrate how the integrated local energy system might evolve and the associated risks of each. The scenarios are based on different assumptions about how global and local technological, regulatory, and commercial developments will play out, determining which investments in the city will turn out to be profitable. For example:

- Will refining be profitable in Gothenburg despite lower demand for liquid transport fuels?
- Will carbon-capture technology be commercially viable for the smaller local CHP plants?
- Will bio-fuel prices continue to increase?
- Will new demand patterns and new supply capacity lead to higher or lower electricity prices?
- Will breakthroughs in heat and energy storage undermine the district heating system?

SCENARIO 1 – TRANSITION TECHNOLOGIES AND CONTINUED PATH DEPENDENCY



The image illustrates how Gothenburg could transition away from fossil fuels by adopting bio-energy and carbon-capture technologies, which allow carbon neutrality without substantial changes to the underlying asset base (Scenario 1).

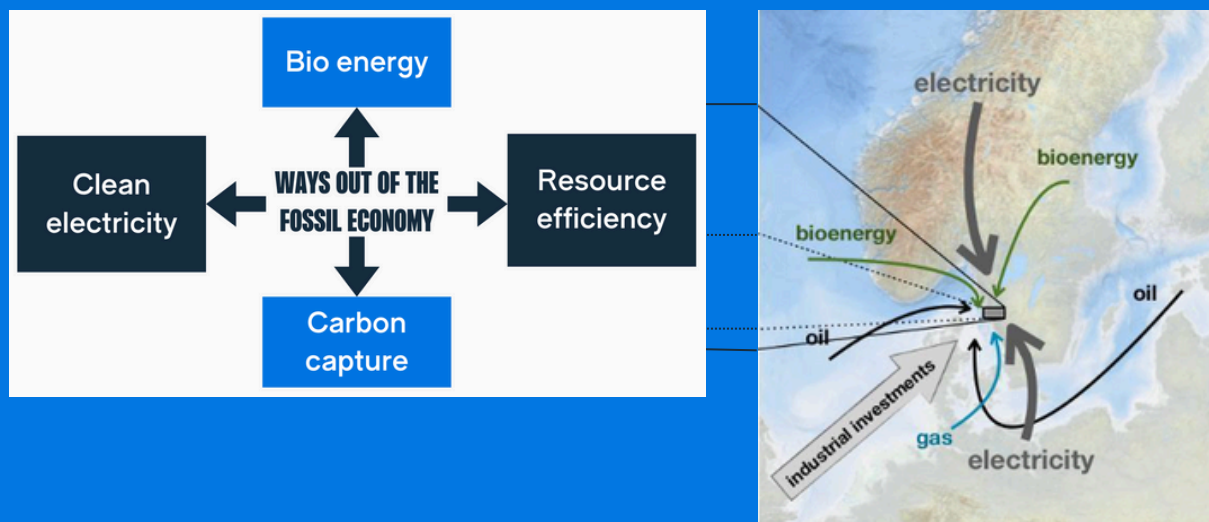
In the first scenario - path dependency - significant investments in carbon-capture technology and increased use of biofuels allow the transition away from fossil fuels without major changes to the infrastructure underpinning the energy system. This would allow much of the city's oil-based energy infrastructure to be retrofitted for a new climate-neutral era.

The port would import bio-oils and bio-based waste products to be used as feedstock for internationally competitive bio-refineries, while exporting CO₂ captured by the refineries and a new generation of CHP plants. Existing capital structures both in the port and in the refineries would thus remain relatively constant.

With sustained production volumes in the refineries, excess heat would continue to flow to the district heating network, offering carbon-free heat for the buildings in the city. This would limit incentives to adopt more radical energy efficiency measures in the old housing stock.

Electricity supplies – expected to be limited and thus expensive in this scenario – would continue to be reserved for emerging industries with high electricity demand. The remaining gas boiler could be fitted with carbon-capture technology to increase the local electricity supply without additional carbon emissions.

SCENARIO 2 – A TECHNOLOGICAL SHIFT AND PATH RENEWAL



The image illustrates how Gothenburg could transition away from fossil fuels by increasing clean energy production and focusing on electrification and resource efficiency, likely requiring substantial changes to the underlying infrastructure (Scenario 2).

In the second scenario – path renewal – technological and commercial developments open up an alternative transition path for the city, built on new clean electricity generation and resource efficiency rather than bioenergy and carbon capture. In this scenario, large-scale production of liquid biofuels does not develop in Gothenburg. Successful players in liquid biofuels and carbon capture might instead be cities with favourable geographies, advantageous regulatory regimes, and access to cheap hydrogen and carbon-capture infrastructure, such as Rotterdam.

New regulatory pressures and international demand for bio-based fuels and feedstock make these too expensive for the local CHP plants, undermining the competitiveness of the broader district heating system. Similarly, carbon capture turns out to be too costly for commercial viability in Gothenburg's smaller bio-based CHP plants. In this scenario, electricity prices remain moderate, as the expansion of wind power accelerates and refineries and petrochemical actors fail to raise the required capital to produce green hydrogen.

This would disrupt the economics of the district heating system and trigger the electrification of industrial and residential heating. As a result, there would be greater incentives to invest in more effective insulation, heat and electricity storage, and smart metering and steering in the housing sector. This, in turn, would support more radical retrofitting initiatives in the city's old housing stock.

2.3. TRANSITION RISKS AND NEED FOR NEW CAPABILITIES AT THE SYSTEM LEVEL

THE NEED FOR NEW SYSTEM-LEVEL CAPABILITIES

The city's municipally-owned heating and electricity system needs significant reinvestment. It is estimated that around US\$2bn is required over the next ten years, with roughly double that amount required if including municipal housing retrofits and developments.¹² This constitutes an opportunity to transition the energy system in a new direction.

The uncertainties and risks surrounding the future development of the energy system in Gothenburg shine a light on the new capabilities required for the city to navigate the transition in an agile and cohesive way. City officials must continually assess transition risks to evaluate what scenarios seem most likely at a given time. Based on this, they can adjust investments and undertake new initiatives to manage and mitigate risks. All this must take place in close dialogue and partnership with external actors.

THE NEED FOR A PORTFOLIO PERSPECTIVE ON TRANSITION RISKS

Importantly, transition risks must be assessed at a portfolio level, not only at the level of each municipal company, as risks may be correlated for different actors. For example, if the main refinery operator in the city, Preem, were to close or scale down operations in Gothenburg in response to falling demand for liquid fuels, revenues from the municipally-owned port would decrease and, at the same time, heat production costs would rise for the district heating system. With limited opportunities for the municipal housing company to pass higher costs to tenants, given current regulations, asset values would drop.

Similarly, a continued rise in bio-fuel prices would lead to higher production costs at the CHP plants, compressing margins for the municipal energy company and again generating higher costs for the municipal housing company. If this happened during a period of relatively modest electricity prices – i.e. a shift in the relative price of biofuels and electricity – the municipal energy company could begin to face competition from private actors offering to switch residential and commercial property owners from district heating to individual heat pumps. This could pose a serious threat to the long-term viability of the established business model of the local energy company.

¹² As per Gothenburg's long term investment plan, "Förutsättningar för budget 2023–2025 Sammanställning av bolagsstyrelsernas långsiktiga investeringsprognoser för perioden 2023–2032"

THE NEED FOR A PORTFOLIO PERSPECTIVE ON STRATEGIC DEVELOPMENT PROJECTS

To manage and mitigate these risks, a portfolio perspective is also required for the different R&D projects the city is pursuing. For example, if there is even a small risk of a broader technological shift in the heating system towards electrification and heat pumps, significant investment programmes may be called for in both the local energy and housing companies. Coordination would be essential since new local heat pump-based networks may need to be integrated with new types of radiators and new heat storage in buildings.

Without sufficient coordination, housing and energy companies might shift investments in accordance with different sets of scenario assumptions, pulling the energy system in different directions and increasing the level of transition risk in the system.

THE CAPABILITY GAP IN STRATEGIC COORDINATION AND RISK MANAGEMENT

Crucially, most of the risks involved in the above scenarios are strategic risks, where the key unknown factors are new private investments, new regulatory frameworks, and new forms of state support. As such, effective engagement with external actors is necessary to understand their strategies, develop joint efforts to limit municipal risk exposure, and manage risks that cannot be shared with other actors. The portfolio-level capabilities described above for assessing, mitigating, and managing municipal transition risks must focus on building new partnerships and alliances. They must be directed outwards at the systems level, rather than inwards at the organisational level.

Current assessments of the city's climate and energy policies indicate that this central strategic coordination and risk management capability could be improved.¹³ Ongoing and higher-profile transition initiatives – building a bio-fuel boiler at Rya Kraftvärmeverk and ambitious attempts to build carbon-capture and storage capacity – indicate continued path dependency as described in Scenario 1. However, this scenario is not explicitly endorsed by the city, or even explicitly discussed. Rather, it appears to be taken for granted.

THE DEMOCRATIC DEFICIT

While Gothenburg could continue operating as usual, significant risks are associated with this scenario. First, the city would only meet its climate targets under extremely ambitious assumptions, the notable one being that the refineries make massive and highly risky investments to convert to carbon-free operations. Second, this scenario could leave a less competitive and financially valuable energy system in place. Third, continued path dependency may bypass valuable economic and R&D opportunities, especially for new energy technologies and climate solutions based on smart electrification and efficiency.

While these risks may be worth taking, they must be presented to the public and considered in the democratic debate.

¹³ See Göteborgs Strategiska klimatomställningsarbete 2020–2023

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PART 3 – THE DIFFICULTY OF MOBILISING A SYSTEMIC RESPONSE

3.1. A SHIFTING GOVERNANCE LANDSCAPE

The emerging change pressures on the energy system calls for a coordinated and proactive response by the city to avoid defaulting to continued path dependency. A “wait-and-see” approach could lock the city into its existing development path given its ongoing reinvestment programmes. However, a proactive response needs to earn legitimacy and support to mobilise the necessary resources. This requires close interaction with actors across different areas of governance: the civic space, the municipality, the state, the EU, and private industries. Building these system-level capabilities is a challenge for Gothenburg.

To further illustrate this challenge, it is useful to look back at the times when Gothenburg was successful in navigating significant structural challenges. The section below explores what is referred to here as “the old governance model” in Gothenburg. More specifically, it discusses the way in which system-level coordination took place in this model and why the model was undermined as lessons for the future. In particular, two organisational reforms implemented in Gothenburg in the last decade are highlighted. These reforms have not been as successful as hoped for because they primarily focused on internal and organisational change in the municipality and insufficiently focused on developing new system-level capabilities.



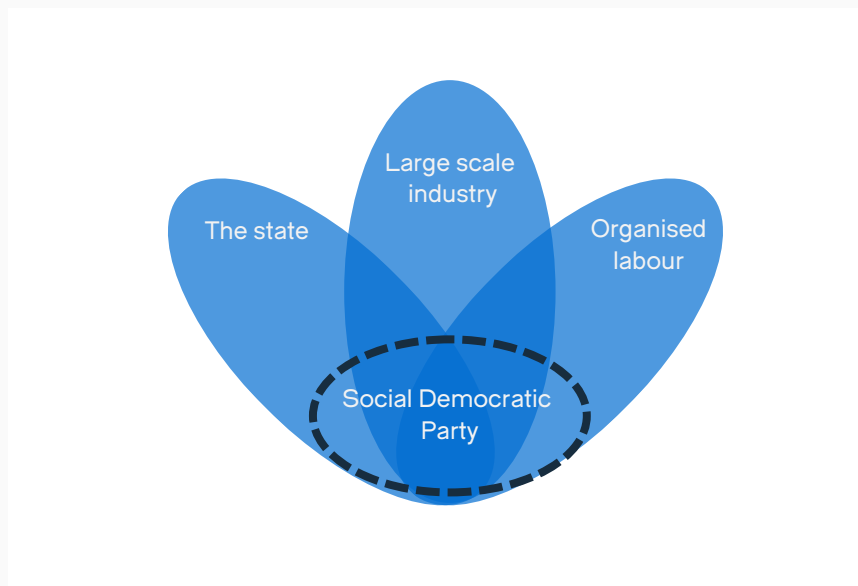
3.2. THE OLD GOVERNANCE MODEL

THE CORPORATIST ORGANISATION OF POWER IN SWEDEN

The old governance model in Gothenburg emerged as a result of the powerful national industrial project in Sweden. At the heart of this model was the dominance of the social democratic movement in the country, which allowed the Social Democratic Party to establish itself at the overlap of three groups in the national industrial project: the state at a municipal and national level, the organised labour movement, and the major national industrial groups.

The country's physical infrastructure that tied it together as one production system – through canals, rail roads, roads, and energy networks – had its institutional equivalent in this corporatist governance model. It was a model naturally suited to the kind of big infrastructural developments that played a crucial role in economic development in the post-war era, which included the main port, the networks of roads and bridges, the large modernist housing estates, and the early district heating system.

A version of this Swedish model emerged in Gothenburg. As a city built around trade and industry from its very inception, representatives from industry and commerce have always held prominent roles in the city. The state bureaucracy does not have the same influence in Gothenburg as it does in Stockholm. As a result, a pragmatic and cooperative culture emerged in the city, referred to as Göteborgsandan (“spirit of Gothenburg”) and captured by the old saying: “In Stockholm they write poetry; in Gothenburg we write invoices”.

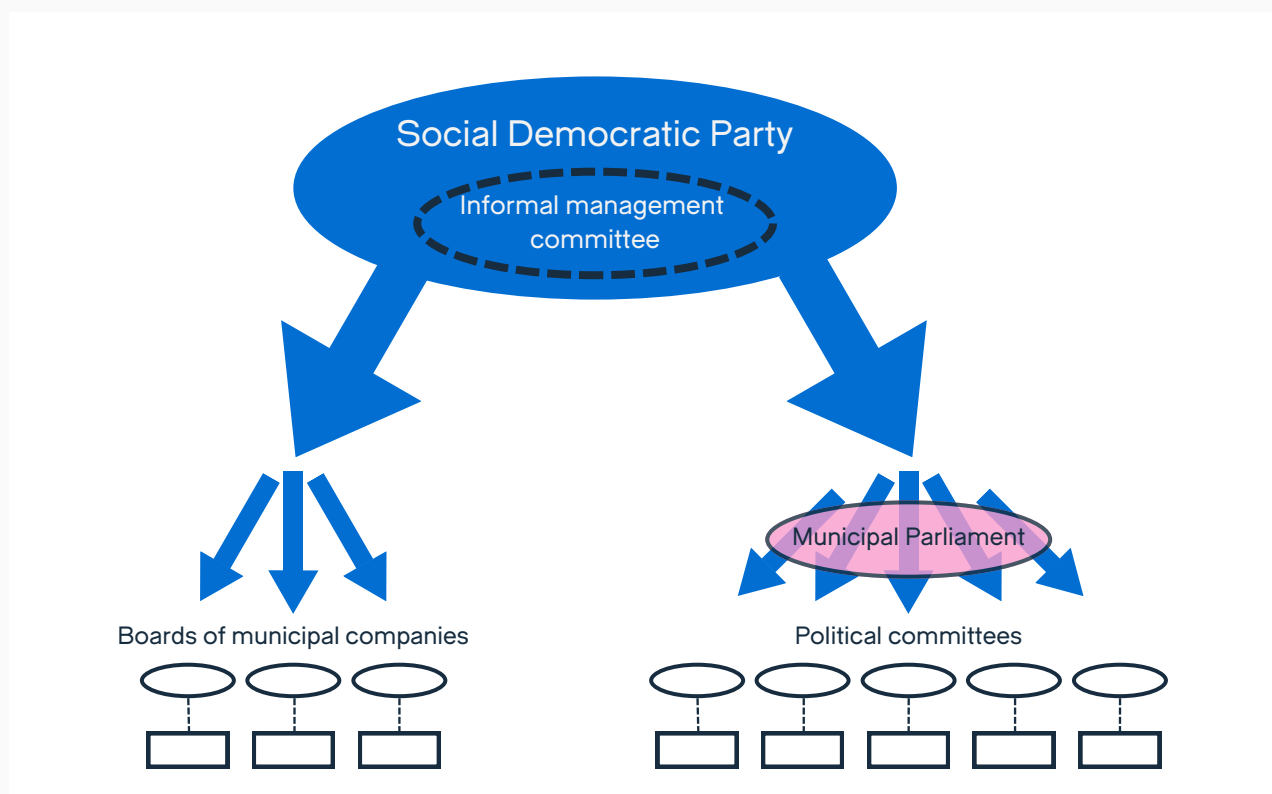


The image illustrates the three legs of the corporatist governance model that emerged in Gothenburg and the central role played by the Social Democratic Party as a uniting force among different organisations, allowing it to operate at the system-level.

This cooperative culture was underpinned by a political and administrative environment that allowed for strategic decision-making to be managed through personal interactions between a tight group of individuals connected to the executive committee of the Social Democratic Party. This included individuals at the top levels of industry and the labour unions. By appointing loyal individuals to key municipal agencies or companies, the dominant Social Democratic Party could also ensure the responsiveness of the municipal administration.

Strategically important decisions could be negotiated within smaller circles loosely tied to the party and imposed on the municipal administration as a way to give decisions formal or legal validity and ensure effective implementation.¹⁴ It was a model that brought together stakeholders that would have otherwise operated in different governance spheres.

THE ADMINISTRATIVE MODEL UNDERPINNING THIS ORDER



The image illustrates how an informal management committee within the Social Democratic Party could ensure coordination of Gothenburg's administrative structures through personal networks and the use of municipal companies.

In the local version of this model, the municipal corporations in Gothenburg assumed a particularly important role. In legal terms, these are corporations which, under EU law, are akin to private corporations, but they are fully owned by the municipality and run by politically appointed boards.

¹⁴ For a more extensive discussion see Carl Mossfeldt; River City Gothenburg - an ambitious leap caught in ambiguity; 2020

They typically manage long-term investments such as building and operating the technical systems of the city (water, energy, waste management, housing). They have their own revenues and, in some cases, substantial balance sheets, which allows them to operate independently from the annual municipal budget process.

Because their boards and CEOs are politically appointed, the municipal corporations could serve as powerful tools for implementation for a dominant political group. The Social Democratic Party could implement ambitious initiatives directly through these municipal companies, without having to constantly secure support from the broader municipal parliament. Furthermore, by placing important development plans within the municipal corporations, these corporations could serve as coordinating entities with other municipal agencies and across the municipal government.

This use of municipal corporations as a mechanism to drive important structural change illustrates a dual-command system where political power was exercised through the municipal parliament and directly through municipal corporations. Crucially, this dual-command system was legitimised by broad and diverse sources of support for the social democratic movement, where elections provided one source of legitimacy and engagement with industry, organised labour, and civil society provided another.

AN EFFECTIVE MISSION—BASED ENTREPRENEURIAL DEVELOPMENT MODEL

As a result of this political and administrative order, an effective mission-based management model emerged, where broad political and social consensus, channelled through the Social Democratic Party, could be turned into action through effective control over the local state administration. For this reason, Gothenburg serves as an example of industrial and political tendencies within Sweden and represents a particularly clear version of the social democratic model for reform as described by Bo Rothstein in his book “The Social Democratic State”.¹⁵ According to Rothstein, a key feature of this model was the ability of the political movement to assume dominance over the administrative apparatus in the country, bringing its political vision together with the capability for implementation.

Importantly, this old governance model also combined agility with stability, with loose and dynamic social networks giving strategic direction to powerful and stable municipal companies and agencies. This model allowed Gothenburg to operate as “an entrepreneurial development state”, as it is now known.¹⁶

The model yielded tangible results in Gothenburg: the early modernist expansion of the city in the 1960s and 1970s; the strategic extension of the district heating system in the 1980s and 1990s; the ambitious and socially focused renovation of the Gårdsten housing estate in the early 1990s; and the early rejuvenation of the old shipyards at Eriksberg, Sannegården, and Lindholmen in the early 1990s.

¹⁵ Bo Rothstein; *The Social democratic State - the Swedish model and the bureaucratic problem of social reform*; Pittsburg; 1995

¹⁶ See, M Mazzucato and D Rodrick; *Industrial Policies with Conditionalities: a taxonomy and sample cases*; Working Paper, 2023/ 07; 2023; R Kattel, W Drechsler, E Karo; *How to Make an Entrepreneurial State: Why Innovation Needs Bureaucracy*; 2022

3.3. GLOBALISING PRESSURES UNDERMINING THE OLD GOVERNANCE MODEL

THE FRAGMENTATION OF THE NATIONAL INDUSTRIAL PROJECT

The old governance model was effective because it concentrated strategic and coordinating capability within the political domain, where it could be given a clear direction and broad legitimacy through the unifying role played by the social democratic movement. These features, which served the city and its development well in the post-war period, became more problematic as the industrial project entered a new, global phase characterised by political instability and fragmentation. The core strengths of the model turned out to be a core challenge: how to recreate these system-level capabilities in a fragmented political landscape?

Like in the rest of Europe and the US, the post-war boom in Gothenburg came to an abrupt halt with the first oil crisis of 1973 and the destabilisation of the industrial landscape that followed. In Gothenburg, the shipyard industry was hit the hardest, as the oil crisis accelerated a competitive shift in basic manufacturing from the US and Europe towards Japan and emerging economies in Asia. While Gothenburg emerged relatively unscathed from the industrial crises of the 1970s thanks to its rapidly expanding automobile industry, the crisis nevertheless ushered in a new age of greater international competition.

This trend was accelerated by the liberalisation of the international financial landscape in the 1990s. During this time, globalisation of industrial production also intensified, as opportunities for low-wage production opened up in new parts of the world and the scale of production required to stay competitive demanded new international financing structures. The local “industrial jewel” Volvo went from being a Swedish company, with headquarters and main production sites in Gothenburg, to a global production network, first with American owners when Volvo Cars was sold to Ford Motor Company in 1999, and then with Chinese owners when Ford resold the company to Geely in 2010.

Similarly, the main refinery in the city was owned by the national consumer cooperative, OK, together with the Swedish government and the Finnish national oil company, Neste, until 1994. It was subsequently bought by the UK-based holding company of Saudi-Sudanese billionaire Mohammed al-Amoudi, weakening the social connections between the company and the city.

These industrial and financial developments had their political equivalent in the acceleration of the European integration project, which Sweden formally joined in 1995. While Sweden did not adopt the Euro, the integration of the country into the Common Market meant that the Swedish state was a part of the broader EU project. As a result, a whole new legal framework was introduced that constrained how political power could be exercised locally.

THE WEAKENING OF THE OLD GOVERNANCE MODEL

The increasing fragmentation of the national industrial project had profound implications for the established governance model in Gothenburg, because it undermined the three cohesive national blocks that were at its foundation. The globalisation of industrial production and the transformation of the labour market affected the national labour movement; the globalisation of capital markets and the emergence of international production networks weakened the cohesiveness of the industrial block; and the integration of Swedish law within the framework of the EU compromised national state structures.

The way power had previously been organised (through personal networks tied to the executive committee of the Social Democratic Party) no longer worked in this new context. The CEOs of the big corporations in Gothenburg no longer lived in the city. The labour representatives no longer had influence over the cost of production. Staff in the municipal administration could no longer only follow directions from local politicians, as they now needed to abide by a more complex legal landscape shaped by European law.

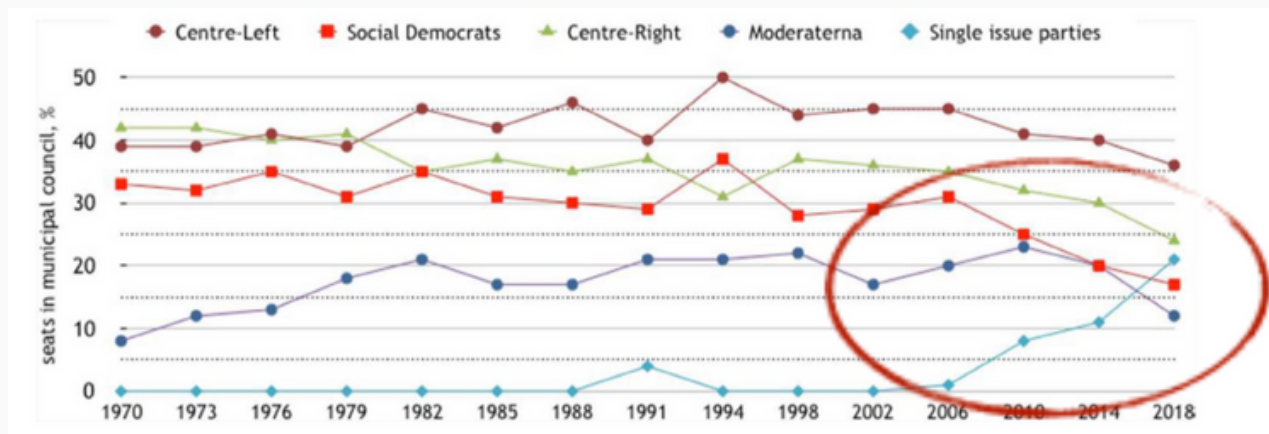
For example, the entry of Sweden into the EU put new constraints on how local political leaders could use municipal corporations for political ends, since these corporations needed to adhere to new EU competition legislation.

Given this reorganisation of power in and around the city, the old political elite in Gothenburg gradually began to lose legitimacy. Göran Johansson, the long-term leader of the Social Democratic Party, was forced out of the party in 1998.

Ten years later, the party was shaken to its core by a series of corruption scandals, interpreted at the time as a sign that the era of governance through personal connections had to be reigned in.¹⁷

The pragmatic and cooperative “spirit of Gothenburg” was transformed into a system suffering from very weak formal governance and the capture of local interests. As a consequence, the Social Democratic Party collapsed in the local election of 2010, giving way to the emergence of single-issue parties in Gothenburg.

¹⁷ Amnå, Czarniawska, Marcusson; Tillitens gränser; 2013



The graph shows the allocation of seats in the municipal parliament per party over time, indicating the rapid rise of single-issue parties and the decline of the two largest parties from 2010 onwards. Source: Valmyndigheten; graph author's own based upon data from Valmyndigheten.

This new political fragmentation also put an end to the dominance of political coalitions over the local administrative structure. The fragmentation of the national industrial project therefore weakened the foundation of the “mission-based logic” that had been a key part of Gothenburg’s past success. The old political coalitions that had the capability and required legitimacy to work around administrative structures no longer existed.



3.4. THE STRUGGLE TO FILL THE RESULTING POWER VACUUM

THE COLLAPSE OF THE OLD MODEL AND THE FOLLOWING REFORMS

The corruption scandal of 2010 shook the city and the Social Democratic Party. Hence, the new leader of the party, Anneli Hultén, set out to establish a stronger formal governance system. “Tillitens gränser”, an independent inquiry into the scandal ordered by the city and issued by Gothenburg University, was further motivation to implement drastic changes to the local administration.¹⁸

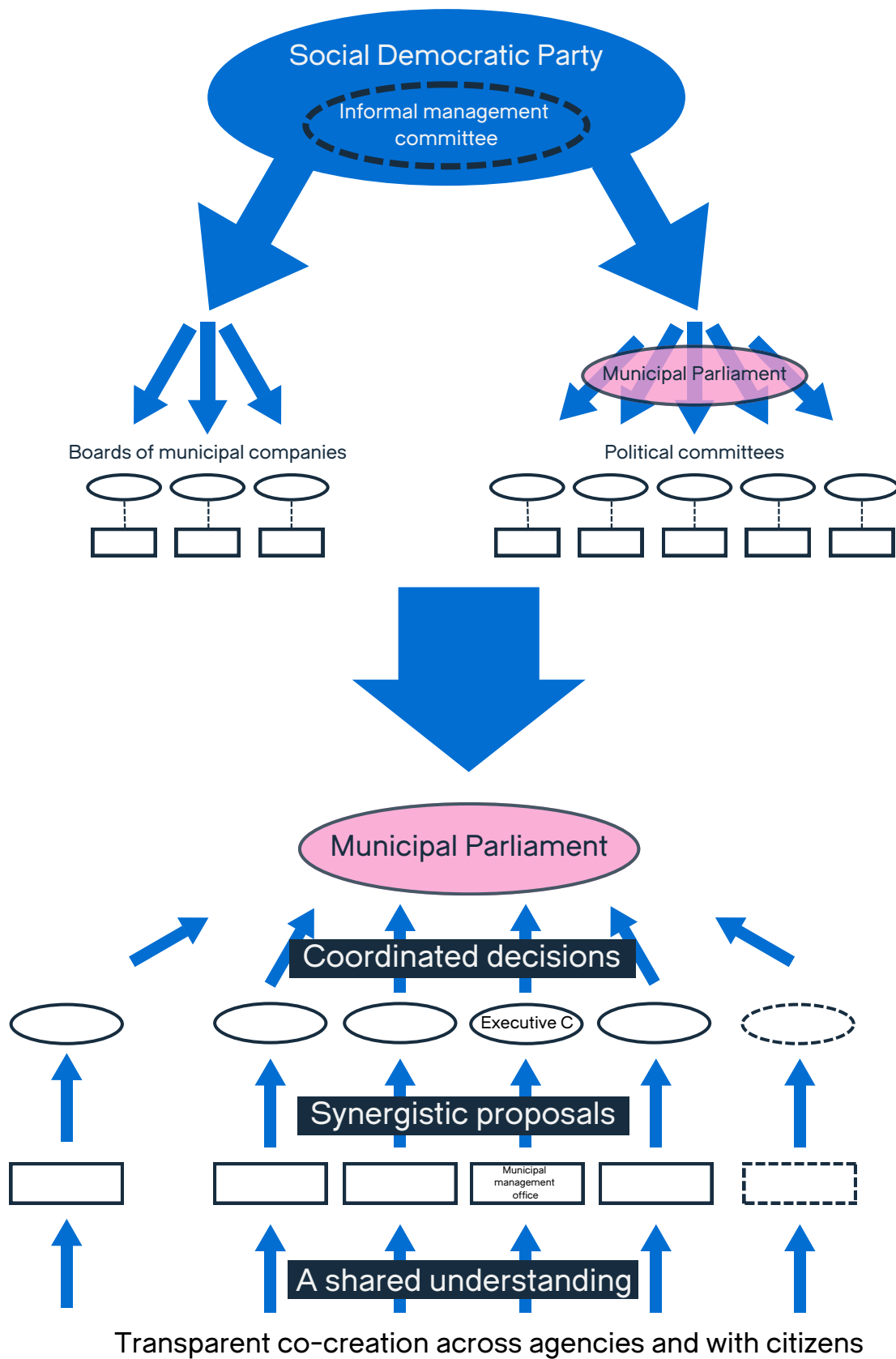
As a result, reforms were introduced to create a more robust administration system, eliminating old hierarchical practices, preventing capture by powerful individuals, and reducing corruption. One such reform was to block members of the central municipal management board (“kommunstyrelsen”) from also sitting on municipal company boards.

The intention was to prevent the influence of personal connections in the management of municipal companies and instead promote formal, democratically legitimate administrative practices. Another reform established a central holding company in the city, Göteborgs Stadshus AB, allowing for a more coordinated and centralised management strategy. The goal was to create a more professional governance model less reliant on informal personal connections.



¹⁸ There are reasons to believe that Hultén's opposition to the old hierarchical and male dominated management model also runs deeper, with fierce personal tension between Hultén and the former party leader Johansson, as reported in personal conversations by several individuals close to the inner workings of the party.

THE ATTEMPT TO INTRODUCE BOTTOM-UP CO-CREATION AS A MEANS OF COORDINATION



The image illustrates the move from the old corporatist governance model to an experimental approach where citizens and local municipal agencies generate synergistic proposals.

Other attempts were made to establish new informal practices supporting a more agile and less hierarchical governance model. In 2012, the ambitious RiverCity Project was introduced, focused on redeveloping the abandoned shipyards in the heart of the city. However, a key part of the project was a new and more effective administrative model.

An alternative way of ensuring agility and systemic coordination of the municipal administration was envisaged, turning the old model upside down. Rather than decisions made at the high ranks of the city administration, co-creative processes and public engagement would instead allow new ideas to percolate up through a proactive and co-creative engagement of different agencies in the city administration.¹⁹ This model would be tested again in a slightly new form with the implementation of the Climate and Environmental Programme that was formally endorsed by the city in the autumn of 2020.²⁰

THE STRUGGLE TO ADDRESS THE UNDERLYING POWER VACUUM AROUND STRATEGIC DECISIONS

The RiverCity Project has been thoroughly researched, and the city's Climate and Environmental Programme has been formally evaluated, providing a strong empirical basis for assessing the results of these ambitious and progressive governance experiments.²¹

A key conclusion is that while both initiatives constitute valuable attempts, they share significant shortcomings. Their main shortcoming was the inability to recreate a new form of strategic discourse in the city that could replace the discourse in networks around the Social Democratic Party.



¹⁹ The ambition could be referred to as a version of experimentalism, although this term was never formally used. See for example, C Sable; Beyond principle-agent governance: experimentalist organisations, learning and accountability; Politic; 2012

²⁰ Göteborgs stad; Göteborg Stads klimat och miljöprogram 2021-2030

²¹ See, for example, Sara Broström and Alexander Styhre; Syndicated leadership in urban development projects: the case of the RiverCity Gothenburg project; Construction Management and Economics; 2023

As highlighted in the formal evaluation of Gothenburg's Climate and Environmental Programme, rather than providing new ways to resolve strategic issues in a bottom-up and agile way, the new governance practices delegated potentially politically contentious issues to lower administrative levels, which did not have the mandates or budgets required to address or resolve these issues adequately. Instead of providing new mechanisms for more decentralised problem-solving, strategic issues were pushed down the chain of the municipal administration. In the evaluation, actors discussed battling structural challenges with little support from directors of agencies or CEOs of municipal companies.²²


Attempts to move towards new forms of experimentalism largely focused on organisational-level administrative reforms. More attention should have been paid to a broader structural problem: the fragmentation of the old political coalitions that previously provided stability to the strategic discourse in the city. Now the administrative reforms introduced had the effect of hiding the ensuing power vacuum by overpromising what administrative co-creation and public engagement could accomplish.

By creating a governance model less reliant on personal connections and informal discussions among key individuals, a power vacuum around key strategic issues emerged that held back strategically focused and coordinated development efforts. Reforms intended to create a more agile and responsive governance model instead seem to have created a model more prone to strategic inaction and path dependencies.



²² Göteborgs stad; Uppföljning av Klimat och Miljöprogrammets strategier 2023

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PART 4 – THE TRANSITION DILEMMA AND RISK OF LOCK-INS

4.1. THE TRANSITION DILEMMA IN GOTHENBURG

THE TRANSITION DILEMMA

The underlying structural trends surveyed in this report present Gothenburg's political and administrative leaders with a dilemma: deep technological and regulatory trends are putting pressure on the energy and industrial infrastructure in the city, which requires political and administrative leaders to provide a strategic and systemic response. At the same time, long-term globalising forces have undermined the administrative and political practices that previously allowed for such strategic and coordinated engagement in the city.

This situation presents city officials with an uncomfortable choice:

- Either they face up to the dilemma and engage in politically risky initiatives to build new system-level capabilities that would allow a strategically coherent response;
- Or they shy away from the dilemma, adopt a “wait-and-see” approach and concentrate on more straightforward, operationally focused initiatives that can be quickly communicated to voters, but that may not have the potential to generate the required structural change.

The public's strong expectations of forceful climate action make the dilemma more acute, as political and administrative leaders are called to promote ambitious strategic initiatives but have no effective tools to do so. In many cases, incentives to shy away from the dilemma will be overwhelming.

The absence of the system-level capabilities required to address infrastructural obstacles may thus result in political “lock-ins” that would aggravate the initial problem of infrastructural path dependency. Internal and external evaluations of the transition efforts in Gothenburg give reasons for concern here.²³

THE STRUCTURAL FORCES AT PLAY

It is important to note that the forces taking Gothenburg in this direction are structural, and should not be analysed in terms of the skills or motivation of the individuals involved. The city stands out for its commitment to and ambition for climate action. However, the lack of formal structures required to tackle the underlying structural issues causes real problems for key individuals involved.

The CEOs of the municipal infrastructure companies are particularly exposed here, as they face political pressure to act radically, but often lack both the mandates and the tools to manage the risks such radical action implies.

²³ Göteborgs stad; Uppföljning av mål och delmål i Göteborgs stads miljö- och klimatprogram 2021-2030

Firstly, the pace of technological shifts in and around Gothenburg is hard to predict. The financial risks of proactive municipal investments in the energy or industrial infrastructure are significant.

There are therefore good reasons for municipally owned infrastructure companies to adopt a cautious approach to help prevent overly optimistic investments that may hurt the companies financially and operationally while undermining the legitimacy of the transition efforts. The big investments made by the local energy company in Gobigas, a demonstration plant for gasification of solid biofuels, is a recent example of these dangers.²⁴

Secondly, Gothenburg's municipal agencies and companies do not currently have processes to assess the strategic transition risks or to mitigate and manage them. An underlying reason for this is their strong operational focus, as the city's strategic management has historically been concentrated in the political rather than the administrative sphere. Given the lack of such capabilities, it may again seem prudent to adopt a more careful "wait-and-see" approach.²⁵

4.2 FURTHER EVIDENCE OF THE TRANSITION DILEMMA

THE RELEVANCE OF THE FINDINGS

The transition dilemma identified in Gothenburg is not unique to that city, nor is the idea that this dilemma can result in structurally less effective interventions.

Earlier case studies of different cities and regions in the US and in Europe show the general nature of the patterns of weakened informal social networks due to globalising economic forces and political lock-ins that reinforce path dependencies.

THE GOVERNANCE GAP AND THE RISK OF VISIBLE, BUT MINOR, INTERVENTIONS

Urban geographer David Harvey has argued – based on a case study of Baltimore, Maryland – that a governance gap similar to the one in Gothenburg could be identified in other industrial cities in the US and Europe starting from the 1970s, when the established industrial landscape was being destabilised by globalising forces.²⁶ This, Harvey argued, pushed cities away from an operational focus on managing the existing state of affairs to a model of entrepreneurial engagement as a way to help boost local economic development. As cities were poorly equipped to do so, they struggled to implement projects with structural impact.

²⁴ For more information about Gobigas, see <https://www.goteborgenergi.se/om-oss/vad-vi-gor/forskning-utveckling/gobigas>

²⁵ For a fuller description see Göteborgs stad; Göteborgs Strategiska klimatomställningsarbete 2020–2023; and Carl Mossfeldt; River City Gothenburg – an ambitious leap caught in ambiguity

²⁶ See David Harvey; From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism. Geografiska Annaler: Series B, Human Geography, 71(1), 3–17; 1989

Urban geographer Jamie Peck has built on Harvey's observations but sharpened the conclusion. He argued that the shift from a managerial to an entrepreneurial focus has resulted in "successive waves of over-hyped weak tea interventions" in "an increasingly low-expectations environment".²⁷

Peck did not direct his criticism at climate transition initiatives. However, his claim applies also in this area, in particular to the visible but minor tweaks – i.e. bike lanes, electric chargers – that seem politically valuable but far from achieving the vision of thriving urban environments built on systemic transformation.

The underlying cause of the difficulties highlighted by Harvey and Peck is the growing governance gap between the operational focus of city management and the new global industrial and financial landscape, where strategic decisions that impact cities are made far away from those cities. As such, both authors' historical analyses help make sense of the findings from this case study of Gothenburg.

SOCIAL INFRASTRUCTURE TORN APART BY FRAGMENTING ECONOMIC FORCES

Douglas Rae has shown in detail how the developments highlighted by Harvey and Peck have played out over time in New Haven, Connecticut, USA.²⁸

Rae pays specific attention to how established informal governance practices worked in New Haven and how they were undermined by global technological and commercial forces that fragmented the city both physically and socially. Specifically, Rae shows how local industrial leaders used to live near municipal leaders in the city, be members of the same civic associations, and belong to the same social circles. This however became more and more unusual as national and global trends led to corporate consolidation, and as new, more affluent groups fled inner cities in favour of suburbia. The effect was that social networks and the established strategic conversations happening within these networks were fragmented or torn apart.

Rae notes that these events created a gap between city officials and the senior industrial and government leaders in charge of higher-level decisions affecting the city. As a result, the city government announced ambitious plans but had few effective instruments to influence or overcome underlying structural challenges.

²⁷ See Jamie Peck; Transatlantic city, part 1: Conjunctural urbanism; Urban Studies, 54 (1); November 2016

²⁸ Douglas W. Rae; The City – urbanism and its end; Yale; 2003

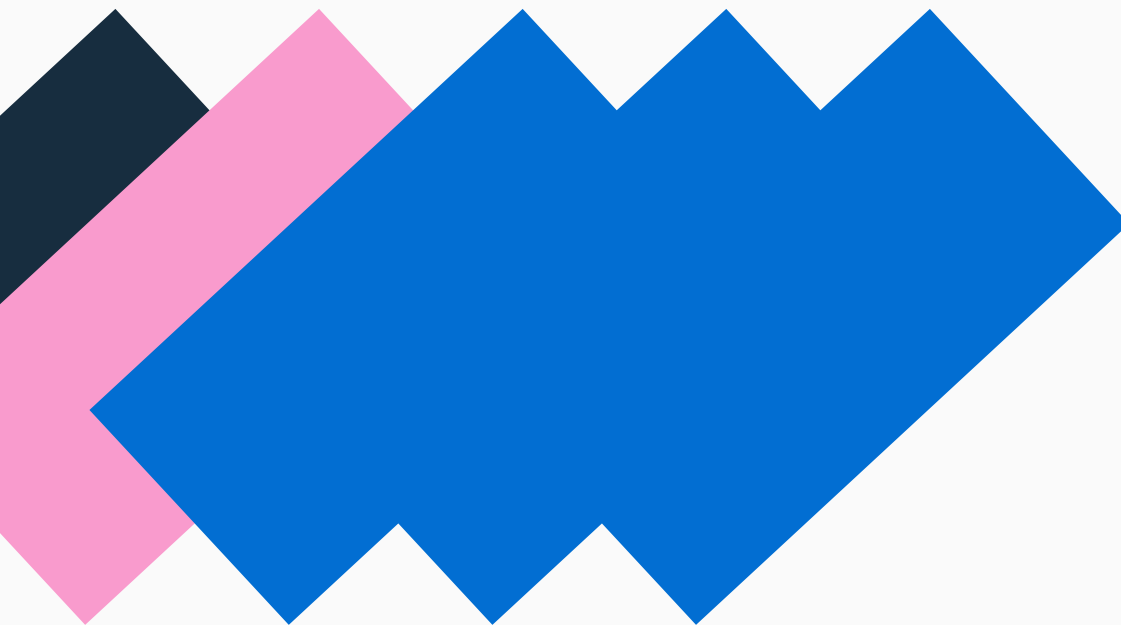
THE RISK OF POLITICAL LOCK-INS

Gernot Grabher has argued that cognitive and political lock-ins can emerge as a result of the governance and accountability gaps highlighted by Harvey, Peck, and Rae.²⁹

In his seminal case study of the Ruhr area in the 1980s, Grabher shows that the coal industry in the German region was so well established and had been stable for so long that few strategic connections existed between local political and industrial leaders and the coal industry's strategic leaders. In this case, the key issue was not the geographical separation between different sets of decision-makers, as in the case made by Rae. Rather, the problem was the lack of strategic engagement and strong relationships between them.

A key reason for this, Grabher argues, was that senior industrial and political leaders in the area had developed "cognitive lock-ins" that led them to block out the risks of a sudden disruption to the coal industry. This in turn generated a political lock-in. As a result, local leadership made no serious strategic efforts to explore the risks of a sudden disruption of the coal industry, nor to prepare an adequate response to it, were it to happen.

The result of these cognitive and political lock-ins, Grabher argues, was that the Ruhr area was less prepared for the sudden collapse of the coal industry in Germany than other regions in the country. The area consequently suffered a disproportionately larger economic downturn. The example serves as a warning to other cities facing potentially significant industrial disruptions as part of their climate and energy transitions.



²⁹ Gernot Grabher; *The Weakness of Strong Ties: The Lock-in of Regional Development in the Ruhr Area; Embedded firm: On the socioeconomics of industrial networks*; 1993

4.3 WHAT CONCLUSIONS CAN BE DRAWN?

These problems of path dependencies and political lock-ins reveal a democratic deficit, as they demonstrate that risks and opportunities at a municipal level are not adequately explored in the democratic process. This deficit is not due to a lack of public engagement per se but rather to governance gaps leading to weak accountability structures around important strategic decisions.

The overarching problem – in Gothenburg and other locations mentioned – is the gradual fragmentation of the relatively stable infrastructural and institutional arrangements that emerged as part of the national industrial project. The current governance arrangement aims to build and maintain the existing infrastructure.

As new infrastructural pressures arise, the existing arrangements are poorly equipped to drive the renewal of this infrastructure and, in the worst case, prevent the necessary transformative and inclusive change from happening.

The big-picture question is whether a city like Gothenburg can respond to the transition dilemma through institutional renewal, or whether the risks and uncertainties could lead to a political lock-in instead. The risk that lock-ins will block urgently required climate action merits a sharper focus on new, supportive regulation, new forms of interventions implemented by state and EU/federal actors, and new coalitions of civic and private actors.

This report intends to promote a deeper understanding of the problem and help catalyse new initiatives to counter and mitigate its effects.

The broader ambition of these efforts is to bridge the gap between municipal climate policies, regional development, and national/EU industrial policies, while enriching democratic debate and empowering citizens to shape evidence-based narratives for accelerating local energy transitions.

These narratives must balance rapid progress with acceptable costs and risks, grounded in realistic assumptions about what can be delivered, the partnerships required, and mechanisms for cost-sharing. While citizen engagement is crucial, it must be complemented by thorough, context-specific analysis of constraints and opportunities.

Governance and accountability gaps in cities like Gothenburg, built for the industrial era, underscore the need for new governance models and actors to step up and fill these voids for a successful transition to a thriving urban future.



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