Pursuing transit-oriented development: Implementation through institutional change, learning and innovation
Tan, W.W.Y.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Transit-Oriented Development (TOD) has increasingly become widely embraced and pursued by politicians and planners in various cities and regions around the world as an answer to sustainable urban development and mobility patterns. TOD is achieved through policies and strategies seeking to concentrate urban development around existing and/or new transit infrastructure to spur compact urban forms, economic vitality and public transportation usage. However, implementation challenges of these TOD strategies (TODS) remain. This research focuses on the institutional aspect of TODS implementation and seeks to understand how TODS implementation can be achieved through institutional change whereby institutional barriers can be overcome through the introduction of institutional incentives in a process characterized by learning and institutional innovation. It explores the definition and understanding of these concepts in planning by grounding innovative conceptual and theoretical framework in multiple case studies on the metropolitan regions of Perth, Portland, Vancouver and Copenhagen. The research concludes on vicious and virtuous cycles in TODS implementation for the Netherlands and elsewhere, the dynamics between them, the necessary conditions required for institutional change from vicious to virtuous cycles for planning practitioners and policy makers, and reflects on the value of practice-academia research collaborations.

This research was conducted at the Amsterdam Institute of Social Sciences Research at the University of Amsterdam with financial support from Platform 31 (previously known as NICIS), the Province of Gelderland, City regions of Arnhem Nijmegen and Amsterdam, City of Amsterdam, Moveres and NS (Nederlandse Spoorwegen) under the NICIS KEI project.
PURSUING TRANSIT-ORIENTED DEVELOPMENT

IMPLEMENTATION THROUGH INSTITUTIONAL CHANGE, LEARNING AND INNOVATION

ACADEMISCH PROEFSCHRIFT

TER VERKRIJGING VAN DE GRAAD VAN DOCTOR

AAN DE UNIVERSITEIT VAN AMSTERDAM

OP GEZAG VAN DE RECTOR MAGNIFICUS

PROF. DR. D. C. VAN DEN BOOM

TEN OVERSTAAN VAN EEN DOOR HET COLLEGE VOOR PROMOTIES INGESTELDE

COMMISSIE, IN HET OPENBAAR TE VERDEDIGEN IN DE AULA DER UNIVERSITEIT

OP DONDERDAG 5 DECEMBER 2013, TE 13:00 UUR

DOOR

WENDY WEI YI GUAN ZHEN TAN

GEBoren TE SINGAPORE
PROMOTIE COMMISSIE

PROMOTOR: PROF. DR. IR. L. BERTOLINI
CO-PROMOTOR: DR. L.B. JANSSEN-JANSEN
OVERIGE LEDEN: PROF. C. CURTIS
PROF. DR. W.A.M. ZONNEVELD
DR. D. STEAD
PROF. DR. W.G.M. SALET
PROF. DR. J. GRIN
PROF. DR. J.J.M. HEMEL

FACULTEIT DER MAATSCHAPPIJ- EN GEDRAGSWETENSCHAPPEN

THIS RESEARCH HAS GRATEFULLY BENEFITED FROM THE FINANCIAL SUPPORT FROM PLATFORM 31 (PREVIOUSLY KNOWN AS NICIS), THE PROVINCE OF GELDERLAND, STADSREGIO ARNHEM-NIJMEGEN, STADSREGIO AMSTERDAM, GEMEENTE AMSTERDAM (DRO), MOVARES AND NS (NEDERLANDSE SPOORWEGEN) UNDER THE NICIS KEI (KNOOPPUNTONTWIKKELING: ECONOMISCHE BETEKENS EN INSTITUTIONELE PRIKKELS) PROJECT. SEE WWW.NICISKEI.WORDPRESS.COM FOR MORE DETAILS.

THE RESEARCH FINDINGS AND OPINIONS PRESENTED IN THIS BOOK ARE THE SOLE RESPONSIBILITY OF THE AUTHOR. THEY DO NOT REFLECT THE OPINIONS OF THE CONSORTIUM PARTNERS OR THE UNIVERSITY DEPARTMENT.

ISBN: 978-94-6182-372-4
DESIGN AND LAYOUT: WENDY TAN
COVER IMAGE: KNOOPPUNTONTWIKKELING BY WENDY TAN.
IMAGES: ALL PHOTOGRAPHS ARE BY WENDY TAN UNLESS OTHERWISE MENTIONED.
PRINTED BY: OFFPAGE, AMSTERDAM

ALL RIGHTS RESERVED. NO PART OF THIS PUBLICATION MAY BE REPRODUCED IN ANY FORM, BY PRINT, BY PHOTO PRINT, MICROFILM OF ANY OTHER MEANS, WITHOUT PRIOR WRITTEN PERMISSION FROM THE AUTHOR [W.TAN@UVA.NL/WENDYTANGZ@ME.COM].
<table>
<thead>
<tr>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACKNOWLEDGEMENTS</strong></td>
</tr>
<tr>
<td><strong>INTRODUCTION</strong></td>
</tr>
<tr>
<td><strong>CHAPTER 1</strong></td>
</tr>
<tr>
<td>IDENTIFYING AND CONCEPTUALISING CONTEXT-SPECIFIC BARRIERS TO TRANSIT-ORIENTED DEVELOPMENT STRATEGIES: THE CASE OF THE NETHERLANDS</td>
</tr>
<tr>
<td><strong>CHAPTER 2</strong></td>
</tr>
<tr>
<td>THE ROLE OF INCENTIVES IN IMPLEMENTING SUCCESSFUL TRANSIT-ORIENTED DEVELOPMENT STRATEGIES</td>
</tr>
<tr>
<td><strong>CHAPTER 3</strong></td>
</tr>
<tr>
<td>INSTITUTIONAL CHANGE FOR THE IMPLEMENTATION OF TRANSIT-ORIENTED DEVELOPMENT STRATEGIES</td>
</tr>
<tr>
<td><strong>CHAPTER 4</strong></td>
</tr>
<tr>
<td>THE ROLE OF LEARNING AND INSTITUTIONAL INNOVATION WHEN PURSUING TRANSIT-ORIENTED DEVELOPMENT STRATEGIES</td>
</tr>
<tr>
<td><strong>EPILOGUE</strong></td>
</tr>
<tr>
<td><strong>APPENDIX</strong></td>
</tr>
<tr>
<td><strong>SUMMARIES</strong></td>
</tr>
</tbody>
</table>
“读万卷书不如行万里路，行万里路不如阅人无数，阅人无数不如名师指路，名师指路不如自己去悟...”

[DÚ WÀN JUÀN SHŪ BÙ RÚ XÍNG WÀN LĪ LÙ, XÍNG WÀN LĪ LÙ BÙ RÚ YUÈ RÉN WÚ SHÙ, YUÈ RÉN WÚ SHU BÙ RÚ MÍNG SHĪ ZHI LÙ, MÍNG SHĪ ZHI LÙ BÙ RÚ ZÌ JÌ QÙ WÙ]

“TO TRAVEL THOUSANDS OF MILES IS BETTER THAN TO READ THOUSANDS OF BOOKS, TO DISCUSS WITH OTHERS IS BETTER THAN TRAVELING THOUSANDS OF MILES, HAVING AN EXPERT TEACH AND GUIDE YOU IS BETTER THAN DISCUSSING WITH MANY OTHERS, TO SEEK SELF ENLIGHTENMENT IS BETTER THAN HAVING AN EXPERT TEACHING YOU.”

COMMON SAYING REGARDING CHINESE EPISTEMOLOGY, ORIGINS ATTRIBUTED IN PART TO 董其昌 DONG QI CHANG (1555 - 1636); A LATE MING DYNASTY PAINTER, SCHOLAR, CALLIGRAPHER, AND ART THEORIST.
I would like to begin with a confession; I do not possess a driver license and have never saw the need for one until I moved to the Netherlands. Growing up in Singapore, I have taken the ease and comfort of travelling by public transportation for granted. My perceptions were sharply readjusted once I moved to the Netherlands. Cycling, which was previously purely recreational, became a major mode of travel. The proximity and access to stations (trains, metro, trams or buses) became a major concern. The reliability of transit and their schedules were suddenly crucial to my daily life. Granted that both countries differ greatly in distances and scale, yet for the first time in my adult life I felt my movements restricted. How and why land use and transport policies could differ in different cities became a source of fascination.

This was however, not the sole motivation for this dissertation. It was by happy coincidence that I stumbled onto the interface of mobility and land use planning. Traffic and logistic flows were important when I was a practicing architect and urban designer. The site location with its traffic in and outflows was the first drawing made usually. The confrontation of how people and goods move through the urban fabric became increasingly conspicuous as I graduated from interior and architectural design to the urban block and eventually to regional and metropolitan strategic planning. This became incredibly clear when I researched 24/7 environments and metropolitan regions for my master thesis at TU Delft. I continued researching regional land use planning, accessibility and economic functions after my graduation which was where I was first introduced to the research at the University of Amsterdam on accessibility (or rather mobility) and land use planning.

When the chance came for this research, I jumped at it. The research set-up ticked all the right boxes. I wanted a chance to scale up into planning and engage with spatial strategies from political and sociological approaches in addition to the urban design angle. The object of study, station area development at a network level, fitted well with my interests on urban space and accessibility on the regional scale. The research did have an attractive offer to look and learn from foreign cases as well.

However, the biggest selling point of this research project was that it was practice-oriented and not (only) sitting-behind-a-desk-in-an-ivory-tower type of research. In short, this research allowed me to combine my fascination for urban space, how to navigate through it, comparing different urban regions and their policies with engagement with practitioners plus a chance to travel.
As stated in the epigraph; the research, travel and discussions were crucial to my dissertation in this four year journey. However, the crux here is about learning. The research evolved from pure policy comparison to how and what to learn from. I became fascinated by the cognitive dissonance in planning practice.

When I interviewed for the position, I stated that I just wanted a chance to read and do research. This is a typical case of ‘be-careful-what-you-wish-for’. This dissertation gradually became a process of learning; learning about the vast literature around these subjects, learning about my own interests and limitations but also about support systems that one requires to learn. It really does take a village and therefore the following groups and individuals must be duly acknowledged.

The research and dissertation would have not been possible without my promotors, Luca Bertolini and Leonie Janssen-Jansen. Luca and Leonie are two halves that make my research whole. Luca is the authority on all things regarding mobility (particularly, transit-oriented development) while Leonie is the authority on all things regarding institutions (particularly, institutional change). Together, their discussions and arguments have balanced out this dissertation.

As the leading authority on land use and mobility research in the Netherlands, this research was Luca’s brainchild. I am grateful that he has allowed me the opportunity to carry it out with my own input and variations. His take on combining practice and academia is a source of inspiration on both the personal and professional level. He has an uncanny ability to discern the important parts within my drivel while recognising that I needed to work through it independently. He has been deservedly called the ‘super promotor’ by previous candidates and I wholeheartedly agree.

Leonie has been a true inspiration for me as my co-promotor, mentor and friend. She has demonstrated the prowess of her intellect and ethical integrity while persevering with grace in the academic world. Her constant encouragement has been crucial to this dissertation as are the enjoyable and fruitful writing sessions at her beautiful home with the occasional company of her lovely sons, pets and husband. I owe my academic writing to her efforts.

Of course, the research would not have been possible without the support of the research consortium and our partners. Here, I would like to thank Frank Bruinsma (VU Amsterdam), Bart van der Heijden (Gemeente Amsterdam), Hans Koster (VU), Jorn Matthijsse (Stadsregio Arnhem Nijmegen), Harry van Noord (NS), Cees-Jan Pen (Platform31), Piet Rietveld (VU), Huibert Verdoold (Prov. Gelderland), Nicole van der Waard (Movares) and Constance Winnips (Stadsregio Amsterdam) for sharing their time, network and knowledge in Dutch.
planning in the numerous research meetings. These meetings would not have been possible without Nick Smit, our program manager extraordinaire. He is the logistic and communication centre of the entire project.

I have travelled to numerous regions around the world (and in the Netherlands) for this research. On further reflection, it seems almost appropriate that most of my thinking and writing has taken place in trains, station areas, airports or mid-flight. I have been graciously hosted by Curtin University in Perth, Western Australia; Portland State University in Portland, Oregon; TransLink in Vancouver, B.C and Aalborg University in Copenhagen.

These international networks are one of the most valuable outputs from these four years. My appreciation goes out to Carey Curtis, Sarah Iannarone, Stephan Nieweler and Andre Valderrama for making my visits possible. I apologise for not being able to name all of those who have contributed to this research individually. I have therefore compiled a list (see Appendix: Network) of all those who have contributed in some way to my research.

My colleagues in the Urban Planning group in Amsterdam have also played a formative role in my research process and I would like to thank them for their comments, suggestions and discussions. I have been able to learn more about Dutch planning from experienced colleagues such as Roel te Brugge, Stan Majoor and Willem Salet, than I could hope to glean from the existing literature. In particular, I would like to thank Sebastian Dembski for putting up with our chatter, reading my articles meticulously and discussing institutional change with me tirelessly. I would like to thank David Evers, Henk de Feijter, Marcel Heemskerk, Richard Ronald, Karin Pfeffer and Jochem de Vries for ensuring that my educational responsibilities were both enjoyable and possible. My research would not have been possible without the management support from Barbara Lawa, financial management from Puikang Chan and the organisational abilities of Marian Hamann, Lisette van Dam, Guida Morais e Castro Ermida and the venerable Marianne Heelsbergen.

The Planning Urban Mobility & Accessibility (PUMA) research theme group has been an intellectual safe haven in which I could explore the boundaries of my research. In particular, I would like to thank Paul Chorus and Jan Duffhues educating me on the finer points of Dutch planning and politics. Antonio Ferreira for discussing the I-Ching and emotions in planning. Marco te Brommelströet for our discussions on methodology, entrepreneurism, social media usage in our work and IPOD vs. ITOD. Ren Thomas for her sunny personality, candid views and expertise on Vancouver. Els Beukers and Guowen Dai for their patience and kindness and sharing of knowledge on cost-benefit analyses and high-speed rail development respectively.
My fellow PhD candidates and roommates who have been the source of much intellectual, political and at times, trivial debate deserve my thanks as well. I have learnt much from them as we suffer through our dissertations and have spent many a wonderful afternoon with them while I was in Amsterdam. Els Beukers, Anita Blessing, Doreen Chen, Paul Chorus, Guowen Dai, Jan Duffhues, Bas Hissink Muller, Enrica Papa, Koen Raats, Federico Savini, Andrew Switzer, Caroline Uittenbroek and Rick Vermeulen are some of the most fun and generous individuals I have had the pleasure of working and sharing knowledge (and food) with.

The path to self-enlightenment is never easy and is not possible without the following important individuals who have shaped or are shaping this part of my path. I have had to fortune to share my journey with friends who are either fellow enthusiasts for urban space, Dutch policy or are fellow sufferers (foreign PhD candidates in the Netherlands) themselves. My thanks goes out to Alex, Akkelies, Astor, Birgit, Diana, Doreen, Jan. S, Marcelo, Michiel, Piter, and Taneha for sharing dinners and different perspectives.

Pursuing a PhD is an arduous process and one can get lost sitting behind a computer daily. An important lesson learnt here is the benefit of having an occupational health and safety manager of the Labrador Retriever variant. Paddy has made sure that I had a warm and comfortable footrest while working from home and that I took frequent breaks away from the computer for a walk outside.

Last but not least, I would like to thank my family for their love and support of my foray into the abstract and ‘unreal’ world of academia. My parents, Kwang Long and Mui Yong, instilled in me a passion for learning, exploring and analysing the world (from halfway across the world). They have also decided to turn a blind eye to the fact that I am still studying instead of getting a ‘real’ job. I lay the blame at their feet for teaching us that there are only two things to invest in in life; real estate and education. Given the current volatile real estate market, I have decided to go for the latter.

My brothers, Willy, Tony and Nixon, have thankfully supported my decision with great enthusiasm even though they are not sure what exactly I am researching. I am also indebted to Geert and Jeanne, the parents of my partner, who lovingly taught me the Dutch language and culture while suffering my interrogations on their potential proclivity for public transport and knooppuntontwikkeling.

Finally, I would like to thank my partner, Geert-Jan, who supported me unconditionally in my work (correcting my Dutch texts) and daily life by being very patient and thoughtful. His aversion to public transportation and planning jargon makes him the perfect sounding board.
INTRODUCTION
INTRODUCTION

Junction above Broadway-City Hall SkyTrain station, Vancouver, British Columbia, Canada.
衣食住行

[YĪ SHÍ ZHÙ XÍNG]

A common Chinese proverb stating that the four basic necessities of life are food, clothing, shelter and ability to travel. Origin unknown but widely attributed to Sun Yat Sen.
The deceptively basic needs for shelter and the ability to travel stand at the basis of human evolution and urbanisation. Travelling between our homes and those of family and friends, places of learning or employment, retail locations and of course, leisure destinations, takes up much of our lives. This explains why the planning of cities - spatial organisation of different environments, and mobility - how and by what means we travel; remain fascinating and hotly contested subjects. The type and quality of these places and our movements differ according to the spatial organisation and the mobility provisions of cities and metropolitan regions we find ourselves in.

Imagine as a resident of the Nexus apartment complex in Jandakot, a suburban part of the Perth metropolitan region of Western Australia located about 20 km south of the Perth; you walk the approximate 300 metres to Cockburn Central Station to catch the train on the Mandurah line running on the median the Kwinana Freeway that would take you north to your place of work at the CBD within 20 minutes. As an upwardly mobile young professional, your partner and yourself specifically chose to live here as it was advertised as a ‘transit-oriented development’ and you both did not want the hassle of driving to work and liked having shops and facilities right underneath the apartment block. You were glad when you managed to snatch one of the 32 apartments out of the 40 units launched that opening weekend despite the soaring interest rates (Saunders, 2008). It does not hurt that you can access the beaches at Rockingham or Fremantle with the train as well.

Or consider the Pearl District in Portland, Oregon in the United States, which is a highly desirable mixed-use urban renewal of a rail yard with medium to high density. It is immensely walkable and is served by the privately organised and sponsored streetcar. If you chose to live there, you would have a choice of walking to the cafe at the corner of NW 10th Ave and NW Lovejoy St., conveniently near the dog park at The Fields or hop on the streetcar five locally sponsored stops south to that burger place near Powell’s City of Books right before walking 100 m south to the next block to get coffee at the lobby of the Ace Hotel.

You were swayed by the urbane amenities in the neighbourhood and proximity to downtown but you did wish that your employer Nike Inc. located in Beaverton, a city 11 km south-west of Portland, would reconsider its location and move to South Waterfront as rumoured. Even though it costs only US$2.50, it takes more than an hour to transfer from the streetcar to the Blue MAX line at Galleria/SW 10th Ave MAX Station to Millikan Way MAX Station where you boarded the 62 bus to get to your place of work. The more logical journey, even factoring in your car insurance, road tax and soaring fuel prices; would be to take your car and drive 18 mins (providing...
there was no traffic) on the US-26W to cover the 9.6 miles to get to work. Similar stories, some more positive than others, can be traced as well in various metropolitan regions around the world. These trade-offs between desired locations and facilities and the cost of travelling in duration and distance; motivate improvements in spatial organisation.

Human settlements have always clustered around resources or access to other settlements out of necessity. Throughout civilisation, villages and cities were founded along or at the confluence of rivers, trails, roads and eventually railway lines and stations out of pragmatism forming a self-reinforcing cycle as places to be connected to and connection between places increase. Stations and their surrounding areas also occupy an important place in our cultural landscape. These are places of reunions and departures, places of opportunities and interaction as well as places of employment, commerce and inadvertently crime (Bertolini, 2000). Herein lies the basic tenets of the predominantly political desire and pursuit of Transit-Oriented Development (TOD) related to increasing access to resources, reaping the benefits of agglomeration.

**Dissertation**

TOD is enjoying a renaissance. Planners and policy makers increasingly turning to it as a desired option for development of their cities and regions (Curtis et al., 2009). This research aims to contribute to the academic debate spurred by this resurgence and expand the transport engineering or economics dominated discussion by contributing from an institutional perspectives from within planning. The variety of issues surrounding this research subject requires a broad-spectrum approach borrowing from other social sciences. In this Introduction, the research subject and problem context are defined. The research questions and propositions are presented. An overview of research design and methods is then given followed by a discussion on theoretical and methodological considerations identifying various knowledge gaps, societal relevance and limitations of the research.
TRANSIT-ORIENTED DEVELOPMENT

The contest between practical benefits and idealistic visions has come to shape much of the complexity around the subject of transit-oriented development (TOD). Various definitions of TOD use performance measures such as walkability, density or location-efficiency; mixed in with normative terms such as livability, vitality, accessibility and diversity (Cervero, 1998; Dittmar & Ohland, 2004; Reconnecting America, 2007; Renne, 2008). At the base of these definitions is the consensus that TOD refers to mixed-used residential and commercial developments with sufficient density, preferably graduated, oriented towards and in proximity (walkable) distance to a public transportation node (train, metro, tram or bus) in opposition to a car-dominated and sprawling urban form.

Increasing and rapid urbanisation is occurring in a world of finite resources (physical space and fossil fuels) unable to perpetually support our current way of living (Newman & Kenworthy, 1999; Tan et al., 2010). Among other solutions, this has led to discussions about more compact and efficient forms of urbanisation and transportation that could contribute positively to social equity and human development (Newman & Kenworthy, 1989). Related to this, the traditionally separated domains of land use zoning and transportation engineering have also paid increasing attention towards integrated land use and transportation planning with an emphasis on sustainable mobility and urban developments (Banister, 2008; Bertolini et al., 2005; Collia & March, 2012; Goldman & Gorham, 2006; Jabareen, 2006).

Sustainable mobility, concerned with the life and travel choices of people, and visions and plans for places; contrasts with the ‘predict-and-provide’ narratives of traditional transport planning (Banister, 2008). This is translated into strategies seeking land-use and transport integration, recognising the importance of the relationship between transportation networks and land-use patterns (Hall, 1994). TODS represent a crystallisation of this relationship. The sheer multitude of opinions, expertise and perspectives of the various social sciences interested in TODS, leads inevitably to varying and oft contradictory discussions and evaluations that question if TODS is sustainable, cost efficient or justified (Bartholomew & Ewing, 2011; Debrezion et al., 2008; Gordon & Richardson, 1997; Jarvis, 2003; Newman & Kenworthy, 1996; 1999; Lund, 2006; Smith & Gihring, 2006). This research is aware of the above discussions on the if and why TODS should be implemented but focuses instead on how TODS can be implemented, if indeed desired, and what elements and conditions play a role in its implementation.
TOD, as defined in the box above, is often visually represented as a node or as a set of nodes within a corridors (see Figure 1). A lightly drawn circle of varying radius (some set at half a mile, 800 - 1200 m or more) representing development area, is drawn around an emphasised node or rectangle (representing a train/metro station or a bus-stop) with a line representing (transit) infrastructure running through it. Functions and density of the potential development are captured in this circle against a backdrop of existing urban structure. Zooming out to a regional and metropolitan scale, these circles are threaded by an infrastructure line becoming the recognisable “pearls on a necklace”¹ (Cervero, 1998, pp. 6, 156, 403).
Figure 1: Common visual representations of TOD as node of in a corridor.
The concentration of development around infrastructure is not new (ITS Berkeley, 2012). Conscious planning efforts to improve urban spatial structure to realise normative societal goals are not exactly novel either. One can observe similar strategies reaching back into early planning history. Arturo Soria Y Mata’s Ciudad Lineal proposed in 1882 was an urban plan of parallel sectors with housing concentrated along an infrastructure (public transit and utilities) axis reminiscent of transit corridors (DuPuy, 2008). Likewise, Ebenezer Howard’s Garden Cities from 1898 with settlements of concentric zones of various functions connected by rail and road infrastructure amidst a fabric of consciously spared green and natural landscapes, are conceptual and visual predecessors of current TOD ideas (Hall, 2002). TOD in its more recent form can be attributed to the New Urbanism/Smart Growth wave that sought a different type of urban space than that of the car-dominated suburban sprawl that had come to define much of the North America (Carlton, 2007; Calthorpe, 1993).

The resilience and increasing popularity of the principles behind TOD is also evident in its recurrent usage in various planning strategies and visions around the world. Metropolitan regions and cities recognise the need to manage urban growth, control circulation needs and anticipate societal changes with an integrated approach towards land use and transportation, at both node and corridor level (May & Marsden, 2010; Curtis et al., 2009; Cervero, 1998). The resulting Transit-Oriented Development Strategies (TODS) encompass plans, policies and projects that seek sustainable urban development by “concentrating urban development around stations in order to support transit use, and develop transit systems to connect existing and planned concentrations of development” (Curtis et al., 2009, p. 3).

The rational here is attributed to the desired socio-economic benefits derived from agglomeration, increased accessibility and resource efficiency. Even though there is on-going debate about the actual benefits of TODS, it does not stop proponents from widely promoting the supposed benefits (Chatman, 2013; Debrezion et al., 2008; 2006; Dittmar & Ohland, 2004). Motivations behind the use of TODS can range from practical concerns such as financing infrastructure or development through value-capturing or tax benefits, activation of urban renewal, job creation and pandering to political demands to more abstract goals such as increasing urban vitality, offering alternative mode choices and sustainability concerns (Bertolini et al., 2012; Jacobson & Forsyth, 2008; Lund, 2006; Renne, 2009).
Diagram from Ebenezer Howard's Garden Cities of Tomorrow (1902) showing activity nodes connected by an inter-municipal railway against a backdrop of green landscape.
TODS, as defined in the box above, are concerned with the way people move, where they work, live and play in their city or region. TODS are therefore context specific by nature. TODS operate against a complex mosaic backdrop of mutually influencing individual choices and lifestyles, market forces and political trends that are coloured by constantly changing socio-cultural forces and determine in part by existing urban structure and regulations unique to each city and region (Wegener & Fürst, 1999). There is a treasure trove of literature that one can easily get lost in exploring what TODS entails, and examining the various reasons for and against it. However, the question of how to motivate and implement TODS, if it is accepted that they are indeed appropriate and desired, remains underexposed as a key knowledge gap discussed in this research.
The burden of implementation

Given the many socially desirable benefits claimed by TODS, one wonders why it is not extensively and successfully implemented even when explicitly sought after in planning strategies. Herein lies the burden of implementation. The field of planning has struggled with the realisation of grand visions through exertion of sheer individual will and collective action. Such struggles are not always a bad thing, planning failures such as the Bijlmer social housing project in the Netherlands and assorted ‘disneyfied’ ghost towns in China, amongst others, are good reminders for planners that they should be careful what they wish for. Utility value differs greatly for each individual, not everyone wants to give up their cars and use transit, therefore any resolution of the burden of TODS implementation needs to occur at both the individual and collective level.

Transportation networks and urban structure enjoy and suffer from a symbiotic relationship that results from planning processes playing catch up with technological improvements and societal trends (Hall, 1994). The complexity of the larger social fabric and behaviours also affect and complicate planning processes (Talvitie, 2009). Likewise, the strategic combination of mobility and land use planning is characterised by two dilemmas (Bertolini, 2009). The first being the increasing dependency on mobility and accessibility for social emancipation and economic reasons versus that of the externalisation of the negative effects of environmental costs. The second dilemma results from differences of spatial scales between the unbounded action space of households and companies, and that of the bounded policy action space of land use and transport planning.

Urban planning is caught up between pragmatic efforts to organise and locate persons, businesses and facilities for economic gains and idealism of attempting to create social benefits through the improvement of the urban environment and the human condition. Planning history is full of attempts that proposed to determine the ideal spatial allocation of homes, commerce and utilities (Hall, 2002). The process of urban planning is influenced by societal changes and burdened by its own history as a “concrete social and historical phenomenon” and has increasingly become a political process as well (Scott & Roweis, 1977, p. 1117). Planning decisions resulting in implementation are produced by different individuals with separate, normative and personal views of the world in a complex policy process subjected to various formal and informal institutions. Consequently, these policy decisions are not necessarily based in facts but are mired by beliefs, values and experiences of the individual stakeholders; be they residents, planners or politicians (Hajer, 2005). These outcomes do sometimes occur at the expense of (what others consider) rationality and reality (Kokx & van Kempen, 2010; Wolman & Page, 2002).
These political processes reflect societal tendencies and are simultaneously stumbling blocks and solutions for implementation. The transportation network and especially the public transit infrastructure and services are highly regulated and dependent on extensive public investments in most parts of the world (Brons et al., 2005). These financial commitments and regulations are politicised and at times subjected to heated political debate and public opinion (Bertolini, 2012; Bertolini et al., 2012). The same applies to land use decisions as residents and business owners can be disadvantaged or dissatisfied by policy decisions as materialised in NIMBY movements and various protests.
Collective action is thus needed to achieve broad societal goals. Yet, the resulting change is again dependent on individual choices and beliefs. After all, planning agencies, various authorities, businesses and lobby groups are all constituted by individual planners, policy advisors, owners, employees and activists. Given the introductory understanding of the complex issues at hand, the research needs to be grounded in practice to shape further discussions. The research problem and context are introduced next.
“The inferno of the living is not something that will be: if there is one, it is what is already here. The inferno where we live every day, that we form by being together. There are two ways to escape suffering it. The first is easy for many: accept the inferno and become such a part of it that you can no longer see it. The second is risky and demands constant vigilance and apprehension: seek and learn to recognize who and what, in the midst of inferno, are not inferno. Then make them endure, give them space.”

Italo Calvino, Invisible Cities (2012, p.156)
RESEARCH PROBLEM AND CONTEXT

This research was funded by a practice and scientific consortium in the Netherlands. The practice members of the consortium are the Province of Gelderland, city regions of Arnhem-Nijmegen and Amsterdam, municipality of Amsterdam, Movares, Nederlandse Spoorwegen (Dutch Railways) and Platform 31 (formerly known as Nicis Institute, an organisation that used a subsidy from the Dutch national government to co-finance scientific research). Together, they represent the planning practice within the Netherlands that were interested in pursuing TOD and yet were equally frustrated by the lack of TODS implementation.

The question set to the academic partners of the University of Amsterdam and the Free University was to unravel TODS in the Netherlands through the lens of economics and the lens of planning, in two separate projects. This planning research project was tasked with finding out how to make TOD happen in the Netherlands by focusing on institutional barriers and incentives in the planning system. This research presented an opportunity to combine planning practice and academia. The research design therefore emphasises the co-creation of knowledge with an iterative learning process characterised by frequent dissemination of knowledge between all parties.

Defining the Problem

TODS have experienced renewed attention in the Netherlands (Bertolini, 2013; Modder, 2013; Rutten, 2011). Neither TOD nor TODS were common in the local planning vocabulary before. The preferred term of choice is Knooppuntontwikkeling. The lack of a Dutch understanding and translation of TOD as a term and a concept is however not an indication that the principles behind TODS were unheard of. The combination of location and transportation policies in the ABC location policy from the late 80s is a well-remembered example, though it is looked upon more favourably by international practitioners than local ones, due to dissatisfactory outcomes (Needham, 2007).

Implementation has however been more reticent. Singular TOD such as the station areas of Amersfoort and ‘s-Hertogenbosch have been claimed as two of the very few successes in the past (Peek & Wilson, 2006; Bruil, 2004), but are not all performing well under the current financial and economic crisis. Comprehensive TODS implemented on a regional or metropolitan scale have also reached an impasse in spite of the abundance of plans and visions (Programmabureau Stedenbaan, 2008; Uitvoerings Alliantie Centrum-en Knooppuntontwikkeling, 2010).
A review of national policy documents of the past six decades revealed that TOD principles have never featured explicitly, except for a brief period around 2000, in spite of and perhaps due to the frequently changing policy goals (Tan, 2009).

Many practitioners and policy makers in the Netherlands are pessimistic about the effectiveness of current land use and transport planning policies despite the abundance of plans that promote sustainable development (Francke, 2010). Increased road congestion, reduced transit use and insignificant emission reduction have been observed (Jorritsma et al., 2010). Despite policy attention towards achieving balance between the different transportation modes, the figures reflect another reality where the car continues to dominate.
The average modal split of the 263 European cities in the EPOMM (2011) database was 24% (walking), 9% (biking), 17% (public transport) and 51% (car). Average modal split from the 26 Dutch cities in the database was 15%, 24%, 9% and 52% (see Table 2). Bicycle mode share is much stronger in Dutch cities, while walking lags behind and public transport share are just dismal in comparison to the European average. In comparison to EU cities with similar population, Amsterdam and Rotterdam were below average in public transport mode share while leading in bike usage (see Table 2). Den Haag was average in public transport use but dominated in bike use. In its league, Utrecht was better than average with public transport but lost out in bike mode share to Münster. The situation in the Netherlands seems therefore more conducive for car and bike use than for walking or public transport. While the above average role that cycling plays is in line with TODS principles, the limited role of public transport and walking next to the still very significant role of car-based travel are at odds with those principles.
Table 2: Comparison of mode share of European cities against cities in the Netherlands

### AMSTERDAM

<table>
<thead>
<tr>
<th>City</th>
<th>Car</th>
<th>Public Transport</th>
<th>Bike</th>
<th>Walking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kraków</td>
<td>28%</td>
<td>46%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Leeds</td>
<td>67%</td>
<td>38%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Wroclaw</td>
<td>42%</td>
<td>35%</td>
<td>4%</td>
<td>19%</td>
</tr>
<tr>
<td>Thessaloniki</td>
<td>55%</td>
<td>25%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Frankfurt</td>
<td>34%</td>
<td>23%</td>
<td>13%</td>
<td>30%</td>
</tr>
<tr>
<td>Düsseldorf</td>
<td>40%</td>
<td>22%</td>
<td>11%</td>
<td>27%</td>
</tr>
<tr>
<td><strong>Amsterdam</strong></td>
<td>38%</td>
<td>20%</td>
<td>22%</td>
<td>20%</td>
</tr>
<tr>
<td>Grenoble</td>
<td>61%</td>
<td>11%</td>
<td>3%</td>
<td>25%</td>
</tr>
<tr>
<td>Bordeaux</td>
<td>67%</td>
<td>9%</td>
<td>3%</td>
<td>21%</td>
</tr>
<tr>
<td>Toulouse</td>
<td>75%</td>
<td>8%</td>
<td>5%</td>
<td>12%</td>
</tr>
<tr>
<td>Rouen-Elbeuf</td>
<td>66%</td>
<td>8%</td>
<td></td>
<td>26%</td>
</tr>
</tbody>
</table>

### ROTTERDAM

<table>
<thead>
<tr>
<th>City</th>
<th>Car</th>
<th>Public Transport</th>
<th>Bike</th>
<th>Walking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poznań</td>
<td>53%</td>
<td>37%</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>Genova</td>
<td>48%</td>
<td>30%</td>
<td></td>
<td>24%</td>
</tr>
<tr>
<td>Helsinki</td>
<td>40%</td>
<td>27%</td>
<td>7%</td>
<td>26%</td>
</tr>
<tr>
<td>Vilnius</td>
<td>36%</td>
<td>25%</td>
<td></td>
<td>36%</td>
</tr>
<tr>
<td>Oslo</td>
<td>36%</td>
<td>25%</td>
<td>5%</td>
<td>34%</td>
</tr>
<tr>
<td>Stuttgart</td>
<td>44%</td>
<td>24%</td>
<td>5%</td>
<td>27%</td>
</tr>
<tr>
<td>Dortmund</td>
<td>50%</td>
<td>22%</td>
<td>10%</td>
<td>18%</td>
</tr>
<tr>
<td>Essen</td>
<td>54%</td>
<td>17%</td>
<td>3%</td>
<td>26%</td>
</tr>
<tr>
<td><strong>Rotterdam</strong></td>
<td>49%</td>
<td>17%</td>
<td>16%</td>
<td>18%</td>
</tr>
<tr>
<td>Málaga</td>
<td>49%</td>
<td>12%</td>
<td></td>
<td>38%</td>
</tr>
<tr>
<td>Toulon</td>
<td>67%</td>
<td>5%</td>
<td></td>
<td>27%</td>
</tr>
</tbody>
</table>

Legend:
- **Car**
- **Public Transport**
- **Bike**
- **Walking**

Pursuing Transit-Oriented Development
(Source: TEMS: The EPOMM Modal Split Tool. Database: EPOMM)
NB: Values of less than 3% are not marked below.

### DEN HAAG

<table>
<thead>
<tr>
<th>City</th>
<th>Car</th>
<th>Bus</th>
<th>Walk</th>
<th>Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gdańsk</td>
<td>35%</td>
<td></td>
<td>38%</td>
<td>28%</td>
</tr>
<tr>
<td>Gothenburg</td>
<td>45%</td>
<td>25%</td>
<td>7%</td>
<td>23%</td>
</tr>
<tr>
<td>Nürnberg</td>
<td>66%</td>
<td>21%</td>
<td></td>
<td>27%</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>47%</td>
<td>18%</td>
<td>21%</td>
<td>14%</td>
</tr>
<tr>
<td>Antwerp</td>
<td>44%</td>
<td>18%</td>
<td>16%</td>
<td>22%</td>
</tr>
</tbody>
</table>

### Den Haag

<table>
<thead>
<tr>
<th>City</th>
<th>Car</th>
<th>Bus</th>
<th>Walk</th>
<th>Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gdańsk</td>
<td>56%</td>
<td>16%</td>
<td>3%</td>
<td>25%</td>
</tr>
<tr>
<td>Gothenburg</td>
<td>46%</td>
<td>14%</td>
<td>12%</td>
<td>28%</td>
</tr>
<tr>
<td>Nürnberg</td>
<td>43%</td>
<td>14%</td>
<td>23%</td>
<td>20%</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>43%</td>
<td>14%</td>
<td>23%</td>
<td>20%</td>
</tr>
<tr>
<td>Antwerp</td>
<td>66%</td>
<td>7%</td>
<td></td>
<td>26%</td>
</tr>
</tbody>
</table>

### UTRECHT

<table>
<thead>
<tr>
<th>City</th>
<th>Car</th>
<th>Bus</th>
<th>Walk</th>
<th>Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leicester</td>
<td>39%</td>
<td></td>
<td>38%</td>
<td>21%</td>
</tr>
<tr>
<td>Venezia</td>
<td>50%</td>
<td>26%</td>
<td>9%</td>
<td>15%</td>
</tr>
<tr>
<td>Nottingham</td>
<td>44%</td>
<td>22%</td>
<td>11%</td>
<td>23%</td>
</tr>
<tr>
<td>Utrecht</td>
<td>45%</td>
<td>19%</td>
<td></td>
<td>34%</td>
</tr>
<tr>
<td>Karlsruhe</td>
<td>41%</td>
<td>16%</td>
<td>23%</td>
<td>20%</td>
</tr>
<tr>
<td>Wiesbaden</td>
<td>46%</td>
<td>16%</td>
<td>19%</td>
<td>20%</td>
</tr>
<tr>
<td>Bonn</td>
<td>47%</td>
<td>12%</td>
<td>8%</td>
<td>33%</td>
</tr>
<tr>
<td>Malmö</td>
<td>48%</td>
<td>11%</td>
<td></td>
<td>40%</td>
</tr>
<tr>
<td>Catania</td>
<td>67%</td>
<td>11%</td>
<td>7%</td>
<td>15%</td>
</tr>
<tr>
<td>Münster</td>
<td>56%</td>
<td>11%</td>
<td>13%</td>
<td>30%</td>
</tr>
<tr>
<td>Aix</td>
<td>64%</td>
<td>8%</td>
<td></td>
<td>26%</td>
</tr>
</tbody>
</table>

### NL (Average)

<table>
<thead>
<tr>
<th>Car</th>
<th>Bus</th>
<th>Walk</th>
<th>Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>52%</td>
<td>9%</td>
<td>24%</td>
<td>15%</td>
</tr>
</tbody>
</table>

### EU (Average)

<table>
<thead>
<tr>
<th>Car</th>
<th>Bus</th>
<th>Walk</th>
<th>Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>51%</td>
<td>17%</td>
<td>9%</td>
<td>24%</td>
</tr>
</tbody>
</table>
Some practitioners claim overabundance of TODS in the Netherlands. However, if definitions of TOD and TODS are observed, most station locations and surrounding developments in the Netherlands would merely be classified as Transit Adjacent Developments (TAD), where developments are enjoy proximity to transit nodes but corresponding residential or commercial areas are neither attuned to transit use nor accessible by foot, cut off by phenomenological barriers such as major arterial roads or sprawled out Park & Ride terrains (Cervero et al., 2004; Renne, 2009). The experience differs greatly from classic TOD examples, whereby the hub of activity is integrated or located nearer to the station rather than at the edge of the catchment area. Most stations in the Netherlands were built on the outskirts of pre-existing urban centres in the past and their orientation towards the city centre as a place of commerce and urban vitality is usually obscure. Some cities are now seeking to correct this with a ‘red carpet’ treatment for way-finding (Riechelmann-van Asten, 2009).
Many practitioners assign significant blame for the lack of implementation on the complex legal and fiscal instruments, lengthy processes and difficulty of securing private investments (Modder, 2009; Peek, 2008; Programma Ruimte en Mobiliteit, 2006). The abundance of legal, financial and spatial regulations and instruments however imply that conventional solutions are present, if not over-exhausted within the Dutch context. The Dutch planning system seems to have “fallen victim to both institutional and conceptual erosion” (Hajer & Zonneveld, 2000, p. 341). Institutional innovation seems a hard necessity.
The case of the Netherlands

Plans for transit projects and related developments range in the Netherlands from extremely costly high-speed rail station locations to regional transit corridors. They both deal with a complexity of stakeholders, political goals and regulatory instruments. The high profile large-scale urban developments related to the introduction of the high-speed rail have been plague by rising costs, implementation delays and complex public-private partnership (Van der Wouden et al., 2009; Commissie Ruding, 2008). Furthermore, these ‘gateway to the city’ projects (VROM, 2004) are focused on a few single station areas and do not necessary contribute improvements towards achievement of a functional metropolitan TOD network.

Next to these were multi-stakeholders collaborations to direct growth, prior to the financial and real estate market crisis, with TOD principles on a regional corridor. However, the collaborative approach also meant they were hard to enforce. The two foremost examples of these, the Stedenbaan (now StedenbaanPlus) program from the Rotterdam-The Hague metropolitan area and Stadsregiorail in Stadsregio Arnhem Nijmegen have yet to see much TODS implementation. They have suffered from rapidly changing organisational dynamics, lack of political commitment and of course, the present real estate depression as a result of structural deficiencies of the market as manifested in less growth or no growth, next to the wider financial and economic crisis (Janssen-Jansen et al., 2012; Programmabureau StedenbaanPlus, 2011; Stadsregio Arnhem Nijmegen, 2007).

Both examples experienced institutional complexities that are part of trying to integrate land use and transport planning (Stead & Geerlings, 2004; Geerlings & Stead, 2003). This all contributes to a less than conducive institutional environment for TODS implementation.

Research question

There is a need to provide an understanding on how to achieve environments conducive to successful implementation of TOD within planning institutions, specifically for the Netherlands. The main research question of this project seeks to understand how TODS implementation can be achieved through institutional change whereby institutional barriers can be overcome through the introduction of institutional incentives in a process characterised by learning and institutional innovation. This is then operationalised in the following sub-questions.
• How to identify the institutional barriers to TODS and their interdependency in a given context i.e., the Netherlands?
• How cases of TODS implementation elsewhere overcome similar barriers and what are the roles that institutional incentives play in this process?
• What processes of institutional change occurred in cases of TODS implementation, what are the specific elements involved, and if and how they are related?
• How does learning facilitate institutional innovation resulting in institutional change, what patterns of learning and markers of institutional innovation can be identified in planning practice, and to what extent does the absorptive capacity of a given planning context affect learning and innovation?
• How can these processes and elements in cases of TODS implementation be transferred towards the Dutch context?

The task at hand is to focus on the institutional aspects that can overcome existing impediments to enable TODS implementation by affecting change in the institutional context. Next, a conceptual model and relevant theoretical concepts structuring this research are examined.
“CRUCIALLY, INSTITUTIONAL CHANGES AND CONSTRAINTS CAN CAUSE CHANGES IN HABITS OF THOUGHT AND BEHAVIOUR. INSTITUTIONS CONSTRAIN OUR BEHAVIOUR AND DEVELOP OUR HABITS IN SPECIFIC WAYS. WHAT DOES HAPPEN IS THAT THE FRAMING, SHIFTING AND CONSTRAINING CAPACITIES OF SOCIAL INSTITUTIONS GIVE RISE TO NEW PERCEPTIONS AND DISPOSITIONS WITHIN INDIVIDUALS”

GEOFFREY M HODGSON (2002, P. 117)
VICIOUS AND VIRTUOUS CYCLES

Various cities and regions are known as ‘successful’ examples of TODS and feature regularly as descriptive case studies that bandy them as ‘best practices’ to learn from. Portland and surrounding areas with its urban development around streetcar lines and the MAX system is a classic TOD example. However, TODS implementation in that metropolitan area, and in other examples, did not happen overnight or through sheer dumb luck. Portland’s TOD evolution is an example of institutional innovation and change through political canny, public support and activism and collective will to create urban quality and embrace multi-modality while preserving precious agricultural land (Arrington, 2009). They were able to overcome a non-conducive environment to TODS implementation shaped by institutional factors such as detrimental financial and planning policies, and a car-dominant culture and non-compact urban structures.

Dunphy et al., (2003) claims that TODS implementation is made possible by policy coordination and integration of the transport and land use planning sectors which requires foresight and involvement of complex stakeholders arrangement to exist. The absence of a clear understanding of this process is an important knowledge gap in literature (Belzer & Autler, 2002; Jopson et al., 2009; Pau1ley & Pedler, 2000). ‘Best practices’ and case studies are used increasingly but are inadequate for isolating critical factors of the process of evolution and TODS implementation, see definition box below (Brannan et al., 2008).

DEFINITION

IMPLEMENTATION IS CONSIDERED ACHIEVED
WHEN THERE IS AN EXPLICIT CHANGE FROM A MORE CAR-
ORIENTED TOWARDS A MORE TRANSIT-ORIENTED MOBILITY
AT THE METROPOLITAN SCALE AND A MORE COMPACT URBAN
FORM ORIENTED TO TRANSIT DUE TO TODS.

Stadium MRT Station (CC6), Singapore
Most available accounts are descriptive and highly contextual as TOD is inherently context specific, dependant on highly subjective socio-cultural factors and local contingencies (Pflieger et al., 2009). There are difficulties in the generalisation and transfer of lessons across different contexts (Ison et al., 2011). This is due to the wide range of implementation barriers, context specificity and general resistance to learning across different contexts (Dolowitz & Marsh, 2000; Marsden & Stead, 2011).

TODS implementation is influenced by political processes and societal preferences both positively and negatively. TODS implementation involves a variety and complexity of institutions. Institutions are defined here as man-made boundaries of individual and organisational actions through formal means of legislation, policies and regulations; as well as informal means of norms, values and beliefs (Hodgson, 2002; North, 1995). Formal institutions such as planning legislations and policies, financial regulations and building site restrictions, transportation safety rules and real estate market structures frame the transactions and decisions that govern TODS implementation.

Informal institutions such as attitudes and lifestyle choices, and residential and mobility preferences influence and are also influenced by those formal institutions. These institutions are also changed by and help shape broader socio-cultural norms and values. Institutions are seen as crucial for achieving implementation of sustainable mobility (Clifford et al., 2005; Marsden & May, 2006; May & Marsden, 2010). There is a need to explore and define the role institutions play in sustainable transportation and land use planning (Rietveld & Stough, 2004b; Stough & Rietveld, 1997). The research
focuses on the institutional aspect of TODS implementation - institutions and institutional change, to distill a comprehensive understanding of the process of overcoming implementation barriers.

**Conceptual model and proposition**

In the process of establishing the approach of research, the necessity of diagnosing the problem became apparent. The diagnosis indicated the presence of a vicious cycle of self-reinforcing formal and informal barriers (see Chapter 1). When looking to cases of TODS implementation, a pattern of evolutionary social, political and technological processes (usually over a period of 15-25 years) can be discerned moving away from a vicious cycle towards a virtuous cycle (Cervero, 1998; Curtis et al., 2009; Hull, 2010). This initial analysis (see Chapter 1 for details) led to the following conceptual model illustrated in Figure 3 and the following propositions.

- Cities and regions that experience difficulties and resistance in implementing TODS are in a [1] vicious cycle whereby mutually reinforcing formal and informal institutional barriers create a non-conducive environment for TODS implementation. This condition will perpetuate unless there is action taken.
- The introduction of institutional incentives, both formal and informal, targeted to overcome existing barriers creates a [2] virtuous cycle that is conducive to TODS implementation.
- This occurs through a process of [3] institutional change which is characterised by [4] learning and institutional innovation.
- The conceptual model also implies that It is possible to advance, from [1] to [2], but it is also possible to regress, from [2] to [1], as many cities and regions have shown. The process is neither linear or permanent, good choices can definitely be undone by bad habits.

Next, these propositions will be briefly elaborated upon. They are more extensively discussed in the relevant chapters.
Theoretical considerations

[1] Vicious cycle

Barriers to TODS implementation are well examined (Banister, 2004; Curtis & Low, 2012; Rietveld & Stough, 2004a). A review of planning and urban mobility implementation in 25 European cities classified five types of barriers which are legal, financial, political/cultural, institutional/territorial and practical/technological (Clifford et al., 2005). Implementation barriers of the institutional type are regulations and rules applied via policies, financial instruments and organisational culture that impede and obstruct implementation. The integration of land use and transport planning policies crucial to TODS implementation have always suffered implementation barriers, with institutional barriers being the most urgent to be resolved (Marsden & May, 2006).
The identification of barriers are important as only appropriate institutional incentives will lead to the required institutional change. When solutions are not well-matched, this can lead to undesirable, opportunistic and strategic behaviour from stakeholders (Kokx & van Kempen, 2010; Ostrom et al., 1993). Therefore, the point of departure should be the determination of the institutional barriers, both formal and informal, that within a specific context are mutually reinforcing and perpetuating the vicious cycle.
[2] Virtuous cycle

Institutional incentives play a role as feedback signals influencing how individuals within organisation reach a decision that creates a particular outcome through a certain set of rules. They function as levers influencing the course of action and decision by acting as either reward or deterrent (Clark & Wilson, 1961). Individual actors interpret rules differently (Hodgson, 2006). The individual perception of incentives, as well as disincentives working as barriers, are therefore essential (Pierson, 2000; Wolman & Page, 2002).

Institutional incentives are defined here as legal, financial or socio-cultural measures within an institutional field constructed from the inter-relationship between organisations, individual actors and networks that help to overcome the implementation barriers by making a course of action or choice attractive or inspiring to a stakeholder (Lin, 2002; Ostrom et al., 1993; Clark & Wilson, 1961). In transportation and land use planning, there is a lack of understanding in the application of incentives towards implementation through the overcoming of barriers (Banister, 2004). It is therefore important to understand how institutional incentives, both formal and informal, can lead to conducive environments for TODS implementation forming a virtuous cycle.

[3] Institutional change

The institutional change accompanying and resulting from this process of introducing incentives to overcome barriers, moving from a vicious to virtuous cycle, is relatively neglected around TODS implementation and in planning in general. Institutional change is however better explored in discussions in economics, policy transfer, and management and organisational science (Breit & Troja, 2003; Hage & Meeus, 2009). Institutional change could result in something explicit and physical, such as realised TOD neighbourhood and improved public transit infrastructure to support this, but it could take long before anything is visible. Furthermore, the process towards implementation would however be marked by subtle and more obvious shifts in societal attitudes, changes in rules and regulations or even organisational reshuffling that enable physical realisation. These are elements and patterns of institutional change.

Institutional change can be defined when “previous frameworks are challenged and reconstructed, leading to new behaviors and actions.” (Kim, 2011, p. 334). The value in recognising institutional change in planning is to be able to affect it in other contexts through identification of its necessary conditions, if change is indeed desired.
Learning and institutional innovation

“Innovation is an important partner to change. It is the wellspring of social and economic progress, and both a product and a facilitator of the free exchange of ideas that is the lifeblood of progress.” (Poole & Van de Ven, 2004, p. 12). Deliberate institutional change in a desired direction occurs through institutional innovation. Within planning practice, institutions constantly adapt as knowledge acquisition redefines existing boundaries, both from internal and external sources, and eventual application.

Planning practice is an example of tacit-explicit-tacit knowledge exchange (Straatemeier et al., 2010). Much of the knowledge in planning is not able to be captured in its literature due to the complexities of the arenas and forms of practice. Planning practice is also informed by a dynamic larger societal fabric. The individual planner and the planning organisation must have the capacity to learn to be able to innovate. Therefore the identification, facilitation of institutional change through learning and institutional innovation, and the capacity of the planning practice involved are determinant for eventual implementation.

The above concepts and considerations highlight a few important and nested factors that are crucial in the pursuit of TODS implementation, namely; The influence of the broader socio-cultural and political landscape on planning processes and vice versa.

The importance of subjective perception and beliefs, shaped by those broader landscape trends, contributing to a constructed reality of planning processes that might not necessarily be rational.

The need for well-matched responses to barriers and the need for both solutions and problem to be acknowledged and agreed upon by relevant stakeholders despite subjectivity and potential rationality issues.

The importance of the collective and the individual and their mutual relationship, in planning processes and processes of change and learning. These factors inform the research design and methods which are discussed next.
RESEARCH DESIGN

This research aims to explore how TODS implementation can be achieved through institutional change whereby barriers can be overcome through the introduction of incentives in a process characterised by learning and innovation.

An exploratory approach seeking to discover the processes, the roles and relationship of various elements is required for the operationalisation of the above propositions. The approach is worked out in the following phases, each central to a chapter in this dissertation;

- **Phase I:** Develop a method for identification of the formal and informal barriers that have resulted in a context not conducive to TODS implementation (the vicious cycle), in particular within the Netherlands
- **Phase II:** Identification of a virtuous cycle (from appropriate examples elsewhere) conducive to TODS implementation, where self-reinforcing formal and informal institutional incentives play a role in the lifting of barriers similar to the above-mentioned.
- **Phase III:** Discerning the necessary conditions for institutional change where a shift from a vicious to a virtuous cycle is observed.
- **Phase IV:** Discovering and enabling the roles that absorptive capacity, learning and institutional innovation play in the processes of institutional change.

Phase V: is to gain insight into the application of the above findings in the Dutch practice context, to aid practitioners (in the Netherlands and beyond) in achieving the desired shift. This could not be completed within the duration of the research as these processes take decades to take place, as observed in examples elsewhere (Cervero, 1998; Curtis et al., 2009). However, an initial step has been attempted through interactive thought-experiment workshops with practitioners. This will be discussed in the Epilogue.
The research design and corresponding methods aim to be attuned to the heuristic process of planning practitioners, particularly those in the Netherlands. For this purpose, the research design utilises the Kolb and Fry (1974) experiential learning cycle where observation and reflection of concrete experiences in other contexts to form abstract concepts which can be tested in new situations.

By engaging perceptions of stakeholders, this research addresses a gap in existing literature, where rationality is often assumed and subjectivity often ignored. Considering the practice-academia interaction and knowledge exchange, and the need for practical applications and solutions, action research is justified. Action research is understood here as research produced with engagement of the practice community, to produce applicable solutions for specific situations. This is built around an understanding of planning research as a design science. Next, the different phases of the research design is positioned relative to the experiential learning cycle.
Figure 4a: Phase I as part of the Kolb and Fry experiential learning cycle, dealing with the identification of barriers.
Phase I: Diagnosis

Phase I deals with the identification of formal and informal barriers, forming a vicious cycle within the Netherlands, that have resulted in a context not conducive to TODS implementation. The importance of the perceptions of stakeholders involved and their acknowledgement of an issue to be resolved are crucial first steps in being able to identify appropriate solutions.

An iterative process involving both deductive and inductive approaches is used. This is achieved through cycles of observation and reflection of involved stakeholders about their concrete experience with TODS implementation (or non-implementation) in the Netherlands (see Figure 4a).

This phase is designed to explore the first proposition regarding a vicious cycle. Chapter 1 examines, if and how, mutually reinforcing formal and informal institutional barriers do indeed occur and create a non-conducive environment for TODS implementation in the Netherlands. This is followed by establishing if and how a vicious cycle is formed, when the above conditions are perpetuated without further actions taken.

As indicated in Figure 4a, the right half of the Kolb and Fry (1974) model is completed.
Figure 4b: Phase II, III & IV as part of the Kolb and Fry experiential learning cycle; dealing with identification of virtuous cycle and the role of incentives, the necessary conditions for institutional change and the roles that absorptive capacity, learning and institutional innovation play in that process.
Phase II, III and IV: Learning from elsewhere

In cases where TODS implementation was achieved through the overcoming of barriers, a shift was made towards a virtuous cycle. A more conducive environment for TODS indicates the completion of the learning process by stakeholders within each respective institutional context, as indicated in the experiential learning cycle (Kolb & Fry, 1974). The individual and collective stakeholders would have had to observe and reflect on concrete experiences (positive and negative) to be able to form abstract concepts regarding possible solutions. They must also be able to test these solutions in new situations leading to concrete experiences that were observed as TODS implementation (see Figure 4b).

Phase II seeks out the above-mentioned cases where TODS implementation was achieved through the introduction of incentives. This is to establish a virtuous cycle in which self-reinforcing formal and informal institutional incentives play a role in the lifting of barriers similar to those identified in Phase I. This is discussed in Chapter 2.

Phase III discerns the necessary conditions of institutional change in these cases where a shift has been observed. Similarities and differences across the cases are explored with a view towards emulation by other contexts that desire equivalent change. This is discussed in Chapter 3.

Phase IV builds upon the findings in phases II and III. The focus here is on discovering the roles that learning and institutional innovation play in the processes of institutional change. In addition, the absorptive capacity enabling these processes are examined. This is discussed in Chapter 4.

Phases II, III and IV allow reconstruction of the process of institutional change and identifies possible initial steps towards a similar process of learning, innovation and change for other contexts. This can be the starting point for completing the left half of the model, i.e., testing in new situations that is the Netherlands as the next phase.
Figure 4c: Phase V as part of the Kolb and Fry experiential learning cycle, dealing with application towards the Dutch context.
Phase V: Testing lessons learnt

Phase V is conducted to gain insight into the application of findings from the above phases in another context, i.e., the Dutch practice context.

This is to aid practitioners (in the Netherlands and beyond) in achieving the desired shift. Here, abstract concepts are formed from the observation and reflection of concrete experiences from foreign cases for testing in new situation, the Netherlands (see Figure 4c).

It was of course not possible to test this in the realities of planning practice. Yet, a first step towards such a test has been made through an iterative process with the practitioners. The twin purpose of this phase is the testing of potential application of incentives learned elsewhere within the Dutch planning practice and determine the learning capacity of its practitioners.

The findings of this phase, as mentioned above can only be seen as the first step towards testing, will be discussed in the Epilogue.
RESEARCH METHODS

Phase I: Identifying barriers

Phase I starts with an extensive literature review on TODS implementation and impediments. Concurrent analysis of Dutch planning policy documents relating to land use and transport integration from the past six decades to deduce and identify barriers to TODS implementation in the Netherlands. This is further explored through open interviews with relevant stakeholders about their experiences with TODS implementation until theoretical saturation is reached. Interviewees are selected according to i) scale - national, regional, urban agglomeration or local, ii) sector - land use or transport or both, and iii) type - public or private or other. The identification of crucial barriers is then validated in two focus groups that polled practitioners on what was for them the most crucial barrier. This was followed by parallel discussion sessions to disentangle the argumentations behind individual assessments, and compare and combine the different argumentations. This research method is explained further in Chapter 1.

Phase II, III & IV: Selecting a virtuous cycle to learn from

Learning from elsewhere is crucial for two reasons; in cases where the shift has yet to occur, there is little to no examples to learn from and therefore inspiration from another context is needed. Case studies (from elsewhere), where vicious cycles became virtuous cycles, are therefore necessary for Phase II, III and IV. The line of inquiry lends itself to using a multiple-case study design in which both the how and, more importantly, the why of TODS implementation can be captured across multiple cases and evaluated in a cross-comparison (Bryman, 2004; Yin, 2003). A replicated case study across multiple cases provides robustness that satisfies external validity. Case studies also lend an opportunity to delve deep into foreign institutional context to isolate opportunities for learning and transfer. However, before conducting the case studies, the following issues of context specificity, selection and data collection protocol have to be addressed.

Resistance to learning from different contexts

Due to the context specificity of this research subject, resistance by practitioners and policy makers towards the acceptance and adoption of measures deemed too different or extreme can be expected. This was experienced within the research consortium, requiring a need for a more systematic selection process. Resistance is increased when the learning process challenges core beliefs of the policy system and indirectly its
instruments and mechanisms (Wolsink, 2003). To tackle these issues towards learning, Spaans and Louw (2009) framework\textsuperscript{8} was combined with Wolsink’s (2003) contribution (see Table 5).

Table 5: (Adapted) Framework on likelihood of transfer between same, similar and different systems (barriers and context) (Spaans & Louw, 2009) by adding the factor of resistance (Wolsink, 2003).

<table>
<thead>
<tr>
<th>Knowledge transfer between:</th>
<th>Same barriers and context</th>
<th>Similar barriers but different context</th>
<th>Different barriers and different context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspiration</td>
<td>Less likely</td>
<td>Very likely</td>
<td></td>
</tr>
<tr>
<td>Learning</td>
<td>Least resistance</td>
<td>Ideal environment for learning</td>
<td>Most resistance</td>
</tr>
<tr>
<td></td>
<td>Least learning</td>
<td></td>
<td>Most Learning</td>
</tr>
<tr>
<td>Transplantation</td>
<td>Very likely</td>
<td>Less likely</td>
<td></td>
</tr>
</tbody>
</table>

The opportunity for inspiration is more likely to occur between countries with different planning systems and models while transplantation opportunities are more likely within the same system when it concerns knowledge transfer between two contexts. The ideal environment for knowledge transfer seems to be the middle ground between learning and resistance (see Table 5). Ideal examples for knowledge transfers are therefore those that are from different contexts that share and overcame similar barriers faced in the context where knowledge transfer is sought.
Case Selection

Here, a conscious choice was made not to fixate on the conventional encumbrance of case study design such as scale, size, density and physical attributes. TODS are highly context dependent and a major source of concern was how to strip away the veneer of geographical, political, and social-cultural contextual trappings to discover the recurrent underlying patterns of how TODS happened in all these cases. Those underlying patterns were the most relevant lesson to learn. In addition, any selection based on physical attributes would only invite further disagreement from practitioners as most viewed the Netherlands as being too unique (in size, density, urban structure, culture and planning system) and other cases as being too different and therefore difficult to learn from.

The unit of analysis is a regional system of transit infrastructure with corresponding TOD projects within a metropolitan area. This correspond to the contexts of the various cities and regions attached to the consortium. This means the use of embedded cases (multiple projects) within a particular context to ensure the internal validity of the research by allowing for possible rival explanations or alternative patterns.

The next move is to determine who and where to learn from. For knowledge transfer, the path of least resistance is preferred (see Table 5). Critical cases with positive learning opportunities are therefore best suited for this research. A two-step approach to case selection was applied, consisting of an initial quick scan followed by a final case selection according to variables in institutional arrangements ensuring construct validity.

This approach is explained in greater detail in Chapter 2, 3, and 4. In the quick scan, an initial pool of potential cases culled from literature must suffice the criteria of i) an observable modal shift and changes in real estate values and developmental patterns towards TODS, ii) have experienced similar barriers to those identified in the Netherlands which were overcome through explicit interventions. A total of 26 potential cases fulfilled these criteria.
On further examination, these potential cases exhibited five ideal types of stakeholders - i) planning authorities, ii) transportation authorities, iii) transit agencies/service providers, iv) private developers/interests and v) knowledge/advocacy institutes from local, urban agglomeration, regional and national levels of scale. Four common combinations of institutional arrangements between these ideal stakeholders types were found from the 26 potential cases;

- **I/I* Planning Authority + Transit Agency/Advocacy**: Planning Authority and Transit Agencies are active parties. Incentives used are mostly formal but technically creative. Formal incentives used with advocacy groups as a common subset. Potential cases: Boston, Denver, Houston, Miami Dade, New Jersey, Portland, Chicago and San Francisco

- **II Transit Agency + Private Developer**: Transit Agency and Private Developers are active parties and incentives used can be a mix of formal and informal regulations. Transit Agencies in these type are highly entrepreneurial and profitable. Potential cases: Dallas, San Diego, Vancouver, Washington, Hong Kong, Singapore and Tokyo.

- **III Planning Authority**: Planning Authority is highly active and use Strategic Planning Frameworks to enact regulations. Potential cases: St. Louis, Brisbane, Melbourne, Perth, Sydney and Naples.

- **IV Planning Authority + Transit Authority**: Planning and Transit Authority are strongly active and clearly hierarchical, favouring formal and long term regulations. Potential cases: Copenhagen, Stockholm, Karlsruhe, Munich and Zurich.

One case per combination was chosen. Considering pragmatic constraints such as language and access to information and knowledge networks, the metropolitan regions of Portland, Vancouver, Perth and Copenhagen were finally selected.

**Data collection**

The protocol for data collection and analysis replicated for the four case studies ensured reliability and external validity. Likewise, more detail about the process can be found in Chapters 2, 3 and 4. The four cases were visited in person for a field work period of 4 - 6 weeks on average. The data collection process precedes actual field work. Once on site, the fieldwork is started with a field trip to diverse TOD projects with at least 1 local expert as a guide. The data sought and collected are from as many diverse sources as possible, such as policy documents, press releases, reports, internal communications, semi-structured interviews with key stakeholders and experts, and focus groups or workshops (whenever possible).
These data were sorted into three lines of narratives\textsuperscript{10} which were then triangulated to ensure internal validity;

- **Context narrative:** Overview of exogenous events and factors that might be directly or indirectly related to the understanding of an evolution towards TODS implementation. Information such as economic conditions, changing political leadership and factsheets of the TOD projects planned and realised were collected. To create a wider institutional and socio-cultural context, forms of media (newspapers, broadcasting, blogs, websites and forums) were also consulted.

- **Timeline narrative:** Chronological reconstruction of Projects, Plans/Programs/Policies and Organisations in the context of Trends/Events in the past (generally 15-25 years, can stretch a few decades on either side depending on related information from interviews) combined with modal shift data isolate the critical phases. Detailed data on policies and organisations were collected from official websites, and statistical and annual reports. Information was found in archives, statistical yearbooks, annual reports or financial reports as well as academic literature, news archive, other media forms and personal websites.

- **Interview narrative:** The individual and collective perspectives of local experts and stakeholders feature in this narrative with a line of inquiry on barriers and institutional incentives, their learning process and how they benchmark their region’s successes\textsuperscript{11}. The interviews are semi-structured, recorded, transcripted and kept anonymous so that the local experts are free to share their knowledge. Interviews are generally one-to-one, however, concessions have been made for individuals with time constraints. Interviewees were found through prior literature review of key policy documents and recommendation from the researcher’s network\textsuperscript{12}. Interviewees are selected by the same scale, sector and type categories as used in Phase I. Interviewees received the same interview requests, customised per case. The interviewee is free to share any information and experiences. The researcher only employs minimal verbal prompts to ensure sufficient coverage of topic without external influence.
Phase V: Preparing to test

Three focus groups were planned with practitioners from the consortium and their colleagues\textsuperscript{13} to test potential application of incentives learned elsewhere and examine the learning capacity of the practitioners. This is conducted through a two-step approach to establish the ability and potential to apply lessons from abroad as determined by the capacity to learn for those involved. The sample population was selected from practitioners involved in the research consortium, their colleagues and extended network. These participants should be involved with TODS in their professional capacity. Each focus group included participants from various levels of scale (national, provincial/Regional, urban agglomeration, local), sector (land use and/or transport planning) and type (private or public) when availability allowed.

This is the first step of determining the participants’ peer group learning process through a thought experiment in a focus group setting. Participants were given a list of incentives found in all foreign cases beforehand, informed about the local context or ‘problem’ of the hosting organisation. They were then separated into two parallel focus groups and asked to resolve the issues raised with the given incentives as inspiration.

The second step determines the individual absorptive capacity of the participants. Participants are asked to fill in a survey after the thought experiment session on their professional experiences, education background, and affinity with TODS planning processes. In addition, they are asked to reflect on the solutions achieved, if they agreed with the group’s solution and which incentive they personally preferred. The method and findings will be discussed in detail in Epilogue.
STRUCTURE

This dissertation is structured around the conceptual model of vicious and virtuous cycles for TODS implementation, the resulting propositions and the corresponding phases of research design and their methods (see Figure 3). The propositions are formulated and operationalised and tested in the following chapters.

Chapter 1 - 4 are articles submitted to or accepted by international peer-reviewed journals that correspond to the propositions, see boxes below, and dissect those dynamics presented in the conceptual model by examining and testing them with empirical findings from the four phases of research design. Each chapter can therefore be read independently with its own introduction, findings, and conclusions. The Epilogue is appended to round off discussions on the propositions within this research and to accommodate some initial findings and discussions from the fifth and last research design phase.
Chapter 1, submitted and currently under review, establishes that TODs implementation remains challenging due to institutional barriers, which previous research have indicated as most crucial. Empirical findings from the Netherlands, culled from an inductive and deductive process using literature review, policy analysis, open interviews with QDAS coding, survey and focus groups; are applied. The identification of crucial barriers establishes that formal and informal institutional barriers reinforce one another in a vicious cycle whereby the institutional environment is not conducive to TODS implementation. Literature provides general lessons on coping with these political, legal, financial and organizational barriers. Yet, application to a different context is complicated, as barriers are context-specific and interrelated. Understanding the relationship between institutional barriers and their context-specificity are therefore prerequisites for TODS implementation. The case of the Netherlands is representative of observations elsewhere and barrier identification is a crucial first step for cities and regions that pursue TODS but experience implementation obstacles.
Chapter 2, published in Urban Policy and Research, examines the ingredients of a shift towards a conducive environment for TODS and studies how that change occurs through the introduction of incentives to overcome implementation barriers. The relationship between formal and informal barriers and a virtuous cycle of mutually reinforcing formal and informal incentives lifting of those barriers is applied to the examination of three metropolitan regions; Perth, Portland and Greater Vancouver. These cases served as theory confirming cases. A combination of literature review, policy analysis, semi-structured interviews and timeline reconstruction generates empirical findings for applying the conceptual model. Findings reveal several combinations of incentives being used in those cases that can inform those wishing to pursue TODS implementation.

PROPOSITIONS [2]:
THE INTRODUCTION OF INSTITUTIONAL INCENTIVES, BOTH FORMAL AND INFORMAL, TARGETED TO OVERCOME EXISTING BARRIERS CREATES A VIRTUOUS CYCLE THAT IS CONducive TO TODS IMPLEMENTATION.
Chapter 3, submitted and currently under review, examines the process of moving from a non-conducive to a conducive institutional context for TODS by proposing a theoretical framework to analyse processes of institutional change through its elements of critical phases resulting from catalysts, corresponding reactions and effects. The theoretical framework defines institutional change and grounds it in planning practice adding the consideration that the processes are iterative across a time. Four cases of TODS implementation in the metropolitan regions of Perth, Portland, Vancouver and Copenhagen; are examined with the corresponding conceptual model. This model is subsequently refined. Elements and patterns of occurrence of institutional change are identified, concluding with the necessary conditions that can inform policy makers and planners, if change towards TODS implementation is indeed desired.

Chapter 4, submitted and currently under review, explores and establishes the role of learning and institutional innovation in the processes of institutional change towards TODS implementation. A theoretical framework is proposed that resolves the abstract and cursorily used concepts of learning and institutional innovation by grounding both concepts in practice and empirical data from the four cases. This framework is tested on these cases and findings result from the comparative analysis. These are the metropolitan regions of Perth, Portland, Vancouver and Copenhagen which have made the shift towards TODS implementation. Findings include observation of markers of institutional innovation as deliberate and positive changes and the collective and individual absorptive capacity present. These occur through new practices and meanings facilitated by patterns of learning from the creation and improvement of existing knowledge through social and knowledge networks. The chapter concludes with recommendations for planners and policy makers and further research steps.
The Epilogue addresses the research questions posed with the findings from the previous chapters and reflects back on the relevance and limitations of this research design and its methods. In addition, Practice and Academia, a discussion chronicling the process of research and the involvement of the practice community in the Netherlands is appended. Concerns and discussions on the action research process are shared. Initial results from focus groups and workshops from Phase V of the research design are discussed. In addition, observations on the progress of the pursuit of TODS in the Netherlands are made. Reflections include the state of professional competency, learning capacity and group dynamics of the planning practice community regarding TODS.
BIBLIOGRAPHY


Marsden, G. & May, A. D. (2006). Do Institutional Arrangements Make a Difference to Transport Policy and


Pursuing Transit-Oriented Development


This can vary as ‘beads on a string’ or ‘pearls on a string’ as well.

A simple Google Scholar™ scholarly texts search for “transit-oriented development” shows 9,460 articles while with that exact phrase while a Google Books™ service search throws up 26,600 results as of July 2013.

NS or Nederlandse Spoorwegen, the Dutch Railways is the primary passenger rail transport provider in the Netherlands. It operates passenger and freight services as well as business operations in real estate in and around the stations.

The economics project at the Free University focused on the market value of TODS.

Nodal developments. Knooppunt is translated as node (junctions or nodes of highway, roads, bicycle paths and more popularly transit infrastructure). Ontwikkeling means development and growth.

Refer to Appendix: LIST OF INTERVIEWEES and INTERVIEW REQUEST (NL).

Refer to Appendix: MEETINGS.


Refer to Appendix: CASE SELECTION, Table A.

For examples and more details on all three narratives, please see http://niciskei.wordpress.com/ipvko-foreign-cases/case-study-reports/.

Refer to Appendix: INTERVIEW REQUEST (FOREIGN CASES).

Refer to Appendix: NETWORK.

Refer to Appendix: MEETINGS.
BARRIERS

View over the I5, Portland, Oregon, US
ABSTRACT

Transit-oriented development strategies (TODS) are widely embraced. However, implementation remains challenging. Institutional barriers play a key role here, and literature provides an overview of the most important ones and ways of overcoming them. Yet, application of such insights in a different context remains elusive due to the context-specific nature of barriers. As a first and necessary step to cope with the implementation challenge of TODS, this paper proposes an approach to identify barriers in a given context. The approach is applied to a hypothesis-generating case, the Netherlands. Findings indicate a vicious cycle of mutually reinforcing formal and informal barriers hampering implementation. The methodology, identification and analysis could be useful for cities elsewhere that face similar implementation difficulties.
IDENTIFYING AND CONCEPTUALISING CONTEXT-SPECIFIC BARRIERS TO TRANSIT-ORIENTED DEVELOPMENT STRATEGIES: THE CASE OF THE NETHERLANDS

W.TAN, L. BERTOLINI & L.B. JANSSEN-JANSEN
INTRODUCTION

Transit-oriented development strategies (TODS) aim for transit and land use integration by “concentrating urban development around stations in order to support transit use, and develop transit systems to connect existing and planned concentrations of development” (Curtis et al., 2009, p. 3). TODS promises to counter urban sprawl and car dependence whilst promoting economic development and is thus embraced by practitioners from many cities and regions even though evaluation and proof of such claims are not yet definitive (Al-Dubikhi & Mees, 2010; Bertolini, 2000; Curtis, 2009; Madanipour, 2001; Næss et al., 2011).

Next to the extensive debates on the possible substantive merits of TOD, a parallel discussion on conditions for successful TODS implementation at a metropolitan level has emerged (Bartholomew, 2007; Curtis et al., 2009; Filion & McSpurren, 2007). Implementation is considered successful when
metropolitan areas move away from car-oriented, sprawling development path towards a more transit-oriented, more compact development. Many cities and regions that endorse such a move experience difficulties in its implementation (Ayres & Pearce, 2004; Clifford et al., 2009; Curtis, 2008; Næss et al., 2011; Marsden et al., 2011). A systematic analysis of why TODS implementation is unsuccessful is lacking (Marsden et al., 2011; Paulley & Pedler, 2000). However, there is an abundance of literature on the barriers to the pursuit of sustainable transport (Banister, 2004; Hull, 2011). Within the barriers identified by this literature, institutional barriers are perceived as the most crucial to be overcome (Banister, 2005; Rietveld & Stough, 2004).
TODS at the metropolitan level are by nature extremely complex planning endeavours embedded in a dynamic institutional context (Kaufmann et al., 2008; Pflieger et al., 2009). Barriers, but also opportunities are thus context specific, which impedes simple learning across different contexts. Given these constraints, the ‘copy and paste’ approach to transferring of lessons from elsewhere proves inadequate (Renne, 2008). There is no ‘one size fits all’ problem or solution. Rather, context-specific barriers need to be identified, in order to then look for context-specific ways of overcoming them. However, in the literature there is surprisingly little discussion on how to achieve this contextualisation of problems and solutions, which is an important knowledge gap. This paper aims to start addressing this gap by focussing on the first step of the process: the identification of barriers. An approach will be proposed, and applied to the case of TODS implementation in the Netherlands.

The Netherlands is a case where TODS implementation difficulties are experienced, despite the numerous national, regional and local policies supporting TODS in addition to the strong planning system and a multitude of regulations and programs (BPZ, 2007; Stadsregio Arnhem Nijmegen, 2008; VROM-raad, 2009; Needham, 2005; Peek & Louw, 2008; Peek et al., 2006). This is in contrast to more successful examples abroad such as those in the United States, Australia, Asia and elsewhere in Europe (Cervero, 1998; Curtis et al., 2009; Dittmar & Ohland, 2004). It is therefore likely that some context-specific barriers exist in the Netherlands requiring targeted interventions beyond the scope of conventional national planning practice or internationally acknowledged ‘best practices’. The central questions to be addressed in this paper are i) how to identify institutional barriers to TODS implementation in a given context and ii) what are the institutional barriers to TODS implementation in the Netherlands?

Regarding the first question on how to identify barriers, a four-step approach is offered combining deductive and inductive research processes. This approach is then applied to the case of the Netherlands for the second question. As an outcome of the exercise and using the Netherlands as a ‘hypothesis-generating case’ (Lijphart, 1971, p. 692). A conceptual model illustrating the interaction and relation of institutional barriers is proposed. How both the approach and the conceptual model can be useful in other cases experiencing difficulty in TODS implementation is discussed in the conclusions. The institutional context and complexities of the case will be discussed next.
THE CASE OF THE NETHERLANDS

Property development around transit nodes, ‘Knooppuntontwikkeling’1, has seen increased popularity within local, regional and national government as a Dutch version of TODS (Provincie Noord-Holland & Goudappel Coffeng, 2010). So far only individual station area projects, such as the station of Amersfoort or ‘s-Hertogenbosch, have been regarded as successes primarily due to commercial occupancy rates2 (Bruil & Bruil, 2004; Peek, 2006). Yet, TODS as a metropolitan development strategy still faces implementation challenges (Programmabureau StedenbaanPlus, 2010; UACK, 2010).

Increased road usage, decreased transit usage and marginal emission reductions have been observed in the Netherlands (Jorritsma et al., 2010). Contrary to policy claims of striving for balance in private and public transportation, modal split from 1995 to 2007 in terms of number of trips per person per day has hovered at 46-48% for car-based mobility, whilst transit usage stayed between 4.5 – 5% in the same period (CBS, 2010).

Consequently, many policy makers are pessimistic about the effectiveness of current TODS policies in deterring increased congestion and relieving impeded mobility (Francke, 2010).

Attempts at TODS

Two distinct directions for land use and transport integration around transit have developed in the Netherlands since the 90s. The first direction consists of high profile, costly, and large-scale station area redevelopment in the guise of national ‘key-projects’, characterised by complex public-private partnerships and significant grants from the national government (Commissie Private Financiering van Infrastructuur, 2008; Van der Wouden et al., 2009). Beside the implementation difficulties it faces (VROM, 2006), this direction does not benefit a metropolitan system-wide improvement for sustainable mobility, as it only focuses on a few, selected station areas (a total of six in the whole country).

The second direction is a more collaborative approach at the regional level with numerous stakeholders seeking to concentrate and accommodate growth around railway stations to avoid sprawlsh developments. Mostly ‘soft’ executive agreements between authorities are used with this approach instead of ‘hard’ contracts (BPZ, 2007; Stadsregio Arnhem Nijmegen, 2011). Two well-known TODS in this direction are the urban regional corridor development programs of the Stedenbaan program (SB) in the Rotterdam-The Hague metropolitan area and Stadsregiorail program (SRR) in the metropolitan area of Arnhem Nijmegen (see Figure 1.1). Both TODS have experienced institutional complexities that are part and parcel of the integration of land use and transport planning (Geerlings & Stead, 2003).
Pursuing Transit-Oriented Development
Figure 1.1 Map of Stedenbaan (left) and Stadsregiorail (right)
Source: Authors, based on OpenStreetMap.
Implementation challenges

Co-ordination between the conventional divergent sectors of land use planning and transport; across multiple levels of authorities and a sufficiently responsive market condition is required for TODS implementation (Curtis et al., 2009). The decentralised unitary state that exists in the Netherlands with a deep-rooted need for consensus is a key feature of its policy context. This results in a multi-levelled system of co-governance consisting of a multitude of stakeholders (Van der Valk, 2002). Stakeholders from various scale levels (national, provincial, regional and local) and oft-opposing sectors (land use and transport); each with their own different sets of agenda, jurisdiction and power; are at play. Fragmentation is compounded by a set of conflicting policy instruments alongside fluctuating policy goals. Inconsistency of goals and correspondingly strategies between stakeholders in opposing sectors seem to trickle down through all levels of governance. This leads to unsatisfactory compromises of ambitions (Koppenjan & Leijten, 2005; Majoor, 2008).

Some of these conflicts are inherent in the structure of planning law. In general, national authorities dictate infrastructure plans on roads and railways through the national Trajectory Act (VenW, 1993) or more recently with national or provincial zoning plans. Municipalities have limited power to object to these plans that they are then tasked with implementing. On the other hand, the provision of local public transport services (subway, trams and buses) occurs through concessions as directed by regional authorities (provinces and/or city regions). These are funded through a general national transportation budget (BDU or Brede Doeluitkering) which is beyond the jurisdiction of the regional and local governments increasingly tasked with implementation (IenM, 2012; Smit et al., 2008; VenW, 2004). To achieve just the transit aspect for TODS already requires complex agreements between numerous public agencies, in addition to commercial parties such as transit providers (BPZ, 2007).

Moreover, Dutch land use and transport national policies have changed directions frequently in the last forty years and thereby complicating the development of coherent strategies. National transport policies first tried to restrict road infrastructure development for the benefit of public transportation and sustainable mobility (VenW, 2004; VROM, 1988; 1974; 1967). Transport policies were then redirected to advance economic growth through improving accessibility (VROM, LNV, VenW & EZ, 2006).

Likewise, national land use policy started first by expanding away from the Randstad to concentrate on urban nodes with adjoining compact suburbs (Van der Cammen & de Klerk, 2003). Later on, land use policy emphasis shifted to urban growth management with pressure on provinces and
municipalities to co-ordinate their plans (VROM, 2004). National attention returned to the Randstad metropolitan region before diverting to pursuing liveability, safety and accessibility within compact city regions, together with energy policies, attention to culture historical values and more (IenM, 2012; VROM, 2008). The strong focus and continuity over a long period of time that is required for the implementation of TODS (Curtis et al., 2009) are compromised by this constant fluctuation of policy goals and concepts.

Societal pluralism contributes to this ‘messy’ institutional and political context. Goals and objectives mutate during the implementation phase due to either lack of continuity or commitment. For example, the internationally renowned ABC location policy meant to discourage car use, was deemed a failure when most firms gravitated towards locations with more parking capacity instead, thereby encouraging car use instead of deterring it (Rietveld, 2004; Schwanen et al., 2004).

The above combinations of factors are not conducive to TODS implementation. The sheer amount of policies in place without implementation on the ground indicates that conventional solutions of funding mechanisms and policy co-ordination are insufficient and perhaps not well matched to existing barriers. Therefore, identification of context-specific barriers is needed. An appropriate method and identification of these barriers will be discussed next.

**IDENTIFICATION OF BARRIERS: METHOD AND FINDINGS**

Solutions to implementation stalemates are expected to be more effective when they are targeted to the specific barriers present and are identified by the actors and stakeholders involved (Ostrom et al., 1993; Paulley & Pedler, 2000). Bearing in mind that practitioners tend to selectively adopt innovations based on a match with their ‘own view and interest’ as perceived through their “own senses” (Wolman & Page, 2002, p. 493), the involvement of actors and stakeholders in the discovery process is central in any barriers identification approach.

A combination of inductive and deductive processes is proposed to uncover the barriers as perceived by relevant actors and stakeholders (see Figure 1.2). The deductive process starts with theoretical concepts from literature analysis used to guide the process of obtaining observations and findings through policy analysis, interviews and focus groups. An inductive process then followed whereby the observations and findings iteratively helped to refine theoretical concepts in order to develop a conceptualisation of the critical barriers to implementation (Bryman, 2004). Next, the methods of the approach will be elaborated per step with corresponding findings.
Four research methods: literature review, interviews, policy analysis and focus groups, have been used concurrently to identify barriers leading to an initial understanding of barriers (see Figure 1.2). The four methods, their findings and how they contribute to each other are presented next. For the sake of clarity, Figure 1.2 and the four steps are shown in a linear order to depict the main direction of analysis. However, the research was conducted with overlaps and iterations between steps. For instance, policy analysis played a role in multiple steps.

**Literature review**

The project started with an analysis of land use and transport integration strategies in relation to implementation barriers within literature. The findings reveal that most existing literature covered specific barriers such as neighbourhood protest, lack of financial resources and market demand to general prejudices against TODS (Cervero & Zupan 1996; Dumbaugh, 2004; Hess & Lombardi, 2004). Institutional barriers continue to plague efforts to integrate land use and transportation policies and are seen as the most crucial to be resolved (Ayres & Pearce, 2004; Banister, 2005; Hull, 2010; Marsden & May, 2006; Rietveld & Stough, 2004).

Here, institutions are defined as an “explicit codification of expected rules or behaviour” (Garcelon, 2005, p. 2). Formal barriers are thus legal, financial and practical impediments within formal institutions that manifest as regulatory guidelines, documentation and policies. Informal barriers are
obstacles stemming from political and cultural attitudes and institutional and territorial divisions. Informal barriers tend to be difficult to identify, usually observed as social trends and behavioural tendencies.

Following Clifford et al. (2005), barriers to sustainable development in the form of land use and transport integration have been abstracted as (L) legal, (FI) financial, (PC) political/cultural, (IT) institutional/territorial, (PT) practical/technological barriers. These types were based on barriers illustrated by practitioners from several EU cities and regions. This offers requisite actor perspective that is important for this approach. The five types (L, FI, PC, IT and PT) were then used to categorise barriers within data from the interviews and focus groups.

**Interviews**

A series of open, in-depth interviews followed to aid identification of context-specific barriers in the Netherlands. The sampling of interviewees included relevant expert stakeholders from various levels of scale (local, urban agglomeration and national), sectors (land use, transport or both) and organisations (private or public). These experts featured in key policy documents or had key roles in relevant organisations as informed by the literature review and policy analysis. A minimum of one interview per sampling category was achieved (see Table 1.3). Collection of interview data ceased when recurring viewpoints occurred with additional interviews and saturation was achieved (Bryman, 2004). In total, twenty-two interviews with relevant stakeholders who are experts on TODS in the Netherlands were conducted.

**Table 1.3: Selection of interviewees per category.**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Sector</th>
<th>Land Use</th>
<th>Transport</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td></td>
<td>#1016, #1017</td>
<td>$1014, #1015</td>
<td>$1009</td>
</tr>
<tr>
<td>Provincial/Regional</td>
<td>#1002, $1018</td>
<td>#1012, #1013</td>
<td>$1019, #1020</td>
<td></td>
</tr>
<tr>
<td>Urban Agglomeration</td>
<td>#1005, #1008</td>
<td>$1003, #1010</td>
<td>#1006, #0901, #1008</td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td></td>
<td>#1004</td>
<td>#1011</td>
<td>#1001</td>
</tr>
</tbody>
</table>

**Type:** # - Public or $ - Private Stakeholders
The interviewees were informed with an interview request and shared their experiences in a one-to-one setting. Interviewees were asked to describe in detail, their role in a TOD project and/or strategies and were given full freedom to relate any experiences deemed relevant from their own perspective with minimal prompting during the open interview. Clarifying prompts of ‘why’, ‘who’, ‘what’, ‘how’ and ‘when’ were used (Wagenaar, 1996). This method triggers narration of personal experiences allowing for externalisation of tacit knowledge.

Storylines, verbal cues and emotional emphasis are monitored. Interviewees were not asked explicitly about barriers in order to broaden the scope of current understanding. For example, a question about barriers would lead to what the interviewee presupposes was a barrier instead of the actual barrier and related processes (see Table 1.4). Interviews were conducted in Dutch to ensure comfort and ease of narration. Anonymity was enforced to allow these gatekeepers a chance to speak freely instead of ‘toeing the party line’ of their organisations.

Interviews were transcribed and then analysed through a system of substantive coding and categorising using analysis software. The categories were informed by the concurrent literature review. Here, a short excerpt in Table 1.4 serves as an example of codes (left column, underlined) generated from the transcription and eventual coding into initial categories (right column).

More than 1500 unique substantive codes were found during coding. Continuing the example in Table 1.4, code-categories frequently mentioned together or inferred as related during the interview were; ‘complexity of process’, ‘complexity from other stakeholders’, ‘multitude of stakeholders’, ‘need for enthusiasm’, ‘belief/interest in project’ and ‘support (financial/implementation)’.

Axial coding was then used to relate and link these initial categories to form code-category maps (see example in Figure 1.5). This process observes the frequency of categories and their mutual proximity.
Table 1.4 Example of an excerpt with codes (left), notes (middle) and categories (right).

<table>
<thead>
<tr>
<th>Translated excerpt from Participant 1001, Local scale, Public stakeholder in Land use and Transport sector</th>
<th>Field notes Prompts (P) Emotions (E)</th>
<th>Initial code categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>“…This is all in all a complex event. The complexity comes from the parties that are involved. Activities generated by the residential development and industrial terrain means that there is now demand for more project leaders...My role is to think up these kind of things.</td>
<td><strong>P:</strong> Why is it complex? <strong>E:</strong> Laughter</td>
<td>Complexity (process) Complexity (other stakeholders)</td>
</tr>
<tr>
<td>Getting people enthusiastic and to believe in the development concept. Eventually, take the necessary steps and consequently get the other parties (transport infrastructure authority, planning authorities from all levels) interested to bring this project further.</td>
<td><strong>P:</strong> Why enthusiasm? <strong>E:</strong> Exasperation/Laughs</td>
<td>Need for enthusiasm Belief in project Multitude (stakeholders) Interest in project</td>
</tr>
<tr>
<td>This is the only way to move forward. My role is to cultivate enthusiasm, to generate belief, making support possible for financing and implementation... Visionary is an extreme term but I try to think of many things (methods) of making other parties interested. Look, (Dutch saying) waiting for handouts is something we do too much.</td>
<td><strong>E:</strong> Laughter</td>
<td>Need for enthusiasm Belief in project Support (financial) Support (implementation)</td>
</tr>
<tr>
<td>There’s too much...too much authorities (from which) we need money from. We try now to set things in motion ourselves, using the profit to ensure quality (spatial)...It never comes from others.</td>
<td><strong>P:</strong> using profit to ensure spatial quality? Please elaborate (not in excerpt)</td>
<td>Multitude of stakeholders Interest in project Spatial quality Financial instrument</td>
</tr>
<tr>
<td>You have to think it up and dare to do. To dare is one of the biggest problem. <strong>When we signed (contract) for the station, no one thought a station would be realised...”</strong></td>
<td><strong>E:</strong> Pride in voice</td>
<td>Leadership/Vision Taking the lead Belief in project Support (implementation)</td>
</tr>
</tbody>
</table>
The highest code-category frequency and proximities resulted in the following nine commonly recurring barriers in the form of the following interview Propositions (IP1 - IP9):

(IP1) Sensitivity to market movements and trends makes planning and demand of TODS vulnerable,
(IP2) Complexity of rules and regulations occur due to sectoral differences in goals and priorities,
(IP3) Unclear who should take the lead/responsibilities and there is a lack of vision, commitment and belief,
(IP4) High initial investments are necessary and profit is not visible in the short term,
(IP5) Locating and collating subsidies and funding is at times unclear and a difficult process to streamline,
(IP6) Culture of public transport is missing and that reflects in the quality of developments as well as the lack of urgency,
(IP7) Fragmentation of the sectors leads to fragmentation and complexity in rules and regulations, limiting and preventing private stakeholders to contribute,
(IP8) Lack of governance at corridor and at node level due to unclear responsibilities and roles,
(IP9) Passive and inconsistent attitude towards involving private stakeholders from public authorities. These were later used and refined during the focus groups discussions.

Policy analysis

Analysis on policy documents relating to land use and transportation planning, from the last four decades regarding the Netherlands was conducted. For example, land use and transport planning policy documents, evaluation reports and instrument guides were used (Korteweg, 2008; VenW, 2004; 1993; VROM, 1988; 1974; 1967; OECD, 2007). Documents from all levels of scale were reviewed for their objectives, goals and implementation instruments.

Main findings from the policy analysis are presented earlier on in this paper as the policy context and conflicts for the case of the Netherlands. The policy analysis helped to relate the literature review to the Dutch context and ground the findings from the interviews and focus groups. Furthermore, it helped to structure the sampling of interview participants and clarification prompts used during the interviews.

Focus groups

Two focus group sessions were held, with 12 expert participants on average. Interviewees were avoided as participants here. Again, at least one participant per expert sampling category (see Table 1.3) was achieved per focus group. The focus groups were asked first to individually rate the nine barrier propositions derived from the interviews (IPs)\(^7\), indicate whichever they thought most critical in their opinions and substantiate their choice in writing. Participants were asked if all barriers were identified and whether they were recognisable or experienced. The collection of interview propositions turned out to be solid.

Focus group participants indicated high initial investment (IP5) as the most critical barrier with a score of 56% followed by unclear responsibilities (IP3) and passive attitude towards private parties (IP9) at 46% each (see Figure 1.6).
Participants then reconvened, guided by a moderator in a group discussion over which was the most critical barrier and why. The discussions were then further refined into five Focus groups Statements (FS1-5):

(FS1) The need to make a strategic choice and differentiation in priority for projects from all levels.
(FS2) Complexity in stakeholders involved and different in timelines for different sectors/stakeholders.
(FS3) More consensus is needed between stakeholders and there seems to be a lack of leadership roles.
(FS4) Directive role and authority of diverse stakeholders needs to be consolidated.
(FS5) Agreement on the culture of indifference regarding public transport.

From the discussions, it emerged that much confusion persists for stakeholders as to their mutual responsibilities: whom and when to approach if one wanted to initiate implementation. A culture of indifference with respect to transit was also emphasised; blame was assigned in particular to the national authorities as not having a clear priority in funding or commitment.

Researchers observed the discussions taking notes of new information raised and intra-group dynamics. Observations indicated that participants were generally agreeable and receptive of each other’s viewpoint. Despite pre-existing working relationships, power play was not generally discernible. Participants showed curiosity for sharing knowledge and experiences from their respective projects.
Findings

An iterative approach between theoretical concepts, and observations and reflections was used for identification of institutional barriers (see Figure 1.2). From the literature review, barriers are understood to conform to various types (L, FI, PC, IT, PT) revealed through both formal and informal institutions. These informed theoretical coding of the interviews and focus groups data.

The interviews generated substantive codes. The frequencies and interrelation of codes were used to identify nine common barriers and their surrounding dynamics (IP1-9). The barriers identified at this stage are sensitivity to market trends, complexity of rules and regulations, unclear responsibilities, high initial investments, difficulties in funding, missing public transport culture, sectoral fragmentation, lack of corridor level governance, and passive attitudes to private parties.

Findings from the policy analysis helped validate the inter-relation and provenance of barriers mentioned and identifies participants for both the interviews and focus groups. These propositions were further refined. The poll confirmed the selection of common barriers and indicated that difficulties in funding, unclear responsibilities and passive attitudes to private parties (IP5, 3 & 9) scored highest with participants as the most critical barriers.

Focus group discussions resulted in statements on the need for a strategic choice and priority, complexity of stakeholders and sectoral differences, need for consensus and lack of leadership, consolidation of roles, and agreement on indifference to public transport (FS1-5). These statements echoed the propositions and emphasised their interrelationship. The focus groups provided an efficient and effective way to validate and triangulate barriers culled from the literature review, interviews and policy analysis phases. This approach granted an insider view of the roles and interactions amongst the stakeholders, the sampling population, within the reality of TODS implementation and planning processes in the Netherlands.

The conscious choice to feature rich, descriptive quotations as findings retained the stakeholder's perspective in the identification and understanding of institutional barriers. The identification of barriers also uncovered their mutual relationship in the process of TODS implementation which will be discussed next.
UNDERSTANDING BARRIERS

Formal and informal institutional barriers were observed and distinguished in the above findings. Both types of barriers and their mutual relationship will be discussed below using representative quotes to illustrate our way of using findings as part of a hypothesis generating process.

Formal institutional barriers

Based on the findings above, formal barriers identified are complexity in governance exacerbated by a multitude of stakeholders with differing perspectives and a lack of clarity of the roles each play, in addition to the availability of financial resources.

Participants discussed roles of respective stakeholders in both interviews and focus groups. Mostly, accusations were made towards stakeholders with power to decide over resources allocation. On a more optimistic note, self-criticism by participants on their own restricted capacities always accompanied those accusations.

“(On integral TOD development)...You have to put it all in one hand (one responsible sector), the stations are now with the market (parties) and infrastructure rests with the authorities... I don’t believe in it. There are two models (market or authorities led)... (you have to) leave it to the market or (authorities) take the leading role... Now we are doing both...development (around stations) are left to the wind, no one takes responsibility for it and just let whatever happen. The network we try to control...so...we’re actually mixing up two different (directions) models” - (1019, Urban Agglomeration scale, Private stakeholder in Land Use and Transport sector)

“Governance and coordination from national authorities, provinces, city regions and municipalities are essential (who is going to take the lead?)” – (Group 1, Local scale, Public stakeholder in Land Use sector)

Most narratives focused on the lack of clear roles or processes in an unnecessarily complex system with a multitude of stakeholders. These contributed differing vision and less political will and commitment. The fragmentation of administrative responsibilities is exacerbated by a strictly compartmentalised financial division system that encourages competition instead of integration.
“...if you think about it, it all belongs together... (national financial authorities) is actually the owner of the transport provider (as major shareholder), (infrastructure authority) belongs in a sense to the national transport authorities... the regional, local and provincial authorities get policy directives and goals from national authorities (co-ordination)... division of (concession rights and funding) money comes also from the national authorities... why must it then be so difficult to co-ordinate everything... you only have one level in charge at the end...” - (1009, National scale, Private stakeholder in Land Use sector)

“There is a complicated division key for the amount of money a regional stakeholder gets annually to spend on their public transport infrastructure... it depends on the size of the region, existing infrastructure... etc... This means that certain regions get more than others and that makes the development of new infrastructure much easier if you already have an extensive network.” - (1006, Urban Agglomeration scale, Public stakeholder in Transport sector)

Private stakeholders indicated confusion regarding the amount of different authorities they have had to deal with. This led to some innovative market-led initiatives not being realised.

Informal institutional barriers

Informal barriers are identified to exist as the inability to bring ideas to fruition, signalled through lack of commitment or ambition. The mismatch between long-term ambition and short-term gains is partly responsible. The preference for automobiles in policies and by policy makers is also an informal barrier and due to existing practice culture, perception and framing. The findings did reveal deep enthusiasm for TODS from the stakeholders involved. However many confess that in reality, the ideas from policy often outweigh the eventual actions.

“We had a concept (to integrate services, public transport and road transport at a local/regional node). We took this message shopping, hoping for collaborators to help start or carry on the initiative. Unfortunately, ... unable to (start) despite all the enthusiasm... this is not our core business. We were a small transport provider ... had legal and financial obligations to our board of directors. Most of stakeholders we approached ... at least those that we knew... were interested, but could not or did not want a leading role.” - (1003, Urban Agglomeration scale, Private stakeholder in Transport sector)
“...we are also unsure of our role in this phase, especially after the new land use policy bill. We would like to investigate if we could mean something...even a sort of accumulative role for knowledge....however, we also have a short life span, we will not exist after 2011 and what happens then?” (1016, National scale, Public stakeholder in Land Use and Transport sector)

Stakeholders who are perceived to inhabit dominant positions over resources or power bases have been assigned blame for perpetuating indifference for transit. A stakeholder from the dominant position corroborated this.

“...how can we maintain that we find public transport to be an important objective when most of our budget actually goes towards building roads?” - (1015, National scale, Public stakeholder in Transport sector)

Those with decision-making power are also blamed for being opportunistic, looking towards short-term results instead standing behind a long-term goal and vision for spatial quality.

“(on involvement of private stakeholders on station development) we do nothing with that...(on the role of the national authorities)...around key projects (high speed rail stations), the initiative (from national authorities) comes together. It does not always work like that. If there is a need for something new (development), comes mostly from the municipalities. The municipality brings (ideas forward) during administrative discussions...we will only take the initiative on if the capacity of the station is too little. We are very functional in this. If the station is too small, the platforms are too small...or if the station is too old...then we think something else should happen (development).” - (1015, National scale, Public stakeholder in Transport sector)

Public stakeholders displayed a passive approach in processes involving private stakeholders.

“Yes (hesitant)...We are open to what market parties have to offer but we are cautious...and make our own evaluation...because it is our money that goes in...negotiate opportunistically...invest where there results is to be had...public money...tax money...we have to look for the multiplier to ensure that it becomes a success and we have to be careful with it.” - (1005, Urban Agglomeration scale, Public stakeholder in Land Use and Transport sector)
“(the authorities) brought it to the market/private stakeholders…trying to get us to build and bring in money…the only thing that they still do from the authorities is to say…”market (private stakeholders)…you can do what you want…but only within this tiny space”… the authorities do not want to pay for it anymore, the market has to pay for it but they cannot decide what they can create or what they actually want to create…” - (1003, Urban Agglomeration scale, Private stakeholder in Transport sector)

The above findings indicate a lack of urgency and knowledge sharing within and between stakeholders. There is consensus on a clear preference for other modes (namely, for automobiles) in terms of resource allocation. Just as the Dutch consumer is less than enamoured with public transportation (De Telegraaf, 2010), the providers also seem affected.

**Mutually reinforcing barriers**

Financial barriers were emphasised in literature (Clifford et al., 2005). The interview propositions and focus group polls show that the lack of financial resources is a common, recognised and critical (if not most) barrier for our participants (see Figure 1.6). However, the focus group statements and narratives in the findings suggest that further distinction is necessary.

“Daring to (take the lead) was one of the biggest issue. The municipality (board of directors) was asked to have the courage to help us communicate the possibility of realising (the station)…that it will happen…The city region and province queried us over whether we would even have the money (for the station)…we pleaded with the board to not say (that we had none at that moment) but to tell that it will happen and believe in it as well…this is not blackmail or a bluff, but rather to convince the rest with some quality…in beginning we send around information packages to inform and convince everyone else that this will happen. This is how we started (metaphor over drops of water on stone) to wear away at the impossibility…a tiny drop at a time. Now no one doubts if the project will happen but now they talk about the money instead…” – (1001, Local scale, Public actor in Land use and Transport sector)

“…simply put…it’s almost always about money. Shortage of funds…but that’s not all. It is just as much about (for example) co-ordination of programs (and objectives)..Not the same (program) everywhere! You cannot have the same everywhere at the same time…you have to ask yourself how many shops you really need at what cost to other locations? This requires programmatic co-ordination between
developments. It’s not always about money, but about these sorts of things. It’s about things…what is the (spatial) quality? How does the commuter/consumer experience the quality? What do you need to pay attention to…” (1002, Urban Agglomeration scale, Public actor in Land use and Transport sector)

Only stakeholders with decision-making power over financial resources and budgets on the national level and from the transport sector disagreed. They experienced frustration at being unable to meet every request due to overwhelming demand on their resources from other stakeholders.

“...it (public transport) is important, everyone within the ministry says so. If you look closely, you can tell how important it is by the money we spend on it...that is not a huge proportion compared to what we spend on roads. At the end of the day, everyone wants money for their development. We have only so much we can give.” - (1015, National scale, Public actor in Transport sector)

Other implicit issues that hinder the channelling of resources also surfaced. Participants of the focus group discussions also indicated awareness that financial resource availability originate elsewhere rather than the lack of funds.

“...those responsible for the problems and leading role on the nodes do not involve the right parties on time, leading to lack of development. There is a need for a corporative action, communal recognition, and agreement to the problem at hand. Only then will the money follow.” – (Group 2, Provincial/Regional scale, Public stakeholder in Transport sector)

“...money and cooperation requires most attention...between all the players in the field, not just the existing organisation. Who is doing what? Imagine if there is money? What then? How does that run with the planning?” – (Group 1, Provincial/Regional scale, Private stakeholder in Transport sector)

“...division of costs is the biggest issue in finding a solution…” – (Group 2, Local scale, Public stakeholder in Land use and Transport sector)

The above findings indicate the lack of financial resources as a highly deceptive symptom of biased resource distribution rather than as a legitimate and independent barrier for the Netherlands. This is an example of the inherent relationship between formal and informal barriers observed.
The perception of the lack of financial resources itself outweighed the actual lack of financial resources, masking the distribution bias of formal policies and policy goals. Participants exhibit awareness of the cause and effect of these barriers on each other. Furthermore, policy and instruments within formal organisations and institutions are limited in their ability to affect informal barriers in contrast to formal barriers.

**TOWARDS A CONCEPTUAL MODEL**

Critical institutional barriers and their dynamics have been specifically identified through the four-step approach and further explored in the above section. Findings suggest that critical barriers do not occur independently of each other. A pattern of relationships between these formal and informal barriers is observed.

Formal barriers of institutional complexity, fragmentation leading to lack of clarity in roles and responsibilities result from a composite of factors. The complexity due to the multitude of stakeholders and different timelines in the various sectors of land use and transport requires consensus and consolidation of roles for TODS implementation. This is achieved only when strategic choices are made and priorities are differentiated. These choices are however influenced by the informal institutions of norms, beliefs and values of the planners and policy makers operating within planning practice.

The indifference in planning practice can be attributed to a lack of urgency and differing perception between stakeholders. On the other hand, a culture of indifference towards public transport from users and providers represents a rear guard fight for parlaying ideas and visions into action.

The basis for negotiations and setting of priorities, ability to distinguish long-term goals from short-term gains, are also missing through the lack of consolidation of stakeholder roles and responsibility. These shortcomings have repercussions on the formal institutions enacted through plans and policies set by those within these practice culture.

The above dynamics between formal and informal barriers have manifested as a vicious cycle. Given the effort, time and costs needed to realise TODS implementation, the necessary and strategic choice is not always apparent and uncertainty by practitioners and policy makers are understandable (Bartholomew, 2007; Curtis, 2008; Filion & McSpurren, 2007). Findings indicate that stakeholders are not sufficiently attracted or motivated to invest their efforts or resources, despite policy ambitions. This confirms a non-conducive institutional context to TODS in the Netherlands.
There seems to be a self-reinforcing negative feedback loop ensuring production and provision of transport infrastructure and spatial development detrimental to TODS implementation (see Figure 1.7, left). Based on positive examples elsewhere, a reverse and therefore virtuous cycle is also possible (Cervero, 1998; Curtis et al., 2009; Dittmar & Ohland, 2004). Therefore, a more conducive institutional context where barriers are lifted by introduction of incentives necessary for TODS implementation is hypothesised (see Figure 1.7, right).

On the basis of this discussion, two hypotheses can be identified. The first hypothesis is that self-reinforcing vicious and virtuous cycles of formal and informal institutional barriers play a key role in hampering or enabling implementation of TODS. The second, more explicit, hypothesis is that in order to move away from barriers processes of learning and institutional innovation are needed (Bertolini et al., 2012, Marsden & Stead, 2011).
This conceptualisation goes beyond current literature where barriers and possible solutions are identified but not how to identify from a specific context or their interrelationships, and not a view to the process and time needed to alleviate them (Clifford et al., 2005; Paulley & Pedler, 2000). The two latter points are contributions that are relevant beyond the specificities of the Dutch context. In the literature, barriers have been presented as independent rather than interrelated components within a specific context unlike our approach, identification and analysis.

Usage of formal and informal institutional incentives to achieve a virtuous cycle can be found but are not explicit on how the process occurs or can be replicated (Marsden et al., 2011). Next, the approach is reflected upon, the originality of the findings, the conceptual model and possible next steps are discussed.
A dual contribution to the existing literature has been made. First, an approach to identify barriers to TODS has been developed and applied. The systematic combination of deductive and inductive processes in four steps led to context-specific and robust findings that included the stakeholders’ perspective. This is an approach that can be replicated in other contexts provided there is sufficient access to an expert population of stakeholders and access to policy documents. Furthermore, the approach, identification and analysis led to the recognition and eventual conceptualisation of formal and informal barriers reinforcing each other determining how conducive a context is to TODS implementation. The conceptualisation leads to the possibility of the breaking of this vicious cycle of formal and informal barriers provided there is a conducive context for TODS implementation.

The focus groups provided an efficient and effective way to validate and triangulate barriers culled from the literature review, interviews and policy analysis steps of the approach. This approach granted an insider view of the roles and interactions amongst the stakeholders, the sampling population, within the reality of TODS implementation and planning processes in the Netherlands. The conscious choice to feature rich, descriptive quotations as findings retained the stakeholder’s perspective in the identification and understanding of institutional barriers.

The findings not only identified the barriers but also gave a more nuanced view on the processes in the Netherlands. This happened by untangling the issue through the perspective of the stakeholders, such as the frustration at formal regulations perpetuating a lack of motivation. Implicit relationships between relevant stakeholders were also uncovered, contrary to the strict hierarchical separation in the formal levels of governance. In addition, the process of understanding these barriers to TODS implementation provided a systematic discovery process that can be shared beyond organisational boundaries through focus groups and could help develop shared awareness between stakeholders. Although findings presented seem subjective due to representative quotes, these are tempered through validation, confirmation and reflection with multiple sources from the four-step approach.

Current literature focuses more on formal institutional barriers (Rietveld & Stough, 2004; Banister, 2004; 2005; Marsden et al., 2011). However, in the identification within the Netherlands, important processes leading to informal barriers have been observed to take place outside the purview of formal institutions. Formal and informal barriers appeared entangled in vicious-cycle of self-reinforcement. Based on the conceptual model and the hypothesis of a possible shift towards virtuous cycle based on examples elsewhere, it stands to reason that learning and institutional innovation are
The above hypotheses will be explored and tested in further research whilst retaining the focus on the actor’s perspective and narrative. The first hypothesis, that is the key role of self-reinforcing vicious and virtuous cycles, will be verified through foreign cases that have demonstrated their ability to lift barriers similar to those experienced in the Netherlands through application of incentives (Marsden & May, 2006; Spaans & Louw, 2009). The second hypothesis, the requirement of processes of learning and institutional innovation to move away from barriers, will be tested against the reconstruction of the process a shift from a vicious to a virtuous cycle in those cases. The treatment of these comparative case studies will utilise historical institutional analysis and in-depth interviews with relevant stakeholders to retain the spirit of the approach used above.


de besluitvorming met betrekking tot de aanleg of wijziging van hoofd wegen, van landelijke railwegen en van hoofdvaarwegen. BWBR0006147.


NOTES


2. Currently, however, the office vacancy rate in Amersfoort rises rapidly.

3. List of interviewees:
   - Expert 0901; Urban Agglomeration scale, Public stakeholder in Land Use sector.
   - Expert 1001; Local scale, Public stakeholder in Land Use and Transport sector.
   - Expert 1002; Provincial/Regional scale, Public stakeholder in Land Use and Transport sector.
   - Expert 1003; Urban Agglomeration scale, Private stakeholder in Transport sector.
   - Expert 1004; Local scale, Public stakeholder in Land Use and Transport sector.
   - Expert 1005; Urban Agglomeration scale, Public stakeholder in Land Use and Transport sector.
   - Expert 1006; Urban Agglomeration scale, Public stakeholder in Transport sector.
   - Expert 1007; Urban Agglomeration scale, Public stakeholder in Land Use and Transport sector.
   - Expert 1008; National scale, Private stakeholder in Land Use and Transport sector.
   - Expert 1009; National scale, Private stakeholder in Land Use sector.
   - Expert 1010; Urban Agglomeration scale, Public stakeholder in Transport sector.
   - Expert 1011; National scale, Public stakeholder in Land Use and Transport sector.
   - Expert 1012; Provincial/Regional scale, Public stakeholder in Land Use sector.
   - Expert 1013; Provincial/Regional scale, Public stakeholder in Land Use sector.
   - Expert 1014; National scale, Public stakeholder in Land Use and Transport sector.
   - Expert 1015; National scale, Public stakeholder in Transport sector.
   - Expert 1016; National scale, Public stakeholder in Land Use and Transport sector.
   - Expert 1017; National scale, Public stakeholder in Land Use sector.
   - Expert 1018; National scale, Private stakeholder in Land Use sector.
   - Expert 1019; Urban Agglomeration scale, Private stakeholder in Land Use sector.
   - Expert 1020; Urban Agglomeration scale, Private stakeholder in Land Use sector.
   - Expert 1021; Provincial/Regional scale, Public stakeholder in Land Use and Transport sector.

4. See Appendix: INTERVIEW REQUEST (NL).

5. HyperResearch™, a qualitative data analysis software (QDAS).

6. The barriers were numbered randomly and not in any particular order or priority.

7. The barriers were ranked from a scale of 1-10, 10 being the most crucial on both local and regional scale. With a total of 24 participants, the highest score achievable would be 480.

8. The interviews were conducted and transcribed in Dutch. The quotes shown here are translations. After each quote, the attribute of the interview or focus group participant are listed according to their level of scale, organisational type and sector if the information is available. Interview participants are identified by their unique quotes. Focus group participants are identified only by their group number.
INCENTIVES

The Point, Docklands, Dublin, Ireland
ABSTRACT  | 简介

The pursuit of transit-oriented development strategies (TODS) is a worldwide phenomenon but knowledge of the process of implementation remains approximate. The ingredients for changing from a non-conducive to a conducive environment for TODS and how that change occurs remain unclear. In cases of successful TODS implementation, it is hypothesised that a deliberate shift occurred in the institutional context through the introduction of incentives to overcome implementation barriers.

A conceptual model proposing the relationship between formal and informal barriers in a vicious cycle as well as the lifting of those barriers through a virtuous cycle of mutually reinforcing formal and informal incentives is applied. The processes of change accompanying the identification and the role of incentives is examined in three metropolitan regions; Perth, Portland and Vancouver. The combinations of incentivising measures used are revealed.
THE ROLE OF INCENTIVES IN IMPLEMENTING SUCCESSFUL TRANSIT-ORIENTED DEVELOPMENT STRATEGIES

CHAPTER IN PRESS IN URBAN POLICY AND RESEARCH, DOI: 10.1080/08111146.2013.832668.

目前世界各国都在努力制定以公共交通为导向的发展战略 (TODS), 但对其实施过程的了解并不完善。人们对于哪些因素有利于这样的发展战略, 以及变化如何才能发生, 还不是十分清楚。我们认为TODS之能够成功,在于通过刺激手段促成了体制环境的变化, 于是克服了实施障碍。我们提出了一个概念模型, 说明正规与非正规障碍的恶性循环, 并提出如何通过双向强化正规和非正规刺激, 形成良性循环, 从而克服障碍。本文考察了帕斯, 波特兰和温哥华大区三个城市发生转变的过程, 以及在此过程中如何发现激励机制, 激励机制起到了何种作用, 并揭示了不同激励措施的各种组合。
INTRODUCTION

Metropolitan regions worldwide are increasingly interested in implementing transit-oriented development (TOD) principles through integrating land use and transport planning strategies. These TOD strategies (TODS), known for promoting sustainable urban development, have been used repeatedly in numerous planning contexts (Curtis et al., 2009). Despite policy efforts and academic attention, only selected cases of successful TODS implementation exist. Implementation is successful when a metropolitan area moves away from a car-oriented development path towards a more transit-oriented development path. Although many substantive issues can be addressed, formal and informal barriers still constrain TOD implementation (Hull, 2011; Banister, 2004; Rietveld & Stough, 2004). These barriers are financial, legal, and socio-cultural obstacles preventing actors from implementing TODS. In cases of implementation, either no such barriers existed or they have been lifted (Dittmar & Ohland, 2004; Cervero, 1998).
The lifting of barriers is accompanied by the introduction of incentives well-suited to these barriers (Tan et al, 2011). While TOD literature implicitly acknowledges these processes of change, there are as yet no studies explicitly focussing on them. To fill this knowledge gap, the processes various cases underwent to achieve successful implementation are reconstructed to discover what roles incentives fulfil in the above-mentioned processes and the corresponding financial, legal and cultural institutions influencing group behaviour and individual choices.

Earlier research indicates a vicious cycle, in which formal and informal implementation barriers negatively influence one another producing a non-conducive context for TODS implementation (Tan et al, 2011; Curtis & James, 2004).
A positive relationship where formal and informal incentives reinforce each other resulting in a virtuous cycle producing a TODS-conducive context is therefore hypothesised (see Figure 2.1). If this is true, evidence should be found by reconstructing processes of change towards TODS implementation in successful cases. This proposition is tested using three case studies.

First the discussion in existing literature is framed, illustrating the relationship between formal and informal barriers and in contrast, that of formal and informal incentives as applied through and on institutions. Second, a description of methods used to identify selected cases where successful implementation has been observed is provided. A reconstruction of processes in three cases; Perth Metropolitan Region (PMR), Portland Metropolitan Area (PMA) and Greater Vancouver Region (GVR) identifies barriers and incentives as observed by local practitioners.
Lastly, a comparative analysis of these “theory-confirming cases” (Lijphart, 1971, p. 691) examines general patterns inferred. The paper concludes by reflecting on the relationship between formal and informal incentives, and how they reinforce one another during processes of institutional change. Suggestions for further research on institutional change achieved through learning and innovation follows.

BARRIERS AND INCENTIVES

Barriers to TODS implementation are barely understood beyond the cursory, oft descriptive and context-dependent ‘best practices’ in current literature (Dunphy et al., 2005; Dittmar & Ohland, 2004; Cervero, 1998). There is a need to understand how incentives emerge to overcome barriers within institutions. Insights on how incentives consolidate as institutional change towards TODS implementation are needed.
The roles of implementation barriers and incentives affecting institutions are relatively neglected in planning literature despite extensive discussion in other fields of sustainable development, organizational and management science (Woodhill, 2010; Lucas & Ogilvie, 2006; Ostrom et al., 1993; Clark & Wilson, 1961).

Barriers to TODS implementation are obstacles and costs deterring realisation of plans and policies. Legal, financial, political, and socio-cultural barriers are considered crucial to be resolved (Clifford et al., 2005; Rietveld & Stough, 2004). Formal barriers allude to the efficiency and competency of regulatory and legislative frameworks, availability and distribution of funding as well as physical and technical blockages experienced. Informal barriers are those caused by political and cultural, and institutional and territorial deterrents. Informal barriers deal with issues of framing, perception, politics, acceptability, and awareness within the planning profession. Conflicts between and within organisational and operational boundaries are also observed. They are considered informal due to the limitations of policy and instruments within formal organisations and institutions to change them as well as the predominance of social, cultural, and political beliefs and norms in shaping them. Informal barriers are thereby difficult to measure and reliant on observations of social trends and behavioural tendencies (Marsden et al., 2009; North, 1995).

Incentives are “positive and negative changes in outcomes” resulting from actions within “a set of rules in a particular physical and social context” determining the cost and course of action taken by individuals within an organisation (Ostrom et al., 1993, p. 8). Incentives are perceived as positive or negative depending on the subjective view of the stakeholder. In TODS, incentives countering the negative effects of institutional barriers to implementation are viewed positively (Tan et al., 2011). For example, increasing fuel tax encourages public transport usage and is experienced as a positive incentive to TODS. Yet, it is a negative incentive for car mobility. Incentives function as levers influencing process and decision-making (Ostrom et al., 1993). Incentives are legal, financial or socio-cultural measures active and embedded within the institutional field of organisations, actors and networks contributing to a larger planning context (Lin, 2002). Incentives help overcome constraints by determining an appropriate course of action or choice to organizations or individuals involved through “tangible and intangible” rewards, material means and moral inspiration or repulsion (Clark & Wilson, 1961, p. 130).

Formal incentives are measures within formal institutions targeting barriers through enforcement or remunerations. Examples include; financial compensations, legal instruments and organisational restructuring. Informal incentives inspire stakeholders to overcome barriers with the promise of
social or moral rewards. They include measures seeking to influence and
change current norms, such as travel behaviour, attitudes towards public
transport and general lifestyle and mobility choices (Ostrom et al., 1993;
Clark & Wilson, 1961).

To understand the processes of change where incentives overcome barriers
in an ideal situation, a preliminary conceptual model illustrating the
relationship of a vicious and virtuous cycle is proposed (see Figure 2.1).
The hypothesis here is that self-enforcing cycles of formal and informal
implementation barriers (Figure 2.1, left) and formal and informal incentives
(Figure 2.1, right) play a key role in TODS implementation (Tan et al., 2011).
This hypothesis contrasts with literature focussed on the end state instead
of the ingredients and process of institutional change (Marsden & May,
2006; Curtis & James, 2004) and will be further tested on three cases.

RESEARCH METHODS

Three theory-confirming cases were studied and analysed for their processes
of change towards TODS implementation to determine if and how incentives
reinforce one another. TODS are highly context specific as their barriers
and incentives are products of their institutional contexts and settings.
Case studies are therefore a logical choice and approach to “capture the
circumstances and conditions” by reconstructing processes leading to
successful implementation of TODS (Yin, 2003, p. 41). A multiple-case
design replicating the same protocol for all case-studies ensures robustness
and breadth of research. External validity is achieved through comparative
analysis (Bryman, 2004; Yin, 2003).

Case selection

A scan of global ‘best practices’ literature on TODS implementation resulted
in three basic criteria to determine suitable cases for further study (Curtis et
al., 2009; Dittmar & Ohland, 2004; Cervero, 1998). Metropolitan regions
with explicit TODS application towards developing regional transit corridors
and corresponding developments were considered. These cases first had to
be described as successful in current literature ensuring optimum chance
of finding a virtuous cycle. Then, each region was checked for explicit
modal shift (car to public transport, relative to national average) in the last
few decades as a proxy to successful TODS implementation. Lastly, each
case was checked for formal and informal implementation barriers and if
those barriers had been lifted through explicit policy and cultural changes
in relation to TOD.
A total of 26 potential cases were observed. Certain combinations of organisational actors were present in these potential cases, with different actors taking initiative for TODS implementation. Actors presented across all cases as planning authorities, transport authorities, transit agencies and private interests active at various level of scales. An exemplifying case for each of the three most common combinations was selected (Bryman, 2004): Perth Metropolitan Region (PMR), Portland Metropolitan Area (PMA) and Greater Vancouver Region (GVR). PMR represents a regional planning authority leading with a strategic planning framework of formal regulations; PMA represents a transit agency leading together with a regional planning authority with formal but creative instruments with a slight variation in the presence of active lobby and citizen-action groups. GVR represents an entrepreneurial transit agency leading with private developers through formal and informal regulations (Allmendinger & Haughton, 2010).

Research fieldwork was conducted for a period of 4 to 6 weeks per case beginning with an orienting study-tour visiting TOD locations with local experts describing their implementation experiences. Local archives and policy documents were reviewed. An average of 15 semi-open interviews were conducted with local experts per case. These three collection methods formed the context, timeline and interview narratives respectively. The narratives are three different facets of the reconstruction of the processes of change towards successful TODS implementation. By triangulating the three narratives, a case report is generated. Two referees vetted each case report to increase research construct validity (Yin, 2003).

Space for context-rich and qualitative findings is given in the context narrative where information indirectly relevant to TODS from document analysis and observations are reported describing size and scale of the regions, examples of TOD, political regimes, land use and transportation planning systems. The timeline narrative is a chronological reconstruction of TODS implementation manifested in projects, plans/programs/policies and organisations, and trends and events of the last few decades.

The timeline is then coupled with mode share data as a marker of change from a conducive to non-conducive context. This narrative following the approach of Bertolini (2007) shows the evolution of strategies in relation to implementation within the circumstances of the period. The explanatory nature of the chronological structure establishes relation between elements over a linear sequence of time but does not presuppose causality. Local experts from the following categories of organisational scale-level (national, provincial/regional, urban agglomeration or local), sector (land use, transport, both or others) and type (private, public or both) were sampled for the interview narrative. Experts selected either feature heavily in literature as being instrumental/involved during key moments of TODS or are employed
(previously/currently) in positions of power in key TOD organisations. Initial interviewees recommend others as well.

Availability of the experts and the above conditions restricted sample size. The experts were guaranteed anonymity to ensure they felt free to share their experiences given their extensive involvement in practice, policy and academia. Interviews are structured around four lines of inquiry; establishing professional experiences and background, barriers experienced and overcome, incentives that have impacted their region and the perceived success of TODS implementation in their region. Transcriptions of the interviews were then made and structured accordingly.

Interviews determined the most crucial barriers and incentives as perceived by the experts. Here, an example of the reconstruction is shown with quotes representative of the sentiment of the majority interviewed on barriers and incentives. In PMR, 12 of the 14 experts identified lack of instrumental clarity as a crucial formal barrier and all but 5 identified coherence in governance as the next most crucial formal barrier.

“...there have been challenges in fighting against the operational aspects of the transport system against aspirations of planning outcomes.” - Expert 1111

11 experts identified habits and lifestyles as the most crucial informal barriers.

“Retail (food and leisure) functions are locked up in 'big boxes'. Functions...long separated...businesses have forgotten how to work in streets” - Expert 1101

All but 4 identified the differing views across sectors as third most crucial.

“Transport planners still have issues with rail systems ... they cannot understand the public’s demand as well as the developer’s interests.” - Expert 1112

9 of the 14 experts found financing and development models the most crucial incentive.

“TOD projects are not cheap, doing something different depends on who is going to bear the cost and risks... if the planners are willing to mortgage their house to finance my experiments, then I’m happy to do so” - Expert 1102

The amalgamation of the Ministries and its resulting plans, programs and legislation were considered just as crucial.

“Fortunate...one portfolio with a minister that was passionate about... All the planets were aligned.” - Expert 1101
All but 5 of the experts identified learning and knowledge networks as the most crucial informal incentive.

“…planning profession was starting to see the light...inspiration from people around the world. A few got inspired, then a few more, then a few more. That’s how it changes...” - Expert 110

Incentives for behavioural change were considered next most crucial.

“...inhabitants love their suburbs but came to the understanding…the need for pockets of urbanity while offering the amenities to complement the suburb lifestyle.” - Expert 1113

These findings were compared against information collected in the context and timeline narratives. For example, the policy documents and projects following state agency amalgamation supported the sentiments expressed in the interviews (Curtis, 2012a; Newman, 2011; Western Australia Planning Commission, 2005).

**RECONSTRUCTION OF TODS IMPLEMENTATION PROCESSES IN THE THREE CASES**

TODS implementation process was reconstructed for all cases following the above methods. Attention was paid to the barriers observed and whether relationships existed between formal and informal barriers and incentives. The same observations were made of incentives. When a positive relationship is observed, the incentives that played a key role were identified. Table 2.2 presents an overview of the findings from the reconstruction.

**Perth Metropolitan Region, Western Australia, Australia (PMR)**

PMR showed a rapid and conscious application of TODS (Ainsworth, 2005). A traditionally car-oriented region with a sprawling urban development pattern of relatively low density, PMR has made a visible change within a relatively short period of twenty years (Curtis, 2012a). Here, the planning authority leads most initiatives with a strategic planning framework in a regulatory planning regime.

In PMR, TODS are mostly state-led initiatives (Curtis, 2012b). Formal barriers mentioned during the interviews were the lack of instrumental clarity, coherence and continuity of governance during the implementation process. Informal barriers were about a car-oriented community resistant to change and a practice community differing in opinions leading to a slow implementation process (Curtis & Mellor, 2011).
Table 2.2 Comparison of formal and informal institutional barriers and incentives per case.

<table>
<thead>
<tr>
<th>Perth Metropolitan Region</th>
<th>Portland Metropolitan Area</th>
<th>Greater Vancouver Region</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Formal barriers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Policy and instruments:</strong> Lack of instrumental clarity.</td>
<td><strong>Policy and instruments:</strong> Mismatch between planning and financing lending conventions.</td>
<td><strong>Policy and instruments:</strong> Assembly of land parcels and control over under-utilised developments.</td>
</tr>
<tr>
<td><strong>Governance:</strong> Lack of coherence and continuity of governance.</td>
<td><strong>Governance:</strong> Lack of ability to move from plans to implementation.</td>
<td><strong>Governance:</strong> Coordination between authorities.</td>
</tr>
<tr>
<td><strong>Informal barriers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Habits and lifestyle:</strong> Car-oriented community. Suburban residential patterns.</td>
<td><strong>Habits and lifestyle:</strong> Car-oriented culture and negative image of transit.</td>
<td><strong>Negative experiences:</strong> Public backlash on spending and system/route choices. Criticism on lack of affordable housing</td>
</tr>
<tr>
<td><strong>Differing views across sectors:</strong> Differing opinions across land use and transport sectors.</td>
<td><strong>Negative experiences:</strong> Justification of public funds (taxation) investment in TOD.</td>
<td></td>
</tr>
<tr>
<td><strong>Formal incentives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Amalgamation:</strong> Joining up of land use and transport sectors/portfolio. Improving TOD legislation.</td>
<td><strong>Coherence and Continuity:</strong> Metro as regional authority. TPR enacted by the state DOT. <strong>Deterrents:</strong> Limiting development with UGB.</td>
<td><strong>Coherence and continuity:</strong> Commitment to SkyTrain system/technology. Regional plans: Livable Region Strategic Plan. <strong>Financial/development models:</strong> High financial returns motivate developers.</td>
</tr>
<tr>
<td><strong>Financial/development models:</strong> Experimenting with different risk and profit sharing models.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Informal incentives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning and reflexivity:</strong> Networks for knowledge sharing and collaboration. <strong>Behavioural change:</strong> Engaging in public dialogue and programs to encourage change in mobility patterns.</td>
<td><strong>Shared belief system:</strong> Motivation and pride as leading TOD example (US). Citizen groups monitor and police policy decisions. <strong>Behavioural change:</strong> Public opinion favouring more sustainable and compact developments.</td>
<td><strong>Shared belief system:</strong> Collective commitment to being most ‘livable’ region and the ‘Vancouver Model’. <strong>Behavioural change:</strong> Public embrace of ‘livability’ and sustainability principles.</td>
</tr>
</tbody>
</table>
The informal barrier of a car-oriented community has strongly influenced housing development trends and patterns since the 1950s as reflected in the retail and housing policies (Western Australia Planning Commission, 1997). This translates into formal barriers when lending regulations are coupled to conventional parking norms not conducive to TOD. Many experts also talked about suburban residents being attached to ‘2 by 4’ houses and how that has adversely affected market demand for TOD.

The most mentioned formal incentive is that of the amalgamation of the historically separate Departments of Planning and Infrastructure (DPI). The improvement of planning legislation (Development Control Policy 1.6) (WAPC, 2006) requiring co-ordination of plans and development around transit locations was another important incentive mentioned. Flexible risk and profit sharing models in the form of joint ventures (JV) between state planning agencies and private developers helped developers feel more certain when committing to previously unattempted TOD were mentioned as useful (Crawford, 2003). The risk division (state first purchasing the land for the development) and profit sharing (priority in the payment of developer’s costs and/or performance bonus) makes an interesting business case for commercial interests.

Most experts agreed that the process of knowledge sharing, collaboration and reaching out to the wider public were important informal incentives for TODS implementation. Annual study trips organised by the Planning and Transport Research Centre (PATREC) contributes to the level of knowledge in the planning community. Many experts have been simultaneously involved as civil servants, private consultants, academics, politicians, and activists. The TravelSmart program using innovative social marketing measures such as community outreach and educational programs to activate community-wide travel behavioural change by encouraging transit usage and promoting walking and cycling was deemed as crucial in shaping public acceptance of those modes as a possible and acceptable future choice (WAPC, 1999). The social pressure resulting was an important informal incentive leading to the consolidation of this program and its policies (French et al., 2011). The Dialogue with the City project (Hartz-Karp, 2005) was constantly mentioned as a turning point in shaping public understanding and urgencies for a sustainable region in the future and helped proposed strategies and policies gain legitimacy from the public (Curtis, 2006). Most local experts benchmarked PMR against well-known foreign examples such as Portland, Seattle, Zurich and London.

Interestingly, many experts interviewed have practiced in Europe, a large majority practiced in the United Kingdom in particular. All experts viewed PMR as a work in progress, acknowledging improvements achieved in the last two decades as partial success.
Their evaluations of success are benchmarked against previously named examples. They also expressed consciousness regarding the changes required to sustain and support further TODS. The TODS narrative has moved from just implementation to focusing on employment as well as residential and retail development in activity centres (WAPC, 2010).

Portland Metropolitan Area, Oregon, United States (PMA)

TODS in the PMA has gone from “being largely an afterthought to becoming...primary considerations in...planning” (Arrington, 2009, p. 109). Implementation has matured from fare-free zones downtown to rapid development of light rail extensions and corridors with corresponding urban development led by innovative public-private partnerships as part of regional growth planning. PMA exemplifies the ideal type where a transit agency leads with regional planning authorities in a mix of regulatory and incentive-based planning regimes with the added component of lobby and citizen action groups.

Mismatches between planning instruments and financial lending conventions, the financing of public transit and the ability of organisations to move from plans to implementation are formal institutional barriers mentioned by the experts. A dominant car-culture, negative image of transit locations and justification of a huge investment of public funds on transit infrastructure are informal barriers mentioned. For instance, retail giants like Safeway or Target have their own parking norms, which are not necessary transit friendly. Car-based lifestyle and culture are informal barriers translated into formal barriers when TODs with reduced parking norms are unable to lend funds from financial institutions with car-oriented development guidelines (Thompson, 2007).

The formal incentive most prized by the experts interviewed is the creation of the regional government, Metro. Metro’s capacity to limit development with the regional urban growth boundary (UGB) thereby creating land use scarcity was considered essential. The implementation and continued improvement of the Transportation Planning Rule (TPR) enforced by the State of Oregon was an important incentive co-ordination and promotion of multi-modal transportation choices in plans (Lowry & Abbot, 2010).

Pride in being a shining beacon of TOD in the United States functions as an informal incentive motivating most interviewed (Suutari, 2007). The practice community learn and reflect on past projects, seeking to improve their next TODS. The constant monitoring of plans and policies by active and vocal citizen groups was a prominent informal incentive as well (Thompson, 2007; Johnson, 2004). Consistent public opinion favouring a more sustainable
development through conservation of nature and encouraging transit use and slower modes is an informal incentive legitimising planning instruments (TPR and UGB). This institutionalisation of values and norms into policy enforcement and financial distribution are examples of the relationship between formal and informal incentives.

TODS implementation occurs at all scales; from state, metro, counties to cities; in cooperation with private interests. Tri-Met, the regional transit agency, leads most light rail-oriented developments with Metro coordinating. Private developers such as Hoyt Street Properties and Gerding Edlen together with private companies such as Portland Streetcar Inc. and Portland Aerial Transportation Inc. lead developments such as the Pearl District and South Waterfront (TriMet, 2011). The abundance of community activists, interest and advocacy groups; like the 1000 Friends of Oregon, Willamette Pedestrian Coalition and the Coalition for a Livable Future is a point of interest here (Suutari, 2007). These advocacy groups have been consistently active in monitoring and pushing for sustainable development. The freeway protest in the early 70s was a crucial motivating factor for most interviewed (Snyder, 2010). The shift in public opinion about car use and dominance is reflected in past and current policies (Thorne-Lyman et al., 2011; Lowry & Abbot, 2010).

Many experts interviewed revealed their simultaneous involvement as civil servants, private consultants and activists. Most experts acknowledged this phenomenon of multiple roles and attribute easier collaboration and negotiation between parties to the fact that most people have at one point occupied similar positions and thus understand each other’s motivations and capacities better. Experts benchmarked themselves against Copenhagen, Munich and Vancouver whilst considering themselves as highly, if not the most, successful in the US. Furthermore, they exhibited pride for PMA’s achievements in reducing emissions, increasing bicycle usage and transit ridership, and being early adopters of transit and land use integration. Opinions were consistent between experts from different sectors, organisations and political persuasions. There is a high degree of transparency regarding obtaining and sharing of information from relevant organisations. Experts interviewed were also extremely candid.

Greater Vancouver Region, British Columbia, Canada (GVR)

GVR is another successful example of TODS implementation where the integration of land use and transport planning manifests in densities defying North American averages. A rich history of regional planning in the GVR has contributed to a “crystallized vision of transit-oriented growth” (Cervero, 1998, p. 432). Development around the SkyTrain stations as
Regional centres around transit nodes along corridors have shaped urban development over the past decades (Wales, 2008). Since the freeway revolts in the early 70s, GVR has consistently produced TODS and corresponding investments; such as the more recent Canada Line (City of Vancouver, 2009; MacKenzie, 1985). GVR’s history began in the 1890s by focusing suburban developments around streetcar lines but its TODS efforts took off with the SkyTrain system introduced in the 1980s and TransLink’s additional role as developer (Wales, 2008). Transit-oriented communities (TOC) is recently introduced as the next step for TODS (TransLink, 2012). GVR is an example of an entrepreneurial transit agency leading most initiatives with private interests under a permissive and incentive-based planning regime.

Difficulties in assembling land parcels for development was a barrier mentioned. Inadequate overview and lack of implementation from planning and transit authorities and under-utilised locations were areas of concern (Walter, 2001). The lack of co-ordination between authorities (provincial, regional, local) and sectors (land use and transport) was a formal barrier that concerned most experts. Informal barriers included public backlash and controversies surrounding infrastructure investments such as the planning and implementation process of the RAV line in time for the 2010 Winter Olympic Games (Siemiatycki, 2006; Ruhland, 2010). The criticism and social concern for lack of affordable housing in Vancouver was also mentioned (Thomas, 2009).

Influential formal incentives were the consistent political commitment to the SkyTrain system despite opposition (Foth, 2010) and the continued regional planning strategies (GVRD 1999; 1990). The high financial returns on TOD real estate and increased ridership were also incentives named (Broom, 2010; Siemiatycki, 2006). Informal incentives included the shared belief of working towards the most livable and sustainable region, a view held by most experts interviewed. This incentive is partially connected to the general pride for Vancouver’s performance in international livability rankings (Hutton, 2011). The ambition to achieve the ‘most livable city’ is an important informal incentive translated into formal plans and policies sustained by strong public support for sustainable development (Hutton, 2011; Wales et al., 2008).

GVR has developed its own ‘Vancouver model’, an extension of the new urbanism based TOD model emphasizing combining high-rise and density with a human scale urban podium block with retail and community facilities at street level (Boddy, 2004). Expo ’86 and 2010 Winter Olympics were important triggers for the SkyTrain system and its extensions respectively (Ruhland, 2010; Siemiatycki, 2006; Hatten, 1987).
The influx of wealthy Asian immigrants in the 1990s also stimulated demand for high-density, high-rise housing and provided financial capital for these developments (Olds, 2010). Most experts balked at talking about TOD as a special strategy believing that good development behaviour should and must always be transit-oriented (Hutton, 2011). Most experts benchmarked themselves against numerous European and Asian examples. The Vancouver model and the densities achieved are comparable to TODS in Japan and Hong Kong.

GVR has a close-knit network of actors, particularly an older generation who were at the forefront pushing for TODS during the last four decades. The experts interviewed also discussed how the Vancouver model is now being exported to the Middle East and the US. TODS has evolved from a planning concept to a commodity (Lowry & McCann, 2011).

COMPARATIVE ANALYSIS

Self-enforcing cycles of formal and informal institutional barriers (Figure 2.1, left) or incentives (Figure 2.1, right) were hypothesised to play a key role in TODS implementation. A vicious cycle of negative influence could be lifted by the positive relationship from a virtuous cycle of formal and informal incentives. The change from a vicious to a virtuous cycle is evaluated based upon the reconstruction of TODS implementation processes in the three cases.

Formal and informal institutional barriers and incentives

The analysis shows many similarities between the perceived formal and informal institutional barriers (see Table 2.2). Formal barriers in all cases were about inadequate policies and instruments as well as incoherent governance. There is comparable frustration amongst the experts interviewed in all cases on these inefficiencies, recalled during the interview with great clarity and emotion, even if they were experienced decades ago. The most crucial informal barriers were related to the societal landscape of persistent habits and lifestyle tendencies, public opposition formed by negative experiences or differing views and norms across sectors. Both barriers function as a constant reminder for experts to sustain efforts in TODS implementation.

Most experts are critical about their region’s perceived success in TODS implementation. Common remarks from experts on their respective region’s success were that the regions were “work in progress”, “on its way to success” or “successful in certain aspects with room for improvement”. Slight differences between the cases result from the different legal, financial
and political contexts. All cases experienced barriers of authorities favouring road infrastructure in lieu of transit. In PMR, this was related to the removal of an existing piece of rail infrastructure and service. Whereas in PMA and GVR, it was the introduction of freeways into existing urban areas (Snyder, 2010; MacKenzie, 1985).

Similarities and differences were found with formal and informal incentives (see Table 2.2). According to the experts interviewed, formal incentives with the most impact were those institutionalising TOD principles in planning law and/or financial arrangements. These incentives provide continuity and coherence to TODS implementation through either governance restructuring or establishment of regional authorities and plans. Political ambitions enabling these shifts are also experienced across all cases. The most prominent informal incentives were shared belief systems and those contributing to behavioural change. Behavioural change incentives encourage transit usage or influence a more positive public opinion on TODS. Cultivating a sustainable development inclined culture within public opinion, practice arenas and political discourse are also important informal incentives.

In each case, experts from opposing sectors, differing levels of scale and organisation types could identify and agree on the same crucial incentives, even though they differ in opinion about the effectiveness. Academics, developers as well as civil servants in PMR all agreed that the amalgamation of the portfolios of transport and land use in the DPI has been of crucial importance. However, evaluation of the success of the amalgamation differs between experts. For example, transport sector civil servants felt amalgamation diminished their role and authority in TODS. The academics were disappointed that the amalgamation did not have a lasting impact but agreed that it gave an impulse to TODS in planning policies. The developers benefitted from the amalgamation with the financing of their projects but remained sceptical on the impact that the TOD projects will have on housing market demands.

In all cases, public stakeholders were more positive about policy incentives than private stakeholders. This bias can be attributed to the public stakeholders level of involvement in shaping policy incentives. In PMR, PMA and GVR, stakeholders also agreed that the shift of public opinion and behavioural change towards TODS were crucial for eventual implementation. These informal incentives contributed to a more conducive environment for TODS as triggers or as legitimization for introducing formal incentives. Experts from all cases acknowledge past successes but are certain that much more can be done to achieve their ideal of TODS implementation.
Vicious to virtuous cycle

All three metropolitan regions shifted from a vicious cycle of a non-conducive environment for TODS towards a virtuous cycle. In all cases, a long period of time was required to make that switch. For example, PMA commenced TODS in the early 70s. GVR promoted TOD together with the SkyTrain in the 1980s and is recently considering redeveloping corridors along its streetcar lines from the 1890s (Wales, 2008). PMR started slightly later in the late 80s. The timeline of all cases indicate consistent introduction of incentives leading towards new TODS, policies and corresponding projects. Throughout all cases, continuous efforts sustained a cyclical process towards a more conducive TODS environment. The introduction of incentives to overcome barriers proved crucial for moving away from a vicious cycle. The findings did not reveal a clear hierarchy between formal and informal incentives as both positively influence the political and socio-cultural landscapes. Both were deemed crucial and interdependent for a virtuous cycle as expected in the hypothesis.

During the interviews, many experts indicated a desire for further improvement in their regions towards an even more virtuous cycle. In PMA and GVR, TOC are considered the next target to be achieved. In PMR, activity centres are the next step. Experts in each case benchmarked themselves against other regions perceived as ‘better practices’ from which they wish to emulate. The experts interviewed displayed awareness and knowledge of current TODS innovations in regions they aspire to. All experts enquired with great interest about practices and innovations in TODS that the researchers were familiar with. The ambition to improve and curiosity indicate a continuous learning process and openness to innovations from other contexts.

The above not only proves the shift from a vicious to virtuous cycle in all cases but also presence of a cyclical and iterative process. There are feedback loops active in the movement towards a virtuous cycle. Positive encouragement comes from increased profits in developments as evidenced in PMR and GVR and peer recognition from other regions pursuing TODS as in GVR and PMA. This however suggests that negative feedback could also influence a virtuous cycle adversely.

TODS are highly context-specific and are as much a result of the political and socio-cultural landscape of a region as its geography (Hull, 2011; Curtis et al., 2009). The barriers and incentives to TODS implementation are imprinted these same characteristics (Tan et al., 2011). Findings also show that there is active learning by experts and translation of innovations originating elsewhere towards their own context. These adaptations take the form of concepts, such as new urbanism and TOD for the PMR or as transportation systems and development densities in PMA and GVR.
PMR adopted financial arrangements with developers inspired by ‘better practices’ in the US, notably from the PMA. Experts expressed evident interest for usable and potential incentives from elsewhere. Likewise, those seeking change towards a virtuous cycle for TODS could benefit from learning about incentives used in PMR, PMA and GVR for their own regions.

Four combinations of types of incentives

Incentives are used to reward or deter individuals and organisations towards a particular goal. In the planning institutional field, incentives can be categorised into three different types of measures affecting the legal, financial and socio-cultural arenas. All types have been observed to play a role in the successful TODS implementation of all cases. In the metropolitan regions researched, these measures are always used in combination with one another. Eliminating repetition in pairings leaves four possible combinations, which are:

**Legal - Financial:**
Regulations and rules coupled to financial rewards or deterrents and vice versa. (e.g., taxation on parking by public transport authorities or grants linked to fulfilment of planning requirements.)
In PMA, local and regional authorities have the right to increase local taxes periodically to finance transit infrastructure and developments.

**Legal - Socio-cultural:**
Regulations and rules that form or change social-cultural practices or vice versa. (e.g., institutionalisation of public opinions in plans and policies and/or travel behavioural change through policy instruments)
In GVR, the ‘Most livable city’ concept became an important narrative in design and evaluation of regional plans (Hutton, 2011). ‘Dialogue with the City’ in PMR is also an example (Hartz-Karp, 2005).

**Financial - Socio-cultural:**
Financial rewards or deterrents that form or change social cultural practices. (e.g., attracting market players through reducing financial risk or stimulating acceptance for TOD in neighbourhoods and/or using social interests to determine funding.)
Community Amenities Contributions (CACs) in GVR allow developers to achieve their desired densities as long a fee is paid (CAD$3/square feet) or community facilities (i.e., parks and crèches) are provided in return (Punter, 2002). The PMA Metro TOD program leverages its limited budget as starting capital for private developers to lower initial financial risks (Thorne-Lyman et al., 2011).
Legal - Financial - Socio-cultural:
Regulations and rules with financial reward or deterrence aspect inspired by or resulting in changes in social-cultural practices. (e.g., flexible and market-oriented authorities and/or financial redistributive programs.)
The Infrastructure Australia funds promote sustainable development and are evaluated by a panel of experts. Successfully co-financed plans tend to promote economic vitality and transit use (Infrastructure Australia, 2010).

In all cases, the shift towards a virtuous cycle has been achieved through introducing combinations of incentives as mentioned above. In each combination, the relation between formal and informal incentives is reciprocal. Most combinations are activated as formal incentives but affect informal institutions. Likewise, most formal incentives would never exist without informal incentives. For example, implementing taxation to encourage TODS would never be possible without sufficient public support. Social norms and values also play a crucial role in determining actions
towards TODS conducive policy environments that eventually result in institutional change. In all regions, introduction of these combinations either coincide with or effect changes in both formal and informal institutions. For example, changes to formal institutions such as introduction of new organisations and policies - such as the DPI and the DCP in PMR; the TPR and Metro in PMA or Metro Vancouver and TransLink in the GVR – could not occur without changes in the informal institutions of norms and values. These above combinations, their roles and processes in successful TODS implementation form important lessons for regions seeking similar
CONCLUSIONS AND FURTHER RESEARCH

The paper hypothesised that a positive relationship between mutually reinforcing formal and informal incentives lifting barriers results in a virtuous cycle conducive to TODS as indicated in the conceptual model (see Figure 2.1). Evidence in all cases confirmed this, implying that formal and informal institutional barriers and incentives play key roles in TODS implementation from an institutional perspective.

These findings furthermore confirmed a self-enforcing cycle connecting both types of barriers and incentives. The cases show that shifting from a
vicious cycle to TODS conducive environment with the use of incentives is possible. Findings also indicate that stakeholders of metropolitan regions experiencing a virtuous cycle still actively pursue further improvements through reflecting on their past achievements while seeking innovations from ‘better practices’ elsewhere. This indicates a supplementary feedback loop of learning and reflection in planning practice as evidenced in all cases (see Figure 2.3)

This feedback loop is an addition to our initial conceptual model (see Figure 2.1). Logically, a negative loop would then disrupt the learning process
resulting in institutional changes for the worse and/or reinforce the vicious cycle. The planning community thus needs to focus on the process of institutional change through learning and innovation.

Comparative analyses of the three theory-confirming cases show incentives being present in four combinations. These combinations are i) legal financial, ii) legal socio-cultural, iii) financial socio-cultural, iv) legal financial socio-cultural measures.

These combinations provide the following lessons for other metropolitan regions seeking to shift towards a virtuous cycle for TODS implementation. Incentives must be well-matched to the barriers they seek to lift and operate as levers in both formal and informal institutions (Ostrom et al., 1993). Policy measures and instruments seeking to incentivize TODS implementation should utilise both formal and informal institutions. Incentives operating within informal institutions should not be underestimated (Rauf, 2009).
To achieve TODS implementation as in these cases, regions also need similar cycles of inspiration, learning and eventual transplantation or translation of incentives adapted to context-specific circumstances (Janssen-Jansen et al., 2008). This leads to important questions for further research. The first being what are the necessary conditions and the dynamics of institutional change needed to shift from a vicious to virtuous cycle for TODS implementation. This question will be tackled in further research by comparing these cases using a theoretical framework for institutional change. The second question concerns the process of learning and innovation within these cases.

This will be examined in a next step discussing learning and policy transfer theories to analyse findings from these cases (Marsden & Stead, 2011). How other metropolitan regions could learn from these subsequent findings would be the final question tackled through an ‘experiential case study’ (Straatemeier et al., 2010) exploring application of findings in metropolitan regions with a non-conducive context for TODS implementation.


NOTES

1 Referees are local experts in practice or academia in the respective regions. Referees checked the validity of our conclusions and were asked to give any suggestions or report any irregularities in the collected information. No irregularities have been reported. Suggestions given have been used to improve the case reports.

2 The experts will be identified by the code number and the scale, type and sector are shown here below;
   Expert 1101; Provincial/Regional scale, Private stakeholder in Land Use sector.
   Expert 1102; Urban Agglomeration scale, Private stakeholder in Land Use sector.
   Expert 1103; Provincial/Regional scale, Public stakeholder in Land Use and Transport sector.
   Expert 1111; Provincial/Regional scale, Semi-Private stakeholder in Land Use sector.
   Expert 1112; National scale, Semi-Private stakeholder in other sector.
   Expert 1113; Provincial/Regional scale, Semi-Private stakeholder in other sector.

3 Portland is known for many firsts in funding and implementing TOD (regional UGB and funneling freeway funds for transit), has the most numbers of green buildings as well as a high transit ridership numbers.

4 Formerly the Richmond-Airport Vancouver RAV line.

5 1986 World Exposition on Transportation and Communication.
Transit-oriented development (TODS) are popular options for sustainable urban development. It is recognised that multiple institutions hamper or enable TODS. However, the process of moving from a non-conducive to a conducive institutional context for TODS is neglected in current literature.

This paper proposes a theoretical framework to analyse processes of institutional change through its elements - critical phases comprising of catalysts, triggering corresponding spontaneous and deliberate reactions and effects - across a period of time as a pattern of occurrence.

The resulting model is tested and refined upon developments in the metropolitan regions of Perth, Portland, Vancouver and Copenhagen, where TODS implementation has been observed.
Findings from the comparative analysis of the cases are used to identify and conclude on necessary conditions of change that policy makers and planners should pay attention to; if indeed change is desired.
INTRODUCTION

Transit-oriented development strategies (TODS) are widely pursued by planners and politicians around the world. TODS are defined here as policies and projects seeking to achieve sustainable urban development by “concentrating urban development around stations in order to support transit use, and develop transit systems to connect existing and planned concentrations of development” (Curtis et al., 2009, p. 3). TODS are considered achieved when there is a shift away from a car-dominated mobility towards a transit-oriented mobility at the metropolitan scale. TODS characterises the integration of land use and transportation planning, which is complex due to the multitude of formal and informal institutions involved such as formal means of legislation, policies and regulations; as well as informal means of norms, values and beliefs (Garcelon, 2005; North, 1991). Many assume that to implement TODS, it is essential that institutions need to and can be changed (Curtis et al., 2009; Hull, 2010).
Barriers for the implementation of land use and transportation planning integration strategies are well documented (Rietveld and Stough, 2004a; Banister, 2004; Clifford et al., 2005). Successful attempts at overcoming them are also well observed (Marsden and May, 2006; Curtis et al., 2009). For example, sprawling urban patterns resulting from prior land use policies require and reinforce the dominance of car-based mobility. The ensuing lifestyle and habits shape and inform policy choices that either maintain the status quo or expand urban sprawl and car use. Inversely, in several cities and regions that have made the shift away from car-dominance or sprawl, these barriers have been overcome through the introduction of formal and informal incentives; such as financial rewards for increasing density around transit nodes or campaigns to educate and influence more transit based travel behavioural patterns. These dynamics are indicative of institutional change.
The focus on institutional change resonates with current debates within planning literature (Kim, 2011; Buitelaar et al., 2007). However, the specific gears and levers of change and how change emerges remain unclear. Most definitions in planning literature overplay the importance of deliberate efforts, and sudden and major changes in a desired direction. Yet, planning practice shows that this process is by and large evolutionary, and can be incremental and undirected (Bertolini, 2007). These gaps are addressed here through a reconstruction of institutional change in cases where a shift from a non-conducive towards a more conducive context for TODS has occurred. First, the paper seeks to understand what processes of institutional change took place in cases where TODS were successfully implemented. Secondly, it attempts to shed light on the specific elements of institutional change and, if and how they are related. For these purposes, a theoretical framework and conceptual model are proposed combining the understanding of institutional change as a deliberate design and balancing it with an evolutionary perspective. The framework takes into account the factor of time, path dependency and normative goals present in planning processes. The proposed framework and corresponding model observes institutional change, as applied here to TODS implementation, along a continuous timeline through its elements and their pattern of occurrence.

The metropolitan regions of Perth, Portland, Vancouver and Copenhagen will be examined with this framework. Here, the elements of institutional change and patterns of their occurrences are observed and identified in the reactions of various institutions to catalytic triggers of societal transformation and their corresponding effects. The findings are analysed and compared between the cases to conclude with which conditions policymakers and planners need to pay attention to, if change is indeed desired.
INSTITUTIONAL CHANGE

Institutions and institutional change have fascinated economists, political scientists, sociologists and planners in the past decades (Rietveld and Stough, 2004b; Salet, 2002; Gualini, 2001; North, 1991; Hodgson, 2006; Alexander, 2006; Ostrom et al., 1993; Greif and Laitin, 2004). There is a multitude of definitions of what institutions and institutional change entails (Kim, 2011; Kingston and Caballero, 2009). Institutions differ from “organizations” (Rietveld and Stough, 2004b, p. 709). Definitions of institutions range from “a framework of norms, rules and practices” (Gonzalez and Healey, 2005, p. 2058), which “frame actor’s actions and behaviours” (Alexander, 2006, p. 1), to “patterns of social rules” (Dembski and Salet, 2010, p. 615) and those that distinguish between formal (such as procedures and laws) and informal institutions (such as social values, norms, ideas and beliefs) (Janssen-Jansen, 2004). Accordingly, the emphasis here will be on both formal and informal institutions, and on the importance of actors within (and creating) both.

Differing perspectives within planning: four points of contention

Planning literature tends to view institutional change in two separate camps; as either deliberate, “purposefully designed and implemented” or as an evolutionary approach (Alexander, 2006; Buitelaar et al., 2007; Gualini, 2001; Kingston and Caballero, 2009, p. 153). This is a first point of contention. Buitelaar et al (2007) argue that both perspectives are equally important but separate. Others however observed that deliberate change through policy aims and delivery seldom result in the expected and desired outcomes (Curtis et al., 2009; Healey, 1998; Marsden and May, 2006; Rietveld and Stough, 2004b).

The enactment of deliberate institutional design to form new rules through collective-choice actions tends not to explain why eventual implementation of these new rules do not produce expected outcomes (Ostrom, 2005). Here, the evolutionary approach can provide a more balanced view with its emphasis on individuals and their learning and actions; taking into consideration the issue of path-dependency and consequences of prior choices (Pflieger et al., 2009).

Institutional change is often seen as a sudden and positive change; realised within a ‘window of opportunity’ in which the problem and solutions match, resulting in a ‘critical juncture’ for transformation (Buitelaar et al., 2007). It is also seen as something major where; “previous frameworks are challenged and reconstructed, leading to new behaviors and actions” (Kim, 2011, p. 334). This is a second point of contention, as change is at times
more incremental than sudden, with small and almost imperceptible steps being taken that only become observable over a long period of time. These observable changes can also be the result of spontaneous adaptations and not solely deliberate redesigns (Bertolini, 2007). This latter, more articulated understanding of change more suited to planning processes is better represented with the concept of a ‘critical phase’ encompassing multiple critical junctures rather than a singular ‘critical juncture’.

The third point of contention is that institutional change is as much a product of changing norms and behaviors (incremental or otherwise) as their own past. The path-dependency perspective is particularly useful in understanding possible ‘lock-ins’ within planning practices where despite an opportunity for a more desirable situation, change is not achieved due to stubbornness in the existing system (Hartmann and Needham, 2012; Pierson, 2000; Pfieger et al., 2009). An established planning agency is unlikely to restructure its policies and organization every other month as this would lead to widespread confusion with planners and within real estate markets. Yet, some plans and policies are evaluated and refined over time – or even abandoned – based on discussions within society and practice. Institutional paths are continuously disrupted and new equilibriums found, although not necessarily in the predetermined course.

The fourth point of contention is that most models assume that change occurs in a singular direction and usually in the preferred direction (Buitelaar et al., 2007; Dembski, 2012). However, forces from different factions desiring other directions more often than not result in opposing pressures of change. Institutional change might still occur but perhaps not in the predetermined direction or not in the direction desired by those who initiated it (Hassink and Lagendijk, 2001; Vyakarnam and Adams, 2001).

In summation of the above four points of contention regarding existing literature, institutional change is defined here as being encapsulated by a reaction - deliberate or spontaneous - of current institutions to societal change. These reactions result from or lead to new or different behaviours and actions of the actors embedded within these institutions, indicating an evolution of the institutional framework over a period of time. The framework in turn redefines conditions for behaviour and action. Furthermore, change is incremental and/or exponential, and subjected to path dependency. Finally, the direction of change can be seen as positive or negative, depending on the normative point of view taken, and bearing in mind that change can have unintended and undesired effects.
Conceptual model and elements

Based on the above discussions, institutional change can be seen as occurring during critical phases where catalysts trigger spontaneous and/or deliberate reactions from actors and organizations within the existing institutional setting, with change (or no change) as the resulting effect. The key elements are defined as:

- **A critical phase** indicates consecutive moments in time, documenting a more than marginal change of the institutional context (Buitelaar et al., 2007; Salet et al., 2012). This phase is not necessarily an event, but indicates a longer period of occurrences. Its duration and identification is marked by instances of change, both incremental and exponential. Examples are periods of intensive and successive policy reforms as responses to acutely changing societal attitudes that are prominent in planning history, such as the sustainability movement.

- **Catalysts** can be decisions, strategies, discussions, events or trends that trigger reactions from actors and organizations within the existing institutional setting (Hassink and Lagendijk, 2001, Poole et al., 2004). A catalyst can also result in conflicting reactions in different institutions.

- **Spontaneous reactions** are unexpected reactions from within the current institutional setting. Examples are public opinions cumulating in protests or debate. They are typically found within the realm of informal institutions. Deliberate reactions are those motivated by desire for a certain direction of change such as policy aims visualised as new plans or regulations, and are predominantly in the domain of formal institutions. Spontaneous and deliberate reactions can reinforce or neutralise each other. It is the accumulation of reactions that gives direction to change.

- **Effects** are the actual changes in relevant institutions. They can be both intended and unintended, and result from differing reactions of the many different actors who operate in different sectors required for collaboration in the planning process. The motives and operations of these actors are usually not in sync. Furthermore, the very same reaction could have both intended and un-intended effects.

Applying the above understandings to planning processes, and assuming that implementation of TODS is the desired outcome, results in the following conceptual model (see Figure 3.1).
The model illustrates that if a shift from a non-conducive to a conducive institutional context for TODS is the desired direction, the eventual accumulation of forces in the form of reactions caused by catalysts, benefitting and sustaining the desired direction; will cause deviation from an original path in an opposing direction over a period of time. For actors favouring TODS, this is viewed as a ‘positive’ and sustained change after a critical phase. Once moving in the desired direction, deviation towards an alternative path due to overwhelming opposing forces could also occur, which can be seen as a ‘negative’ critical phase for those favouring TODS.

**METHODOLOGY**

With the help of the framework discussed above, the process of institutional change is reconstructed for the cases of Perth Metropolitan Region, Portland Metropolitan Area, Greater Vancouver Region and Greater Copenhagen²;
Case selection

Three basic criteria were used for case selection. The first criterion was concerned with the existence or claim of explicit TODS implementation. Next, each region had to have experienced modal shift (from dominant car usage to increased public transport usage) as a proxy to successful implementation. Finally, implementation barriers had to be present and lifted at some point, indicating a change towards a conducive institutional context. 26 potential cases were first selected on the basis of the availability of information per case to assess compliance to the three criteria above. Next, four metropolitan areas were selected each representing a different combination of stakeholders initiating TODS implementation. This is seen as an instance of literal replication (Yin, 2003): the presence of different stakeholder arrangements influencing the outcome was not expected.
Data collection

After extensive desktop research, the metropolitan regions of Perth, Portland, Vancouver and Copenhagen were visited for 5-6 weeks on average during 2011-2012. In addition to site visits conducted by local experts to TOD projects, experts in local practice and academia were interviewed, and document analyses were also conducted for each case. The same approach and protocol was replicated for external validity in cross-case comparative analysis (Bryman, 2008; Yin, 2003). Findings were separated into three concurrent narratives of context, timeline and interview that were triangulated to reconstruct the process and evolution of TODS implementation.

The context narrative seeks the wider context of implementation of political climate, economic development and various market indicators indirectly related to TODS and give an overview of the range of projects implemented or planned for the metropolitan region. This is achieved through the expert led site visits and analysis of documents ranging from academic literature, policy documents, various media outlets and historical data.

The timeline narrative is preoccupied with the isolation of key events, trends, plans, policies, programs, projects, and organizational changes in the given period. These timelines include up to six decades of information, usually from post-WWII to current and future plans. While this might seem a long period, it is the kind of length needed to identify multiple instances of institutional change (Harris and Moore, 2013; Pflieger et al., 2009). They were reconstructed from a variety of sources ranging from policy documents to media information. The point of departure would be key policy documents or academic literature on the region. The search would then be broadened accordingly to what was mentioned in those key documents to include fact checking with various media outlets and archives.

For the interview narrative, 42 local experts on TODS were interviewed in total. These practitioners, academics, lobbyists and politicians were selected to fulfil the pre-determined categories of scale, sector and type. Selection is based on their involvement in key policy documents or their (current or past) position in key organizations and followed by snowball sampling. This is of course, regulated by availability of these experts for one-to-one and anonymous interviews lasting about 1-2 hours. These in-depth interviews were semi-structured around questions regarding the themes of implementation barriers, institutional incentives, perceived change and perceptions of success. The interviewees received the questions in advance and were free to narrate their experiences with only minimal prompting from the interviewer to stay on topic.
IDENTIFICATION OF ELEMENTS AND PATTERNS OF OCCURRENCES OF INSTITUTIONAL CHANGE

Key moments in the evolution of TODS implementation as indicated by interviewees and supported by the context and timeline narratives were combined to retrace the catalysts, reactions and effects forming a critical phase. The same process was applied to all cases. The collections of elements (presented in the table columns) forming a critical phase (presented in the table rows) are then sorted per case in Table 3.3 for a summarizing overview of the collected empirical data. However, each case cannot be discussed in detail here. Findings from one case will be discussed in more detail to elaborate how this table was constructed and should be read. The Portland Metropolitan Area is chosen to show how the elements, in this case catalysts and critical phases are identified and linked.

Key lines of inquiry during the interviews were perceived change and related incentives. This translates into interviewees sharing about key moments, indicative of possible catalysts, that they have experienced as important or definitive for the evolution of TODS implementation in their region. They shared freely with prompting for clarification; the when, why, what, whom and how that contributed to these moments and eventual changes. For example (On what happened or what this interviewee from Portland considered important);

“At that time, Metro didn’t really have a land-use… a progressive transportation function with a real strong focus on multimodal. We had just gone through a period of backing away from a big freeway plan and moving towards light rail and transit and streets and bikes and so we had been aggressive for some time around multimodal transportation but it wasn’t until the late 80s early 90s that we really moved into the land use world in a big way. Metro...had responsibility for setting the urban growth boundary.... The two phenomena happened separately in the mid-70s. The region was paralyzed over controversial road … freeway projects and that really took the leadership of the governor and the mayor, the chair of the largest County commission and the Transit District Board of Directors. So the really key governmental leaders in the region and... it really took them saying; “We need settlement, we need conclusions on all this controversy.”... and so they required that we go through [a] process and evaluate different choices and at the time we had... three big, destructive urban freeway projects in development and [there were] uprisings in the neighborhoods and lawsuits.” - Expert 1116; Urban Agglomeration scale, Public stakeholder in Land Use and Transport sector.
Here, the timeline and context narrative specifically served to confirm the moments mentioned. The timeline helps to view when and if parallel events, policies, programs and reorganizations were ongoing. The context narrative helps place these elements against the backdrop of the political and social landscapes both from within and beyond the region. This further refines the catalysts, the reaction and effects, and ascribes them to critical phase.

**Critical phases**

What constitutes a critical phase? Take Critical phase II of Portland Metropolitan Area in Table 3.3 for example, this period was marked by some memorable events such as the freeway protests, uprisings and the revamping of federal policy. It was a period of many firsts; including the freeway controversy sparked off similar movements in the rest of the US, the first Urban Growth Boundary (UGB) regionally co-ordinated by an elected metropolitan organizations and the use of federal highway funds for transit (Arrington, 2009; Fackler, 2009). This indicates a period of significant changes in attitudes, policies and governance.

Certain political figures were ascribed as being instrumental for the shift by several interviewees. However, their involvement was not unexpected or just a result of the freeway controversies. By combining all three data narratives, the following is observed in Critical Phase II of the Portland Metropolitan Area;

- Governor McCall had proven interest in environmental conservation and land use planning. He proposed various legal measures, such as improved access to the Willamette River in the late 60s, the first ‘bottle bill’ in 1971 and a co-ordinated land use planning system for Oregon, which contributed to political will and public awareness. His political actions were an important catalyst that led to complementary support from the public as a reaction (Gustafson, 2000; Suutari, 2007).

- Simultaneously, the support that Mayor Goldschmidt gave to the grassroots organizations was a catalyst for public support in sync with opposition to the freeway projects and set the tone for land-use and transportation integration (Abbott and Abbott, 1991).

- Political support nurtured the role of grassroots organizations and resulted in them having a voice as important stakeholders in the planning process, such as the 1000 Friends of Oregon created by McCall in 1971. The claim from Southeast Legal Defense in 1972, another of the grassroots organizations, led to injunctions against state officials and the freeway plan being refuted and effectively stopped (Thompson, 2007).
• Portland’s politicians and planners were however not inclined to give up the funds from the freeway projects. As an effect of the above reactions, alternative plans were made to introduce transit projects instead to use those federal funds (Gustafson, 2000).

• The blocking of other freeway plans are effects of the reaction triggered by the choices of the various political figures and the presence of grassroots organizations that acted as a catalyst. The decision to implement management of regional growth by integrating land-use and transport were also effects of the above political discussions and strategies (Lang and Hornburg, 1997; Wheeler, 2003).

The critical phase is therefore a consecutive period of catalysts and reactions leading to effects that are observable characteristics of institutional change.

Catalysts

Catalysts are decisions, strategies, discussions, events and trends eliciting reactions from actors (governor, mayor, commissioners etc.) and organizations (grassroots organizations, regional authorities, transport authorities etc.) that led to innovations and reforms in funding policies and transport and land-use planning approaches in the case of Portland (Arrington, 2009; Bonner and Kantor, 1986; Suutari, 2007). All interviewees were able to isolate and mention certain periods where significant change was happening to the institutional context. The following events, plans, policies, programs, projects, and organizations and individuals were mentioned by interviewees as key moments in the evolution of TODS in their region (see Figure 3.2).

These mentions above are not necessarily catalysts, but frequent mentions indicate defining moments. The reconstruction of their provenance (catalysts) and consequences (reactions) helps identify the elements. For example see Table 3.3, Portland, Catalyst column. The frequently mentioned Harbor Drive resulted from multiple catalysts. Growing public dissatisfaction due to lack of waterfront access, infringing freeway projects and urban decay triggered protests and support by citizen coalitions and eventual plans from the city (Fackler, 2009; Gustafson, 2000). Simultaneously, the Downtown Plan marked renewed attention to revitalise the economic and urban quality of Portland, spurred on by public dissatisfaction for the deterioration of the urban centres embodied by rampant parking structures and highways (Peirce and Guskind, 2012). The images of plans for a parking garage on Pioneer Square became an important catalyst for more attention to be paid to urban spatial quality (Bonner and Kantor, 1986). These catalysts, reactions, and effects mark the beginnings of a polarizing public and political discussion on freeways, land use planning and urban environments; creating a conducive backdrop for future TODS.
Figure 3.2: Mentions of events, plans/policies/programs/projects, organizations/individuals per interviewee for the Portland Metropolitan Area

| Expert | \(1115\) | \(1116\) | \(1117\) | \(1118\) | \(1119\) | \(1120\) | \(1121\) | \(1122\) | \(1123\) | \(1124\) | \(1125\) | \(1126\) | \(1127\) | \(1128\) | \(1129\) | \(1130\) | \(1131\) |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| **Number of mentions** |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| Events  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| Freeway controversy | | | | | | | | | | | | | | | | | | |
| Federal funds for transit | | | | | | | | | | | | | | | | | | |
| Harbor Drive | | | | | | | | | | | | | | | | | | |
| Metro elected | | | | | | | | | | | | | | | | | | |
| UGB Expansion | | | | | | | | | | | | | | | | | | |
| Plans/Programs/Policies/Projects | | | | | | | | | | | | | | | | | | |
| MAX lines/extensions | | | | | | | | | | | | | | | | | | |
| Urban Growth Boundary | | | | | | | | | | | | | | | | | | |
| 2040 Growth Plan | | | | | | | | | | | | | | | | | | |
| TOD Program | | | | | | | | | | | | | | | | | | |
| Pearl District | | | | | | | | | | | | | | | | | | |
| South Waterfront | | | | | | | | | | | | | | | | | | |
| Milwaukee Light Rail Line | | | | | | | | | | | | | | | | | | |
| Downtown Plan | | | | | | | | | | | | | | | | | | |
| Lake Oswego | | | | | | | | | | | | | | | | | | |
| Beaverton | | | | | | | | | | | | | | | | | | |
| Hillsboro | | | | | | | | | | | | | | | | | | |
| TPR | | | | | | | | | | | | | | | | | | |
| Organisations/Individuals | | | | | | | | | | | | | | | | | | |
| Metro | | | | | | | | | | | | | | | | | | |
| TriMet | | | | | | | | | | | | | | | | | | |
| ODOT | | | | | | | | | | | | | | | | | | |
| Neighborhood Associations | | | | | | | | | | | | | | | | | | |
| 1000 Friends of Oregon | | | | | | | | | | | | | | | | | | |
| Gov. McCall | | | | | | | | | | | | | | | | | | |
| Portland City Council | | | | | | | | | | | | | | | | | | |
| Mayor Goldschmidt | | | | | | | | | | | | | | | | | | |
| Sen. Blumenauer | | | | | | | | | | | | | | | | | | |
| Portland Streetcar Inc. | | | | | | | | | | | | | | | | | | |
| Portland Development Commission | | | | | | | | | | | | | | | | | | |
| Charlie Hales | | | | | | | | | | | | | | | | | | |
| Coalition for a Livable Future | | | | | | | | | | | | | | | | | | |
| Willamette Pedestrian Coalition | | | | | | | | | | | | | | | | | | |
### Table 3.3 Summary of critical junctures across all four cases

<table>
<thead>
<tr>
<th>Critical Phase</th>
<th>Catalysts</th>
<th>Reactions (Spontaneous)</th>
<th>Reactions (Deliberate)</th>
<th>Effects [intended/un-intended; positive (+) / negative (–) to TOD conduciveness]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IV 2002-3, 2005-2006</strong>&lt;br&gt;Consultation for new regional plan 'Network City'. Dialogue in the City starts. TOD knowledge networks. Mining/resource boom.</td>
<td>Media and political on sustainability and future. Growing acceptance TOD. Influx of workers from Europe and Asia.</td>
<td>Year-long community planning exercise initiated. State Sustainability Strategy. Acceleration of projects.</td>
<td>(+) Citizens and planners agree on regional vision to become &quot;the world’s most liveable city by 2030&quot;. Further development of TravelSmart Program. (+) Integration of land use and transportation at administrative levels. Ministry of land use and transport join up. 1st TOD committee. Public Transport Authority created. State TODs for quality of life and reduction of eco footprint. DCP 1.6 refined to support transit and TOD. (+) New residents endorse compact, transit-based urban environments. Glut of projects due to resource boom.</td>
<td></td>
</tr>
<tr>
<td>Catalysts</td>
<td>Reactions (Spontaneous)</td>
<td>Reactions (Deliberate)</td>
<td>Effects (intended /un-intended; positive (+) / negative (–) to TOD conduciveness)</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------</td>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
## Greater Vancouver Region

<table>
<thead>
<tr>
<th>Catalysts</th>
<th>Reactions (Spontaneous)</th>
<th>Reactions (Deliberate)</th>
<th>Effects (intended/un-intended; positive (+) / negative (-) to TOD conduciveness)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV 1996-8, 1999, 2001-2002</td>
<td>Municipalities overwhelmed. Opposition to levy: levy denied by B.C.</td>
<td>GVRD negotiate new funding and governance of roads with B.C TransLink considers alternatives for funding.</td>
<td>(+) TransLink as regional multi-modal transportation authority (transit, bike, TDM) funded by provincial fuel tax and levying of local taxes. (+/-) Lack of funds affects expansion of services and Millennium Line: public outrage, strike and protests. B.C grants tax on gasoline that TransLink has to match with higher fares and property taxes. TransLink improves image. Increase real estate role to gain non-transportation revenues to sustain (Transportation 2040).</td>
</tr>
</tbody>
</table>
## Greater Copenhagen

### Critical Phase

<table>
<thead>
<tr>
<th>Catalysts</th>
<th>Reactions (Spontaneous)</th>
<th>Reactions (Deliberate)</th>
<th>Effects (intended/un-intended; positive (+) / negative (−) to TOD conduciveness)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>1990s, 1994, 1995 – 2000s</td>
<td>Media coverage &amp; national political discussions. Renewed interest in Copenhagen.</td>
<td>Large national investment in city centre revitalisation.</td>
</tr>
<tr>
<td>V</td>
<td>2008 – 2010</td>
<td>Alienation of municipalities (not in plans); debate among planners.</td>
<td>Coalition of municipalities for vision based on existing light rail plans.</td>
</tr>
</tbody>
</table>
Subsequently, catalysts such as actions and decisions of political champions - governor and mayor and planners - advocating an alternative to regional co-ordination led to new reactions. These reactions led to new effects such as the election of Metro as a reorganization of metropolitan services whereby land use and transportation began to be integrated, the co-ordination of a UGB to manage regional growth, the diversion of federal funds for a new transit system (MAX) and saw increasing grassroots activism on planning and community issues (Arrington, 2009; Fackler, 2009; Suutari, 2007, Witt, 2004).

Another catalyst, the freeway plan by Washington County triggered a lawsuit by 1000 Friends of Oregon creating urgency to enact and coordinate transportation planning (state-wide) led to the Transportation Planning Rule (TPR) that cemented the role of the Oregon Department of Transportation (ODOT) (Bianco and Adler, 1998; Redden, 2012). The economic and population growth were important catalysts that indicated a need to revise the regional land use planning process and goals, leading to the 2040 Growth Concept at Metro and similar strategies at TriMet, the transit service agency in the Portland Metropolitan Area (Lowry and Abbot, 2010).

Catalysts can originate from a wider context as well. The financial crisis and resulting economic downturn have led to stimulus packages, collaboration with national organizations such as CTOD and Reconnecting America and smaller programs such as Metro’s TOD program that initiates TOD spinoffs (Thorne-Lyman et al., 2011). Catalysts like the passing of Measure 37 which restricted land use planning regulations have led to renewed efforts and dialogue building around TODS for the future by grassroots organizations (Suutari, 2007; 1000 Friends of Oregon, 2013).

The identification of critical phases and catalysts above features institutions most relevant to TODS but includes a wider societal context when significant. There are striking similarities and patterns presenting in the four cases. However, institutional change is not always clear-cut as each element can have an impact on elements in the longer term. The findings do not presuppose causality but rather the existence of recurring patterns. These patterns of occurrences are described in the concluding section below.
CONCLUSIONS AND NEXT STEPS

The identification of the elements of institutional change and comparison of their patterns of occurrences is the first step in building an understanding of how to affect desired change within the practice and political arena. Whether such a change is desired is however a normative discussion best left to the political debate. For planners, the purpose here is to come to grips with elements that form basic forces affecting planning outcomes. TOD is assumed as the desired outcome here, based on the prevailing political view of the analysed contexts. The following conclusions are drawn from the key findings presented above.

Testing and refining the model

The proposed model (see Figure 3.1) is tested against findings across four metropolitan regions (as summarised in Table 3.3). The findings show that in all cases, there indeed is a mix of sudden and incremental change occurring over a period of time. An observer who only focuses on short periods of time will only see exponential institutional changes such as the introduction of TODS policies (e.g., DCP 1.6 in Perth or Proximity-to-Station rule in Copenhagen) and supportive investments (e.g., freeway funds for the MAX light rail system in Portland or SkyTrain system in Vancouver) as sudden and major shocks to the system through deliberate design (see Table 3.3). However, an evolutionary perspective views these changes as simultaneously deliberate designs and products of past decisions; affecting a broader societal landscape either as reactions or effects acting as catalysts for a later critical phase. For example, the deliberate legislating of TODS policy in Perth is a result of behavioural shift that encouraged and capitalized on fortuitous change of political leadership; the various iterations of the Finger Plans in Copenhagen and the improvement of enforcement legislations are likewise products of earlier versions and deliberate reactions for improvement, rather than spontaneous reactions (see Table 3.3).

A sole catalytic event does not form a critical phase. Looking to the example of Portland, it can be observed that in the late 60s-70s, a series of reactions and effects occurred due to a few catalysts happening in relation and close proximity of one another. Their effects and reactions are therefore amplified. When corresponding to the societal attitudes, these reactions and effects went on to have effect on critical phases further on.

The direction of change might not always be desired and corresponding reactions can deliver unexpected effects. However, the cumulative forces of the reactions and effects determine the direction of change. In cases where the reactions and effects are beneficial towards the desired
direction, the path of institutional change is maintained, albeit with much
effort. Portland’s continuous efforts in TODS implementation resulted from
largely unintended effects of reactions to the catalysts in the 60s-70s. In
Vancouver, the desired path was shaped by global events and deliberate
reactions from planning institutions in the form of the transit system and
regional plans (Hatten, 1987; Hutton, 2011). Even though dissent exists as
to the transit system investment costs, inconveniences to businesses and
the externalities of a very successful real estate market resulting in high
residential unit prices the eventual accumulation of forces still led towards
a desired path; albeit in a halting rhythm where positive forces have to over
correct for negative ones (Tomalty, 2002; Wales, 2008).

The model is thus tested but also further refined. In modelling institutional
change, it can be observed that changes are not sudden shocks to the
system but rather susceptible to elements earlier up the path. Multiple
catalysts occurring in close proximity (time) reinforce and amplify each other
with complimentary reactions and effects signifying a critical phase were
observed. The direction of change is then determined by the cumulative
effects of the forces of change as induced by deliberate and spontaneous
reactions.

Though the occurrence of catalysts and reactions do follow a distinct
chronological order, it is important to not immediately assume causation
due to chronological proximity. The model shows trajectories of stabilisation
and change, and forces and interactions resulting in both. Furthermore in
reflection, it is easier to apply the model on cases where a longer period
of time has lapsed, such as Portland, Vancouver and Copenhagen, partly
due to the catalysts, reactions and effects being well documented. Critical
phases are therefore more traceable in the past than for near-recent and
current periods, whereby the effects and reactions are not yet visible. This
implies that critical phases leading to sustained change are more apparent
when sufficient time has passed and that planners and policy makers could
easily overlook these in real-time.

**Breaking away from an existing path**

The findings show that it is possible to deviate from an existing development
path if there is sufficient political will to change, given the right conditions
(e.g., a desired direction of change, political support and complementary
planning efforts, strategic use of changes in the broader societal fabric
and a sufficient period of time to reap the fruits of earlier efforts). Planners
operate with the premise of deliberate change in all cases, eventually (but
not always initially) gearing plans and policies towards the desired direction.
The reactions with a lasting effect were those in line with societal sentiments and attitudes. Here, formal and informal institutions complemented one another to affect institutional change in a deliberate fashion. Public embrace of transit and bike resulted in land-use and transport policies that redefined conventional planning practice and developments in all cases (Curtis et al, 2009; Hutton, 2011; Knowles, 2012). The intended and unintended effects of modifying travel behaviour and residential choices perpetuated a positive effect supporting the desired direction later on. In most cases, this is observed as preference for alternative modes, such as the growing bike culture and the car being increasingly seen as an option instead of a necessity in plans (see Table 3.3) (Redden, 2012; Ruby 2013, TransLink, 2011). An implication here is that informal institutions, social values, norms, ideas and beliefs that are often been neglected in planning and its instruments, have great consequences on the forces and direction of institutional change and should be better acknowledged. Another implication is that the linkages between planning practice and the political arena need to be reinforced for cases seeking implementation. The engagement and shaping of public opinion and behavioural changes, through collaborative and communicative methods appear influential instruments for the planner and policy maker. Perth’s ‘Dialogue with the City’ and ‘TravelSmart’ programs are good examples of a holistic approach through informal means and formal incentives (see Table 3.3) (Tan el al., 2013).

Riding the wave

Recognition of appropriate catalysts and strategic capitalization of the corresponding reactions and effects proved viable for pursuing a conducive institutional context. In hindsight, the cascading effect of catalysts, reactions and effects complementing and strengthening each other seems almost serendipitous. However, by tracing the elements and patterns through time, the findings show the influence and workings of previous critical phases, catalysts, reactions and effects. The ideas or plans were present in previous phases but were perhaps deterred by stronger opposing forces. In Vancouver, anger at the destruction of Chinatown resulting in freeway protest did not manifest in sweeping reforms but contributed to the momentum that saw its adoption of a modern transit system and the organising of urban development around the system while preserving livability of urban spaces (Boddy, 2004; MacKenzie, 1985).

To capitalize on catalysts for a turn of the tide, there must be sufficient deliberate reactions to ensure optimization (see Table 3.3). Vancouver’s continued visions in subsequent regional plans, neglect from provincial government and support from national government for international events and the changing role of TransLink were essential catalysts (Hatten, 1987;
Hutton, 2011; Wales, 2008). In Copenhagen, the upcoming connection to Europe via the Øresund bridge connection with Malmo, was an important catalyst for development that they capitalized on to build Ørestad (Knowles, 2012). However, deliberate reactions to the same catalysts resulting in negative effects occurred as well. Plans for more freeway development and suburbanisation persisted initially in Portland, Perth and Copenhagen, though these were eventually phased out given the stronger wave of forces in the desired direction. Deliberate reactions seem thus necessary but not sufficient.

Role of key actors

In all cases, the critical phases featured key individuals, groups or organizations playing crucial roles as catalysts (e.g., practitioners, academics, politicians, regional authorities private interests and lobby groups) triggering reactions. There was a clear difference in the direction taken by key individuals and organizations involved in Portland, as opposed to the conventional rules and prevalent attitudes of that time in the rest of the US. Key actors helped Portland to innovate for TOD conduciveness in spite of federal policies promoting freeway expansion and planning practice of urban sprawl (see Table 3.3).

Perth also starred key political individuals. Although it is tempting to prescribe a political figurehead as instrument of change, the findings show that it was in combination with a shift in political, professional and grassroots culture, i.e., the will and involvement of multiple individuals and organizations that led to positive results. This is observed in the resulting institutionalisation of desired change in the form of (re-)organization of regional authorities (e.g., WAPC in Perth, Metro in Portland, Metro Vancouver and TransLink in Vancouver and Capital Region in Copenhagen) leading to changes in planning practice and their corresponding policies which were frequently mentioned in interviews and literature (Abbott & Abbott, 1991; Curtis, 2012; Hutton, 2011; Knowles, 2012). Therefore, it is important for planners and policy makers to reflect on and ascertain their own mind-set and try to achieve consensus. If there is no consensus, dialogues should be held with fellow practitioners, politicians, stakeholders and the broader public to identify and acknowledge potential critical phases.
Overall conclusions and next steps

If change is indeed desired, practitioners and politicians should take care to affect it through both formal but also informal institutions. Academics can contribute through more detailed research for the latter aspect. The ability to recognise and seize upon catalysts of societal change in a timely fashion and thus amplify existing policies and plans is important. However, the imperfect availability of information and subjective individual rationality are obstacles.

Plans and policies should also reflect and acknowledge changing societal attitudes. Mostly, planning processes seem to be imprisoned in the complexity of rules and regulations preventing innovations. This is not to say that deliberate change is impossible. The crux seems to lie in the creation of more conducive institutional contexts that would result in beneficial rules and regulations thereby spurring innovations as seen in Perth, Portland, Vancouver and Copenhagen. Actors, be they individuals or organizations, and the role they play are not to be underestimated.
Here, the aspects of cognitive science chiefly concerned with how actors would learn and reflect would be the next knowledge gap to tackle (Denzau and North, 1994; Kim, 2011; North, 1991).

The next logical step in the enquiry is therefore to explore the realms of policy learning and innovation in relation to institutional change. In addition, the above theoretical framework and model should be applied to negative cases to determine the dynamics of catalysts, reactions and effects that did not lead to critical phases, or led to critical phases resulting in a shift away from a desired development path.
BIBLIOGRAPHY


Dembski, S, 2012 *Symbolic markers and institutional innovation in transforming urban spaces* (Amsterdam Institute for Social Science Research, University of Amsterdam, Amsterdam).


Hartmann, T and Needham, B, 2012 Planning by Law and Property Rights Reconsidered (Ashgate, Farnham).


Poole, M and Van de Ven, A, 2004 Handbook of Organizational Change and Innovation Eds M S Poole and A H Van de Ven (Oxford University Press, USA, Minneapolis, MA).


Rietveld, P and Stough, R, 2004a Barriers to sustainable transport institutions, regulation and sustainability (Spon Press, Oxford).


Ruby, L, 2013, “How Denmark Become a Cycling Nation” denmark.dk.


Metro, Portland, OR.
NOTES

1 An organization is a collection of individuals operating under a mutual goal. Not to be confused with institutions which is about the behavior and norms regulating these individuals and organizations (see Rietveld and Stough, 2004).

2 Any further mentions of the metropolitan regions will be indicated by its main city of Perth, Portland, Vancouver and Copenhagen.

3 List of interviewees and selection categories provided. See Appendix: LIST OF INTERVIEWEES

4 Generic sample of interview request and questions provided. See Appendix: INTERVIEW REQUEST (FOREIGN CASES)
LEARNING & INNOVATION

View of Las Vegas at night, Las Vegas, Nevada, US
A conducive institutional context established through learning and institutional innovation facilitates transit-oriented development strategies (TODS) implementation. Yet this process remains unclear. Learning and institutional innovation are concepts used cursorily in planning literature; lacking explicit definitions and rarely grounded in practice. A theoretical framework is proposed and tested on the regions of Perth, Portland, Vancouver and Copenhagen. An intricate relationship is found between institutional change, learning and innovation. Patterns and markers of the above concepts were identified and the cases evaluated for absorptive capacity. The commonalities found are a useful reference for regions seeking TODS implementation.
THE ROLE OF LEARNING AND INSTITUTIONAL INNOVATION WHEN PURSUING TRANSIT-ORIENTED DEVELOPMENT STRATEGIES

W. TAN

CHAPTER SUBMITTED.
Planners and policy makers trying to achieve sustainable urban development often turn to transit-oriented development strategies (TODS) (Curtis, 2006; Haywood, 2005). Implementation is considered successful when it succeeds in “concentrating urban development around stations..., and [in] develop[ing] transit systems... [to] connect existing and planned concentrations of development” (Curtis, Renne & Bertolini, 2009, p. 3). While there is consensus that overcoming institutional barriers is a key condition for the implementation of TODS (Banister, 2004; Cervero, 1998; Curtis et al, 2009; Grant, 2009; Hull, 2010; Ostrom, Schroeder & Wynne, 1993), there is a lack of understanding of how a shift from a conducive to non-conducive institutional context for TODS occurs. This is unsurprising given that context enabling TODS are both complex and
complicated. Institutions involved range from the formal (e.g., planning agencies, transport and planning legislations) to the informal (e.g., real estate market conditions and beliefs of a multitude of different actors and stakeholders). These institutions are in a constant state of flux, influencing and affected by the larger societal and cultural landscape (Salet, 2002). Moving away from a non-conducive environment for TODS requires political will and substantial institutional change, hereafter referred to as change. The possibility is achieved through overcoming barriers through the introduction of formal and informal incentives (Tan et al., 2013). Processes of learning and institutional innovation act as feedback loops, determining the direction of the resulting change (Innes & Rongerude, 2013).
In planning literature, understanding of institutional change varies (Dembski, 2012; Kim, 2011; Buitelaar, Lagendijk & Jacobs, 2007). Usage of the concepts of learning and institutional innovation – crucial to the process of institutional change - is cursory at best. Many authors use these terms loosely with some similarities on what they pertain to and how they might occur. The variety of usage results in a haphazard mix of understandings. The lack of a clear and explicit definition for learning and institutional innovation, as relating to institutional change is an important knowledge gap. Furthermore, most ascribe an outcome - supposedly institutional change - to learning or institutional innovation, without sufficient clarification on what it means and under which condition it might or might not materialize. Finally, abstract usage of these terms seems unnecessarily divorced from practice and is an additional knowledge gap to be addressed.

The research questions to be addressed here are i) how learning facilitates innovation resulting in institutional change, ii) what patterns of learning and markers of innovation can be identified in planning practice and iii) to what extent the absorptive capacity of a given planning context affects learning and innovation. A theoretical framework is constructed by reviewing current planning literature in combination with other fields when necessary, synthesising how learning and innovation are defined and ascribed to institutional change. Patterns of learning and markers of innovation are then identified in planning practice based on empirical evidence of TODS implementation reconstructed from four cases; the metropolitan regions of Perth, Portland, Vancouver and Copenhagen. These patterns and markers can be seen as gears and levers available to planners and policy makers for achieving their desired goals. The identification of patterns and markers is followed by an evaluation of the absorptive capacity per case, offering a first step towards emulation for other cities and regions desiring TODS implementation.

**INSTITUTIONAL CHANGE THROUGH LEARNING AND INSTITUTIONAL INNOVATION: A THEORETICAL FRAMEWORK**

If political will to change exists, how could planners motivate and achieve this change? Based predominantly on planning literature, the theoretical framework proposed here links institutional change to learning and innovation. However, where clarity was found lacking; literature from management and organisational science, economics and policy science were consulted.

There is much diversity in planning literature on what institutions are and what institutional change entails (Dembski, 2012; Kim, 2011; Buitelaar et al., 2007; González & Healey, 2005).
Institutional change is seen through the institutional design and the collective action perspectives. Both seek change intentionally, value the role of the actor and “emphasise strategic and political agency as the basis of action” (Poole & Van de Ven, 2004, p. 311). Given the importance of actors, change can be viewed subjectively as either negative or positive. Furthermore, aside from viewing institutional change as deliberate, there are also views that emphasize its evolutionary nature or a combination of both. An impulse or catalyst towards improvement for either economic or social gain governs institutional change in firms (Nonaka, 2007; Poole & Van de Ven, 2004). The same can apply to planning. These impulses can occur due to advancements in technology (e.g., from horses to streetcars to trains and cars) or ideas (e.g., from garden cities to compact cities to the creative cities) manifesting in the institutions governing cities and regions. The focus should therefore be on impulses and mechanisms seeking to resolve problems, overcome barriers or right injustices through new rules for actors.

Learning

Learning is derived from experiences and memory. Memories of creating or evaluating plans are fundamental experiences for planning practitioners and agencies. Planning literature therefore draws parallels from the models of learning and knowledge creation (Bertolini, 2012; Straatemeier, Bertolini & te Brömmelstroem, 2010). In planning literature², learning can be defined as;

- **Creating/improving existing knowledge** implies a “shift in understanding” (May, 2009, p. 199) and “knowledge production” (Steele, 2011, p. 205) of policies, ideas, rules, practices and experiences through processes; undertaken by either individuals (actors, stakeholders, residents) or a collective (agencies, organisations) (Van Assche, Beunen, Duineveld & de Jong, 2013; Kim, 2011; Kaufmann, Jemelin, Pflieger & Pattaroni, 2008) and bounded by territory (neighbourhoods, cities and regions) or context (cultural and social) (Rye, Welsch, Plevnik & de Tommasi, 2011; Stead, de Jong & Reinholde, 2008; Neuman, 2007; Moulaert, Martinelli, González & Swyngedouw, 2007; Hassink & Lagendijk, 2001), and
- occurring through **existing/new social and knowledge networks** by sharing of experiences, “action and thought” (Bertolini, 2012, p. 22) and social innovation determined by capacity for knowledge (Bray, Taylor & Scrafton., 2011; González & Healey, 2005; Healey, 1996).
Policy transfer as “subject of transferring policy ideas, institutions, models and programs between national, regional and local authorities” (Stead et al., 2008, p. 65) is a subset of learning that has recently gained much attention within planning literature (Marsden & Stead, 2011; Dolowitz & Marsh, 1996). This is a practice recognizable in the development of TODS as well (Marsden, Frick, May & Deakin, 2011; Curtis et al., 2009; Cervero, 1998). For regions attempting TODS initially, lesson-drawing from within their own context would prove difficult, much less with policy transfer. Therefore, there is a need to focus on learning from elsewhere and in particular, cross-border learning (Dolowitz & Marsh, 2000; 1996).

Examples of knowledge transfer through adoption of programs and policies, organisations, legislation and financial incentives or even marketing strategies are prevalent between regions attempting TODS implementation through benchmarking against ‘best practices’ (Marsden et al., 2011; Reconnecting America, 2007; Timms, 2011). The conversion of tacit to explicit knowledge and vice versa in seeking and adopting ‘best practices’ across context-rich situations satisfies the basis of knowledge creation and improvement (Brannan, Durose, John & Wolman, 2008; te Brömmelstroet & Schrijnen, 2010; Marsden & May, 2006). Intensities of knowledge transfer are classified as inspiration, learning (adaptation of information from inspiration) and transplantation (Janssen-Jansen, Spaans & van der Veen, 2008).

New knowledge begins with the individual and permeates through the organisation, if adequate facilities are present (Nonaka, 1994). Like research and development and product testing cycles in organisations; planning as a design science, requires similar awareness of abilities and the presence of facilities enabling knowledge creation (Straatemeier et al., 2010). Tacit knowledge as experienced by planners, is bounded up in the individual’s actions and commitments, and imprinted by their cognition, beliefs and mental modes (Gunder & Hillier, 2004; Nonaka, 2007). However, the perception of value by individuals can at times overshadow absolute value (Wolman & Page, 2002). Given the subjective nature of cognitive capabilities and beliefs systems, the individual planner and their social networks within planning institutions cannot be overstated (Dembski, 2012).

Thus, learning is defined here as creating and/or improving knowledge through existing and/or new social and knowledge networks by both the collective and the individual.
Innovation

Innovation of institutions occurs in the process of rules changing to form a new arrangement within an existing context. This process is governed by “an action group as a decision making unit” (Davis & North, 1970, p. 4). Similar explicit definitions are harder to locate in planning literature, possibly due to the wide range of subjects covered from station area developments to property rights. In planning literature, institutional innovation can be defined as;

- **Deliberate and positive changes to improve an existing situation** (Buitelaar et al., 2007; Hull, 1996) by solving a problem (Morgan, 1997); “to change established patterns of social norms” (Dembski, 2012, p. 2) and pertaining to policy and strategies (Kaufmann et al., 2008), agencies and governance or individuals (Salet, 2008; Neuman, 2007; Moulaert et al., 2007),
- and **occurring through individual and collective action** “breaking through barriers” (Salet, 2008, p. 2345) **to achieve ‘new practices and meanings’** (Dembski & Salet, 2010, p. 613).

Parallels can be drawn between innovation processes in planning and that of firms. In both individual and organisational levels are fuelled by impulses to change (Poole & Van de Ven, 2004). The acquisition of new information and practices required for organisational innovation, as occurring through the process of learning, are also evident in planning processes which are motivated by a desire for positive changes in the urban and rural environments. Positive change is however a normative concept. Not all innovation, especially in planning practices, are viewed as equally desirable by the individuals involved due to differing interests and the changing of ideas over time (Salet et al., 2012). Room has to be made within planning institutions for the individual’s knowledge and mutual interaction between individuals as well as for collective action and social movements binding these (Buitelaar et al., 2007; González & Healey, 2005; Poole & Van de Ven, 2004).

Thus, institutional innovation is defined here as **deliberate and positive changes to improve an existing situation occurring through individual and collective action to achieve new practices and meanings.**
Synthesis

Learning and innovation emphasise the role of the collective and individual. Learning is essential to innovation, which can also stimulate learning resulting in institutional change (Dembski, 2012). The act of innovation cannot occur without learning, but learning does not necessarily result in innovation (see Figure 4.1). Similarly, change can result in learning. Therein lies the answer to the first research question on how, conceptually, learning facilitates innovation resulting in change. The crux of this relationship is rather on from whom, what or where learning originates (Dolowitz & Marsh, 1996). This is the focus of the second, more empirical, research question.

Figure 4.1: Model illustrating feedback loops between institutional change, learning and innovation.
For the second research question, definitions of learning and innovation collected above are used to identify patterns of learning (P1, 2) and markers of innovation (M1, 2) in the four cases:

- **Creating or improving knowledge leading to deliberate and positive change** (P1, M1): Deliberate and positive change (M1) results in and occurs through the creation or improvement of knowledge (P1). The recognition of an existing problem to be overcome is implied and necessary. As observed earlier on, notions of positive change and improvement of knowledge are subjective and thus dependent on the actor involved. In this paper, these are actors pursuing TODS implementation.

- **New/existing social and knowledge networks facilitating action towards new practices and meanings** (P2, M2): The ‘who’ and ‘where’ and ‘how’ you learn from (P2) is just as important as the ‘what’ you learn (M2). The social and knowledge networks (organisations, associations, lobby groups) are the channels through which knowledge is created and transmitted.

Similar conceptualizations as those above, based amongst others on the experiential learning cycle and SECI model of knowledge creation, are already used in planning literature and have longer history in other fields (Kolb & Fry, 1974; Nonaka, 1994). However, they lack a crucial aspect, that is the determination of the actual capability of individuals and organizations to learn and innovate. This capability is bounded by what in the case of firms has been defined as ‘absorptive capacity’ (Cohen & Levinthal, 1990). Absorptive capacity captures both learning and knowledge creation processes of the above-mentioned models and evaluates the ability to absorb new knowledge. Absorptive capacity is defined here as the ability of relevant stakeholders and organisations to ‘recognize’, ‘assimilate’ and ‘apply’ new information based on ‘prior knowledge’ (Cohen & Levinthal, 1990, page 128). For the last research question - to what extent absorptive capacity affects learning and innovation - the four cases will be analysed for the ability to recognise, assimilate and apply new knowledge based on prior knowledge.
The following theoretical framework is proposed and tested against the reconstruction of processes of learning and innovation in the four case studies (see Table 4.2);

- **Patterns of learning (P1, P2): Creation and/or improvement of knowledge** and transfer (tacit-explicit and vice versa) across boundaries and context by individuals and organisations (i.e., benchmarking against ‘best practices’) (P1) through new and/or existing social and knowledge networks, connections and organisations (i.e., committees, associations, knowledge institutions and lobby groups) (P2).

- **Markers of institutional innovation (M1, M2): A deliberate and positive change** in the form of policies, strategies, governance or other relevant formal and informal institutional transformation (M1). Acknowledgement of existing or prior issue, problem or barrier is implied. Also visible in the individual and collective action of social movements to establish new practices meanings (i.e., protests, social-cultural attitudes, events and trends) (M2).

Subsequently, the learning and innovation processes across all four cases will be evaluated for; their absorptive capacity (A1-4) in the ability to ‘recognize’ (A2), ‘assimilate’ (A3) and ‘apply’ (A4) new knowledge based on ‘prior knowledge’ (A1) (see Table 4.3). The method and protocol used for data collection and reconstruction of these processes of change in all four cases are shown next.

**CASE SELECTION AND METHODS**

Four metropolitan regions that have the highest chance of showing a shift towards a TODS conducive institutional context, from which to identify patterns of learning and markers of innovation, were eventually selected from a potential pool of 26 cases that featured in literature based on the following criteria;

- An explicit shift towards TODS implementation as evident in the proxy of transport modal shift from car-dominated to transit-oriented was observed for each case and,

- that cases experienced implementation barriers to TODS and have made explicit/implicit moves to overcome them through incentives such as policies, strategies and programs.

A recurring pattern of important stakeholder types taking the lead in implementations became apparent in these potential cases. The four ideal types were the planning authorities, transit agency (service), transport authorities (infrastructure) and private interests across all levels of scale.
(national, regional and local). Furthermore, the cases presented a mix of regulatory, permissive or incentive based planning. One case was selected per ideal type combination, each presenting a different mix of institutional means:

- **Perth, Australia (PMR):** A regional planning authority leads collaborating closely albeit hierarchically with the rest of the stakeholder types; mostly by means of a strategic planning framework of formal regulations.
- **Portland, US (PMA):** A regional planning authority leads together with the active presence of a transit agency and of lobby groups and citizen action groups; mostly by means of formal but creative planning instruments.
- **Vancouver, Canada (GVR):** An entrepreneurial transit agency leads in collaboration with private interests and with a smaller role for the planning authorities; it mostly employs formal and informal regulations.
- **Copenhagen, Denmark (CPH):** Regional and local planning authorities and some private interests lead; mostly by means of strategic planning visions.

Each region was visited for 4-6 weeks on average and the data collection protocol replicated. Simultaneous data collection was undertaken and included field trips of TOD projects and locations led by local experts, document analysis of past and present policies and relevant media information, and semi-open interviews with local experts (42 in total) on TODS for a historical reconstruction of the evolution of TODS. Interviewees were selected from to fulfil different combinations of scales (local, regional, provincial and national), types (public or private or others) and sectors (land use, transport or both) and were acknowledged as key figures of TOD either through their involvement with key policy documents, mentions in relevant literature or recommendations from peers. Those with more critical views were also included.

Experts were interviewed in a one-to-one setting whenever possible. The semi-structured interview was set around their background and professional experiences, barriers perceived and overcome, incentives used or perceived as most impactful, and if and why they perceived their region to be successful with TODS implementation. The information collected helped identify the patterns of learning and markers of innovation as shown in Table 4.2.
Table 4.2: Contribution of data to identification of markers of institutional innovation and patterns of learning.

<table>
<thead>
<tr>
<th><strong>Patterns of learning</strong></th>
<th><strong>Markers of institutional innovation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(P1) Creation/improvement of knowledge (Benchmarking)</td>
<td>(M1) Deliberate and positive change</td>
</tr>
<tr>
<td>(P2) New/existing social and knowledge networks</td>
<td>(M2) Individual and collective action towards new practices and meanings</td>
</tr>
</tbody>
</table>

- **Context (data/document analysis)**
  - Document analysis of past policies and official documents for contributors, writers and key individuals.
- **Timeline (chronological reconstruction)**
  - Trace development of organisations, lobby groups and any relevant networks.
- **Interview(Questions asked, information supplied in answers)**
  - Was this solution/incentive new? How was it decided on? Do you think your region is successful? (Experts-mentioned projects and regions, sometimes international)
  - What is your background/experience with TOD? (Experts-mentioned colleagues, lobby groups, alliances, associations with TODS projects)
  - Did you recognise/experienced these barriers? What was the most significant incentive use to overcome them? Was this solution/incentive new? How was it decided on? How did TODS happen?

Next, the absorptive capacity of each case was evaluated based on the proposed theoretical framework above (see Table 4.3). Collective absorptive capacity refers to the group or organisation’s ability to absorb and apply new knowledge while individual absorptive capacity refers to individual experiences and receptiveness towards new knowledge. Individual absorptive capacity contributes to the collective’s and vice versa.
Table 4.3: Evaluation criteria of absorptive capacity (collective and individual)

<table>
<thead>
<tr>
<th></th>
<th>Collective</th>
<th>Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(A1) Prior knowledge</strong></td>
<td>• Was there acknowledgement and agreement of an issue to be resolved?</td>
<td>• Was there acknowledgement of an issue to be resolved?</td>
</tr>
<tr>
<td></td>
<td>• Was there dissemination of information within the organisations/collective form (from within/without the region)?</td>
<td>• Did the background/career experiences of experts involve other cities/regions or TODS?</td>
</tr>
<tr>
<td><strong>(A2) Recognition</strong></td>
<td>• Was there enthusiasm/willingness to seek new information on TODS?</td>
<td>• Were they actively seeking (new) information about TOD elsewhere? Did they mention memory/experience of TOD elsewhere?</td>
</tr>
<tr>
<td></td>
<td>• Were they seeking to improve versions of what has been achieved (from elsewhere)?</td>
<td>• Were they reflective on the TODS attempts made/experienced?</td>
</tr>
<tr>
<td><strong>(A3) Assimilation</strong></td>
<td>• Were there attempts to improve upon concepts from elsewhere/create context appropriate versions of TOD concepts?</td>
<td>• Did they display reflexivity and acknowledgement of current/past attempts?</td>
</tr>
<tr>
<td></td>
<td>• Did they indicate knowledge of failures in region and attempts to improve?</td>
<td>• Did they indicate knowledge of failures in region and attempts to improve?</td>
</tr>
<tr>
<td><strong>(A4) Application</strong></td>
<td>• Are there projects (pilots) or organisational set-ups experimented on or implemented?</td>
<td>• Do they apply the knowledge (new/improved) to their daily practice? Is there knowledge exchange between individuals?</td>
</tr>
</tbody>
</table>

Given that cases with an observable shift toward a TODS conducive institutional context are chosen, the identification of patterns of learning and markers of innovation as well as of absorptive capacity are expected to produce highly similar results. Therefore the focus of the analysis is to draw commonalities from this identification.
IDENTIFICATION AND ANALYSIS

The theoretical framework synthesising learning and innovation, and subsequent methods of identification and analysis are tested against and replicated for four cases. Patterns and markers are identified in planning practices for all cases. For the sake of brevity, the cases will not be descriptively introduced. Instead, the cases will be analysed for similarities and differences in their patterns of learning (P1, P2) and markers of innovation (M1, M2) (see Table 4.4).

Patterns of learning

Knowledge is generated through either introduction of paradigm shifting planning strategies, improvement of existing policies, experimentation with implementation or benchmarking against other cities or regions. The existence and creation of social and knowledge networks strengthens this. The relationship between practice, academia and politics and the presence of key individuals and organisations are crucial. These are discussed in detail below.

Creation/improvement of existing knowledge (P1)
The surfacing of new planning concepts, plans and policy documents spurring TODs implementation is seen in all cases. New concepts manifest as legislation or physical projects, which were then reflected on and improved upon. Benchmarking against other regions, is also observed in policy documents, plans and mentioned by practitioners (see Table 4.4).

- All cases demonstrated commitment to planning strategies by repeating and refining them through numerous iterations. PMR stalled after the Stephenson-Hepburn Plan, but caught up with the Network City plan, followed by the Perth 2030 strategy seeking to redress shortcomings of previous plans. PMA have less policy continuation, but make up with a strong TOD program and history of implementation on a regional level. GVR conducts Urban Future Surveys consistently, that contributes to policies that form the Livable Region Strategic Plans (LRSP) and subsequent version, the Regional Growth Strategy (RGS). CPH is exemplary in consistently improving on the Finger Plan by tightening regulations across six decades specifically as improvements to their proximity-to-station rule.
• New knowledge are evidently introduced and embraced in all cases. The influence of New Urbanism, TOD and place-making in PMR is evident in the types of TOD projects produced, the experimentation with private developers in joint ventures and the revisions to Development Control Policy (DCP) 1.6 (Ainsworth, 2005; Curtis, 2012). Light rail was embraced in the PMA that also innovated with complementary urban projects (e.g, the Pearl District and the more recent South Waterfront) (Arrington, 2009). The ‘livable’ region and sustainability narrative featured in GVR together with other innovations (e.g, the Vancouver Model, ‘complete streets’ and Transit-Oriented Communities) (TransLink, 2012). The ‘Vancouver Model’ of balancing high density with quality urban space has even spread to Asia and the Middle East (Boddy, 2004). Despite CPH’s established planning tradition, new concepts such as tax increment financing (TIF) were also experimented with for the Ørestad development (Knowles, 2012).

• Benchmarking against ‘best practices’ was seen in all regions, indicating reflection on own attempts and aspiration towards new knowledge by practitioners and policy makers. Experts in all cases mentioned regions they looked up to. PMR benchmarks against European examples for urban quality and transit ridership, while looking to the US for planning and finance strategies and public outreach lessons. PMA looks to European examples and Vancouver in particular but considers itself as the best within the US. GVR looks equally to Europe and Asia while being highly aware of PMA’s activities. CPH looks to its European peers.

New/existing social and knowledge networks, connections and organisations (P2)
Knowledge transfer by individuals and the collective through networks determining patterns of learning are observed. A strong and evolving relationship between practitioners, academic and politicians, either through key individuals or organisations, are observed (see Table 4.4).

• In all cases, there are strong relationships between practitioners, academics and politicians. These three parties in PMR are not isolated. Practitioners often contribute to academic research and academics serve in planning commissions. Politicians are either academics or closely influenced by them (Hartz-Karp, 2005). The same is observed in GVR, where key figures take on simultaneous roles as practitioner, politician and academic (Price, 2012). A close-knit community of practitioners in PMA serve actively in lobby groups or neighbourhood associations. Experts also tend to socialise with each other frequently (Thompson, 2007; Suutari, 2007).
Table 4.4: Summary of markers of patterns of learning and institutional innovation in Pursuing Transit-Oriented Development

<table>
<thead>
<tr>
<th>Patterns of Learning (P1, P2)</th>
<th>Perth Metropolitan Region</th>
<th>Portland Metropolitan Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>(P1) Creating and improving existing knowledge developing new concepts and instruments, experimenting, benchmarking</td>
<td>• Stephenson-Hepburn Plan (1955), Metropolitan Plan (1990), Network City (2004), Perth 2030 (2010).</td>
<td>• The 2040 Growth Concept (late 80s), the TOD program (2008) collaborating with Reconnecting America.</td>
</tr>
<tr>
<td></td>
<td>• Revisions to the Development Control Policy (DCP) 1.6.</td>
<td>• Revision/updates to the TPR.</td>
</tr>
<tr>
<td></td>
<td>• New Urbanism, TOD and place-making concepts via Copenhagen.</td>
<td>• Plan for MAX light rail lines improvement and extension.</td>
</tr>
<tr>
<td></td>
<td>• Experimenting on PPP forms with pilot TOD projects on Southern Corridor/ Mandurah.</td>
<td>• Experiments with Pearl District and South Waterfront on social housing types and PPPs.</td>
</tr>
<tr>
<td></td>
<td>• Benchmarks: Europe (London, Zurich Munich, Amsterd am, Copenhagen), US (Portland, Boston-Washington Corridor, San Francisco)</td>
<td>• Benchmarks: Europe (Copenhagen, Munich, Stockholm), but recognise PMA as best within US context, Vancouver.</td>
</tr>
<tr>
<td>(P2) Existing/new social and learning networks and organisations</td>
<td>• Most planners have work experience in the UK (a few years).</td>
<td>• Most experts have occupied each other positions or similar positions elsewhere in their professional experience.</td>
</tr>
<tr>
<td></td>
<td>• Some experts were highly familiar with US TOD examples and have visited/researched them.</td>
<td>• All experts have participated in TOD knowledge community in conferences/ research.</td>
</tr>
<tr>
<td></td>
<td>• Many practitioners are students/ex-colleagues of prominent professors currently in practice.</td>
<td>• Some experts socialise with each other on a frequent basis and/or are personally related.</td>
</tr>
<tr>
<td></td>
<td>• Academics are also active advising and serving on the state planning commission.</td>
<td>• Key learning networks: Neighbourhood associations, 1000 Friends, Cycling association, TOD program, Reconnecting America, CTOD, regular lunch meetings.</td>
</tr>
<tr>
<td></td>
<td>• Key learning networks: PATREC, TOD committee, Curtin/CUSP, Friends of Fremantle, AECOM.</td>
<td>• Most mentioned intellectual or political leaders: Neil Goldschmidt, Earl Blumenauer, Charlie Hales, Shelley Poticha.</td>
</tr>
<tr>
<td></td>
<td>• Most mentioned intellectual or political leaders: Carey Curtis, Peter Newman, Alannah MacTiernan</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Markers of institutional innovation (M1, M2)</th>
<th>Perth Metropolitan Region</th>
<th>Portland Metropolitan Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>(M1) Deliberate and positive change</td>
<td>1995: Subi-centro, first TOD in Perth as urban revitalisation implemented by a Redevelopment Authority.</td>
<td>early 70s: First Urban Growth Boundary (UGB) co-ordinated at regional level to protect open space.</td>
</tr>
<tr>
<td></td>
<td>2001: Joining up of the previously separated ministerial portfolios of Planning and Infrastructure, also setting up of a cross-organisational TOD committee.</td>
<td>mid 70s: First to use federal funds (freeways) to fund and implement transit improvements such as MAX light rail and downtown streetcar mall.</td>
</tr>
<tr>
<td></td>
<td>2004: Network City plan introduced TOD concepts into metropolitan planning with land use and transport integration. Resulted in experimentation of pilot TOD projects along the new Mandurah Line.</td>
<td>1978-9: First elected regional government/ Metropolitan Planning Organisation (Metro) that took care of both road, transit and land use planning. Land use-transport plan visioning for 2040.</td>
</tr>
<tr>
<td></td>
<td>2006: DCP 1.6 to support TOD with densities/mix of functions.</td>
<td>1990 - now: Transportation Planning Rule requires all counties to justify the mobility impacts of plans and priority for pedestrian modes.</td>
</tr>
<tr>
<td>(M2) Individual/collective action towards new practices and meanings</td>
<td>1970s - Protest on removal of Fremantle railways, practitioners as political actors.</td>
<td>1970s: Governor Tom McCall pushes for clean up of river. Neighbourhood associations (NA) supported access to waterfront and improvement to urban quality. Mayor Neil Goldschmidt was instrumental in nurturing these NA which later became influential lobby groups.</td>
</tr>
<tr>
<td></td>
<td>2002 - 3: Dialogue for the city held as unique year long public consultation process to formulate regional plan for a sustainable urban future. This event utilised all media forms and is based on collaborative action stemming from the 9/11 aftermath process.</td>
<td>mid 70s: Protest against Mt. Hood Freeway/505 result in stopping of freeway plans and eventually removal to become Harbor Drive/Tom MacCall Waterfront Park.</td>
</tr>
<tr>
<td></td>
<td>2005: TOD Conference in Perth that broaden international and local knowledge exchange over TOD.</td>
<td>mid 70s - 80s: Political action (local, regional) to pass statewide land use planning bill and (national) to divert freeway funds for transit instead.</td>
</tr>
<tr>
<td></td>
<td>2002- now: Experimentation with differing forms of TOD collaborations, joint ventures and alliances.</td>
<td></td>
</tr>
</tbody>
</table>
PMR, PMA, GVR and CPH.

<table>
<thead>
<tr>
<th>Greater Vancouver Region</th>
<th>Greater Copenhagen Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>The planning concepts range from livable region (70s to now), to complete streets (90s) and transit-oriented communities (2011).</td>
<td>mid 90s: In reaction to economic crisis, Ørestad development was built using TOD principles and adopting US examples on Tax Increment Financing (TIF).</td>
</tr>
<tr>
<td>Benchmarks: Europe (Munich, Zurich, London), Asia (Hong Kong, Tokyo), US (Portland)</td>
<td></td>
</tr>
<tr>
<td>Most experts refer to the LRSP as an important starting point. They also refer to the key individuals responsible for those plans. Key individuals are still active in practice as well as politics.</td>
<td>Most experts refer to the Finger Plan as an ideal concept. It has become a guiding principle instead of a plan.</td>
</tr>
<tr>
<td>The sustainability movement is very present in various meetings, organisations and lobby groups. Key learning networks: TransLink and GVRD.</td>
<td>Practitioner and academics maintain close contact and stakeholders sometimes occupy both roles.</td>
</tr>
<tr>
<td>Key learning networks: Aalborg University, ByPlanlab, RealDania, By og Havn, NordRegion.</td>
<td>Key learning networks: TransLink and GVRD; Mike Harcourt, Gordon Price, Ken Cameron, Clive Rock.</td>
</tr>
<tr>
<td>Most mentioned intellectual or political leaders: Tom Nielsen, Peter Hartoft-Nielsen, Sven Illeris.</td>
<td></td>
</tr>
<tr>
<td>Most mentioned intellectual or political leaders; Mike Harcourt, Gordon Price, Ken Cameron, Clive Rock.</td>
<td></td>
</tr>
<tr>
<td>1966-67: Creation of Greater Vancouver Regional District (GVRD) and first regional plan.</td>
<td>1947: Finger Plan introduced concentration of urban development along transit nodes.</td>
</tr>
<tr>
<td>1973-5: LRSP for regional livability and protect open space.</td>
<td>1973: Enforcement of some of the original plan’s guidelines.</td>
</tr>
<tr>
<td>1982 - now: SkyTrain transit system introduced during the World Expo 86. Extended repeatedly since. Most recently with Canada Line in 2010.</td>
<td>1996: All new development must be within 1km of transit node.</td>
</tr>
<tr>
<td>1970s - now: Facilitating False Creek development by Asian developer.</td>
<td>1992 - now: Ørestad Development, deliberate TOD along new metro line that would join Copenhagen central, with Malmo, Sweden through the Øresund bridge. Utilised development arm of city and state, Ørestad Development Corp. and experimented with TIF to fund infrastructure.</td>
</tr>
<tr>
<td>2011: Regional growth strategy (RGS), Metro Vancouver 2040 with Frequent Transit Development Area and network of urban centres.</td>
<td>2007: Revised Finger Plan to enforce development contours.</td>
</tr>
<tr>
<td>1960s - 70s: Peace and anti-nuclear protest resulting in Greenpeace. Start of sustainability movement.</td>
<td>1947: Some planners from a consultancy got together to formulate a regional plan that would become the Finger Plan based on ideas that have been bouncing around since 1935 as a reaction to green belt planning in the UK.</td>
</tr>
<tr>
<td>1970s - 90s: Protest against viaducts of Trans-Canada Highway. Despite protest, subsequent plans were introduced but eventually opposed.</td>
<td>1970s: Protest against freeways into urban fabric. Protest worked but state still kept proposing new freeway-oriented plans.</td>
</tr>
<tr>
<td>1970s - now: The concept of livable region set against the backdrop of political and environmental activism.</td>
<td>late 70s - 80s: Public protest against the removal of bicycle lanes in the city.</td>
</tr>
<tr>
<td>2002: Metro Vancouver pledged sustainability in all plans and operations.</td>
<td>90s - now: Cycling culture in Copenhagen as a social movements as well as commodity exported to other cities and regions.</td>
</tr>
<tr>
<td>2007: Restructuring of TransLink sees a real estate arm focusing on TOD as part of revenue source.</td>
<td></td>
</tr>
</tbody>
</table>
These networks of learning are evident in all cases. Experts would mention key organisations and individuals that were instrumental to TODS implementation. These were professional organisations, major universities and consultancies in PMR. Key figures such as the ex-minister of Department of Planning and Infrastructure (DPI) Alannah MacTiernan, Professors Curtis and Newman were also frequently mentioned. Politicians feature heavily in PMA (i.e. the Gov. McCall, Mayor Goldschmidt and Sen. Blumenauer). Experts in GVR name experienced practitioners such as Ken Cameron, Clive Rock and Gordon Price. CPH was less vocal on key individuals but mentioned organisations such as RealDania, a non-profit dealing with sustainable urban development and the ByPlanlab, a planning think-tank, as being important.

**Markers of innovation**

Markers of innovation are clear in all cases. Strategies for improved mobility and urban development patterns in response to planning urgencies are observed. Innovations include change in organisational and governance structures, and institutionalisation of TOD concepts in legislation and planning policies that lead to new or changed practices. Collective and individual actions leading towards new practices and meanings were present in all cases. New or changed attitudes manifesting as public dialogue or political and cultural movements and protests are some of the markers observed.

*Deliberate and positive change (M1)*

Similarities are found in deliberate and positive institutional change towards TODS implementation through innovations in all cases. These markers take the form of plans, policies, programs and strategies seeking a certain planning direction in recognition of an existing problem or an urgency to be resolved (see Table 4.4).

- Urgencies in all cases resulted from economic and/or population growth requiring a regional growth management to either combat sprawl or reduce undesirable mobility patterns. Examples are PMR’s Network City strategy to pursue land use and transport integration, PMA’s Metro 2040 Growth plan, GVR’s LRSP to manage growth while pursuing livability and the CPH’s Finger Plan concentrating development along existing transit infrastructure (Hutton, 2011; Curtis, 2006; Caspersen et al., 2006; Metro Oregon, 1994). The PMA, GVR and CPH share urgencies to protect natural landscapes, agricultural ground or preserve open space in their strategies (Adler, 2012; Caspersen et al., 2006; Knowles, 2012).
Increased attention towards public transport or implementation of transit infrastructure and networks were manifested. PMR, PMA and GVR innovated by introducing new transit infrastructure such as the Mandurah Line (situated in a median freeway, previously thought unrealisable), the MAX light-rail system and the SkyTrain system respectively contributing to TODS implementation by encouraging alternative modes to counter car-dominated mobility patterns (TransLink, 2011; TriMet, 2011; Curtis, 2012). CPH reinforced existing suburban rail (S-tog) commuting patterns and development concentrated around transit nodes. The S-tog network was eventually electrified and expanded with the metro network as part of the Ørestad development (Knowles, 2012).

Some cases experienced deliberate organisational or governance innovation. PMR used the Redevelopment Authority Act to speed up urban regeneration including its first TOD in Subiaco. The joining-up of previously isolated ministerial portfolio of Planning and Infrastructure under one minister who then instituted a TOD committee collaborating across various agencies (Curtis, 2012). PMA has the first elected metropolitan planning organisation, Metro, coordinating the first regional Urban Growth Boundary (UGB) in the US (Jun, 2008; Seltzer, 2004). In GVR and CPH however, regional governance has been formed and restructured several times. GVR saw the creation of the Greater Vancouver Regional District (GVRD), now Metro Vancouver; while CPH saw its regional authority eventually disbanded and planning left to development corporations formed by state and local agencies (Knowles, 2012; Hutton, 1998).

Institutionalisation of TOD concepts through improving or enforcing planning regulations benefitting implementation was observed in most cases. PMR has the DCP 1.6 regulating development densities around station areas (WAPC, 2006), PMA has recently improved the Transportation Planning Rule (TPR) from Oregon Department of Transportation (DOT) monitoring mobility impacts in plans (Lowry & Abbott, 2010) and CPH has been enforcing its Finger Plan principles in its planning documents since 1973, and more recently in 2007 (Knowles, 2012; Fertner et al., 2011).
Individual and collective action towards new practices and meanings (M2)

Public protests against planning decisions occurred in all cases indicating collective action against standard practices and formation of new meanings. The reverse is also true. Innovations in planning processes through individual and collective action have also shaped and formed new public visions for regional strategies and funding opportunities (see Table 4.4).

- In all cases there have been protests against highways and destruction of the urban fabric due to a desire for an alternative to a car-dominated paradigm (Goodyear, 2012; Newman, 2011; Thompson, 2007; MacKenzie, 1985). Political actors in PMR protests eventually became key practitioners pushing for TODS implementation. PMA witnessed the birth of a strong civic presence in planning matters, due in part to support from key political figures (Suutari, 2007). A strong base of activism supporting sustainability in GVR help guide the region’s quest for livability and sustainability (Hutton, 2011). Protests against bicycle lane removal for highways in CPH, although indirectly related to TOD, indicates increased
importance of the bicycle culture for the public in part shifting away from car-dominance (Ruby, 2013). New practices and meanings resulting from protests led to innovations in policy and practice and vice versa.

- Innovations in planning processes triggered by changing societal attitudes were also observed. PMR’s “Dialogue for the City” year-long public consultation to form new meanings collectively on future regional growth strategy led to key planning documents and policies supportive of TOD (Hartz-Karp, 2005). The political support by the minister during those years shaped practice with experimentation and collaborations with private developers on pilot TOD projects (Ainsworth, 2005). Political action on a national level to persuade the usage of federal highway funds towards transit was one of the innovations in PMA (Thompson, 2006). The sustainability narrative in GVR has grown stronger since the 1970s, with the region pledging to focus on sustainability in plans, requiring constituents to justify how they fulfil this focus in the RGS (Metro Vancouver, 2010).
Based on the above patterns and markers, the cases are evaluated for their collective and individual absorptive capacity as shown in Table 4.5.

Table 4.5: Analysis of absorptive capacity across all four cases

<table>
<thead>
<tr>
<th>Absorptive capacity</th>
<th>Perth Metropolitan Region</th>
<th>Portland Metropolitan Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A1) Prior knowl-edge (acknowledge-ment of issues, shared information)</td>
<td>Yes. Plans recognise need to tackle growing sprawl and suburbanisation since mid 50s. Renewed focus in early 2000s in period of economic and population growth. Most practitioners have had experience planning for TOD in PMR or other regions.</td>
<td>Yes. There was growing urgency regarding quality of urban space (downtown), need to conserve and protect natural landscapes and agricultural space. Experts were well versed in the history of TOD in cities, at times highly critical of ‘failures’.</td>
</tr>
<tr>
<td>(A2) Recognition</td>
<td>Benchmarking against mostly US-centric examples, with new urbanism, TOD as future regional choice, use of Redevelopment Authorities. Later recognition on need to develop own types of TODS.</td>
<td>An early adopter of new policies and infrastructure. Inspired by European cities for quality urban space. Recognised national debate on freeway revolts and cooperated with New York to change federal funding laws.</td>
</tr>
<tr>
<td>(A3) Assimilation</td>
<td>Adopted TOD but more as commuter corridor with dormitory town-nodes with more park &amp; ride facilities. PMR redefined density-mix norms for their own context.</td>
<td>Existing policies and regulations (state and national levels) modified to provide the end goals (nature, compact city, transit and walking modes).</td>
</tr>
<tr>
<td>(A4) Application</td>
<td>Southern Corridor/Mandurah, Subiaco, Cockburn Central, Murdoch, Stirling City</td>
<td>MAX lines, Pearl District, Lloyd District, Orenco, South Waterfront, Beaverton, Amber Glen.</td>
</tr>
<tr>
<td>Area</td>
<td>Greater Vancouver Region</td>
<td>Greater Copenhagen Region</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Absorptive capacity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(A1) Prior knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Yes. Although the city is largely based on streetcar neighbourhoods from before the turn of the century, economic and population growth in the 60s led to car mobility being dominant and undesired commuting patterns.</td>
<td></td>
<td>Not at first, the initial strategies were positioned as a conceptual answer to planning debates at that time. Later when dealing with economic growth and car dominance, there was a return to the Finger plan. Likewise in the 90s with the economic decline in the cities.</td>
</tr>
<tr>
<td>(A2) Recognition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Acknowledgement of need for sustainability in region, partly through international and local movements. Later quicker to recognise new transit systems (SkyTrain) or Asian type of high-rise developments/densities.</td>
<td></td>
<td>Observing the formation of settlements along infrastructure lines the plans were a recognition of existing condition programmed to an ideal form. Ørestad: use of TIF to fund infrastructure line and urban regeneration efforts in UK and US.</td>
</tr>
<tr>
<td>(A3) Assimilation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trial of completely new transit system and opening up of parcel development along south waterfront with Asian developers.</td>
<td></td>
<td>Converted the ring belt form to finger/nodal form with rapid transit. Assimilated earlier concepts for their own Finger Plan.</td>
</tr>
<tr>
<td>(A4) Application</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Southern Corridor/Mandurah, Subiaco, Cockburn Central, Murdoch, Stirling City</td>
<td></td>
<td>Canada Line, Surrey Central, Burnaby, Commercial-Broadway, MetroTown, Collingwood, New Westminster, Marine Drive.</td>
</tr>
<tr>
<td>• MAX lines, Pearl District, Lloyd District, Orenco, South Waterfront, Beaverton, Amber Glen.</td>
<td></td>
<td>Applied dogmatically but not enforced legally until after 1973. Valby, Albertslund, Ørestad (metro), Light-rail alliance.</td>
</tr>
</tbody>
</table>
• Prior knowledge (A1): All cases presented recognition, acknowledgement and eventual agreement across sectors and organisations about the urgencies that needed resolving. This process can be lengthy especially if sectoral separation between transport and land use planning is strong as in the case of PMR, GVR and CPH; where plans sometimes detrimental to TODS implementation would still be proposed despite public protest. Many practitioners exhibit memory and experience of TODS from foreign contexts, having either practiced there or conscientiously following developments elsewhere.

• Recognition (A2): Active curiosity towards other contexts is demonstrated. Experts are well-informed on both better and lesser examples from other regions through their knowledge networks and periodic benchmarking, and use this information to critically reflect on the perceived ‘success’ (or lack thereof) of their region. Organisations such as planning agencies rarely evaluate TODS implementation relying instead on this critical reflection from academics or consultants. This process of reflection is not static; all cases present constant reflection even though solutions are established.

• Assimilation (A3): All cases are quick to adopt strategies and infrastructure from other contexts, while at the same time adapting, if not ‘reinventing’, them to fit the specificities of the local context. PMA assimilated transit infrastructure concepts from elsewhere, but redefined the field of TOD and broke new ground in regional land-use and transport coordination in the US. GVR graduated from urban pattern determined by streetcar neighbourhoods to urban quality improvement with their Vancouver Model and adoption of Asian-style densities. CPH is the earliest, using a captivating image of a hand in reaction to planning concept debates elsewhere as a comprehensive land use and transport strategy.

• Application (A4): All cases were chosen for their TODS implementation. All involved some form of new or improved transit infrastructure increasing frequency and regional land use planning strategies prioritising transit and polycentric urban centres. The cases presented many TOD projects well known to and frequently mentioned (positively and/or negatively) by practitioners and academics alike.
DISCUSSIONS AND NEXT STEPS

This paper aimed to identify patterns of learning and markers of innovation, and assess absorptive capacity leading to institutional change with a focus on TODS implementation. A theoretical framework was developed and tested on four cases. No significant deviations were found, which was expected due to the selection of cases showing explicit TODS implementation. Two knowledge gaps, namely the lack of explicit definition on the linkages between institutional change, learning and innovation and their abstract usage not grounded in practice; have been addressed.

Despite diverse usage of learning and innovation in relation to institutional change in planning literature, similarities in what they pertain to and how they occur are observed. The individual and collective actions towards deliberate and positive changes occurring through new practices and meanings facilitated by creation and/or improvement of knowledge through existing and/or new social and knowledge networks epitomises the role of learning and innovation in the process of institutional change.

By grounding the theoretical discussions in empirical data, institutional change is observed as intricately linked to learning and innovation as both cause and effect (see Figure 4.1). The processes in the cases do not constitute singular attempts at a certain moment but are iterative. The cases learn from innovations resulting in change and vice versa over time. Experiencing and critically reflecting on previous innovations inform current and future learning process. The feedback loop of learning and innovation goes beyond the individual and is enhanced at the collective level. Processes of learning and innovation are never linear, a positive step forward can be easily negated, slowing the progress of implementation. By confirming this theoretical framework in regions with explicit TODS implementation, exemplifying patterns and markers of learning and innovation were found.

Common patterns of learning are observed across the four cases. The creation and improvement of knowledge is evident as new concepts (sustainability, TOD, land use and transport integration) manifesting in the making and updating of plans and policies towards implementation through legislation and projects. Organisations and individuals benchmarked against other regions. The relationship between practitioners, academics and politicians is intensive and continuously evolving in all cases. The presence of social and knowledge networks at individual and collective levels facilitated knowledge transfer as both product and process of learning.

All cases had plans and strategies seeking to resolve an existing issue
through deliberate and positive change in a direction different from existing planning paradigms. Individual and collective action towards new practices and meanings actualised as public protests and political dialogue. Markers of innovations are evident as transportation funding and land use planning legislations that are reshaped by changing societal attitudes and trends.

The cases confirmed that ability to recognise, assimilate and apply new knowledge based on prior knowledge is crucial for planning practice at both collective and individual levels. Without this, learning or innovation are but empty gestures as the what and how learned and translated into innovations would not be well suited to the context and issues at hand.

Acknowledgement and conscious reflection on shortcomings and urgencies occurred in all cases, albeit through a lengthy and convoluted process at times. Depending on the case, the issue could be sectoral separation or lack of political support. Prior knowledge feeds directly into the ability to recognise potential in whom, what and where to learn from, be they peers or inspiration from elsewhere. Prior knowledge seems therefore fundamental to learning and institutional innovation. Curiosity was present in all cases at both individual and collective levels. Planning agencies and practitioners were actively seeking information about other regions. Reflection at both levels helped determine which ‘best practices’ were appropriate for benchmarking and learning.

Planning is highly context-dependent and TODS implementation is not different. Social-cultural factors determine a great deal of the political and thus planning dialogue (Alexander, 2001). Assimilation is therefore a good litmus test of the region’s ability to reflect and select appropriate knowledge for transfer for its own context. The ‘copy-paste’ approach of many policy transfer attempts would not suffice here (Marsden & Stead, 2011). All cases showed that they were able to adopt and most importantly, translate appropriate knowledge. The success of assimilation then is observed in the plans and policies made and implemented.

Given that only cases exhibiting explicit shift yet differing in institutional arrangements are chosen, it is unsurprising that much commonalities were found across the cases as patterns and markers, and absorptive capacity. These commonalities can be seen as a useful reference for other regions desiring TODS implementation and are further reflected upon for planners and policy makers next.
Link between academia and practice

During identification and analysis of these patterns and markers, the importance of the linkage between practice and academia cannot be underestimated (Bertolini, 2012; Straatemeier et al., 2010). The close relationships and mutual learning processes between those arenas show key in ensuring TODS implementation. The linkage facilitates access to information and tacit-explicit-tacit knowledge transference. Politicians, academics and practitioners were not mutually exclusive in most cases. There is consistency in language and vocabulary used per region. There is evidence of individuals practicing within the regions in different sectors and organisations throughout their career, thereby increasing familiarity with each other’s motivations and work scope. Experts might not all agree on their region’s success but understand another’s point of view. However, these relationships and networks can take decades to build and appear a vulnerable eco-system to maintain. Their presence seems key for region’s seeking TODS implementation. The sharing and transmission of knowledge is crucial, and transparency and access to knowledge from policy makers, practitioners and academics require facilitation. A knowledge community of politicians, practitioners and academics, in either a formal or informal setting, seems highly recommended.

Consistency of beliefs, perspectives and experiences

Similarly, shared beliefs and visions appear crucial. PMR, PMA, GVR and CPH are good examples where the narratives included use of recognisable problems (sprawl, infringement into green/agricultural space) to be defeated and rallied against. This political aspect cannot be underestimated. Academics and practitioners need to be well poised to influence political dialogue either through activism or rallying public support through better communication.

Successful planning strategies live and die on political and public opinion (Alexander, 2001). Building up social and knowledge networks complement this, and all cases do not neglect the informal institutions of shaping public norms and beliefs. Lobby groups and neighbourhood association are good examples of the platforms needed between planning agencies and the public. A key feature of these cases is a good record of TOD narratives in plans or policies that are widespread, accessible and consistent.

Openness and willingness to learn
All cases demonstrate a commitment and receptivity towards new knowledge at both individual and collective levels, without which the processes of learning and innovation cannot begin. Absorptive capacity is dependent on openness to new information. Self-evaluation, reflexivity and humility towards new and possible sources of knowledge are required. None of the regions rested on their laurels and continued looking elsewhere and benchmarking. Policy makers and planners in less successful regions need to examine their collective sense of curiosity and facilitate exploration of new knowledge. Planning is a long-term endeavour and strategic visions of quality rarely fit the length of a financial year nor are its social goals easily quantifiable in monetary terms. The current neoliberal planning practice model requiring precise time and personnel cost justification can encumber attempts to learn (Bertolini, 2012). A balance is needed between fulfilling day-to-day planning tasks with that of reflection and exploring new knowledge.

To conclude, the limits of the research reported here above have to be acknowledged. The method of identification and analysis adopted requires vast amounts of specific information. The case selection and data collection
Transit-Oriented Development along Ørestad Boulevard, Ørestad, Copenhagen, Denmark

processes for all cases seem complex but ensures that information is internally and externally validated. Some clear commonalities were found across the cases that are the first steps towards emulation for other regions desiring TODS implementation outcomes, as discussed above. However, in order to make the claims advanced more robust, in future research, the same theoretical framework and method of analysis should be applied to cases where no change towards a TODS conducive institutional context has occurred. This is the necessary next step in testing if the commonalities found above are indeed sufficient or necessary conditions, and if learning and innovation are absent in cases where no institutional change is observed.


Urban Studies, 45(11), 2343–2363. doi:10.1177/0042098008095871


NOTES

1 A reference list will be provided upon request as not all sources are cited here in this paper for the sake of brevity. The list comprises of the authors from the sources mentioned in the following notes.

2 107 articles fulfilled the search terms of “learning” and “planning”. Key journals of planning literature found: dISP, European Planning Studies, International Planning Studies, Environment and Planning series, Journal of Planning Education and Research, Journal of American Planning Association, Planning Practice and Research, Planning Theory, Planning Theory and Practice, Regional Studies, Transport Policy, Transportation and Urban Studies. Out of which 67 articles catered to learning (defining, describing, explaining, prescribing), at a rate ranging from 1 - 233 times per article. Only 3 of the 67 gave an explicit definition. Not all analyzed literature is cited here, a full list is available upon request.

3 75 articles fulfilled the search terms of “institutional innovation” and “planning”. Key journals of planning literature found: Built Environment, dISP, European Planning Studies, International Planning Studies, Environment and Planning series, Journal of Planning Education and Research, Journal of American Planning Association, Planning Practice and Research, Planning Theory, Planning Theory and Practice, Regional Studies, Transport Policy and Urban Studies. These articles mentioned institutional innovation 1 - 36 times per article. Only 1 of the 33 gave a somewhat more explicit definition (Dembski, 2010). Not all analyzed literature is cited here, a full list is available upon request.

4 It is used ostensibly for research and development in firms, but could be used to measure individuals and organisations in planning processes as both are equally important (Cohen & Levinthal, 1990, p. 131).

5 Full case reports can be provided by author upon request and will eventually be available on the project website (www.niciskei.wordpress.com).
Platform 14b, Amsterdam Central Station, Amsterdam, The Netherlands
EPILOGUE

Newly completed Arnhem Central Station, referred lovingly by official guides for the station redevelopment project as ‘the rail cathedral’, Arnhem, The Netherlands
“Planners, architects of city design, and those they have led along with them in their beliefs are not consciously disdainful of the importance of knowing how things work. On the contrary, they have gone to great pains to learn what saints and sages of modern orthodox planning have said about how cities ought to work and what ought to be good for people and business in them. They take this with such devotion that when contradictory reality intrudes, threatening to shatter their dearly won learning, they must shrug reality aside.”

The pursuit of TOD remains a fascinating subject. Some cities and regions seem to achieve TODS implementation with deceptive ease while others struggle. Some chalk the failures and successes up to serendipity (Nonaka, 2007; Rye et al., 2011). Despite the parallels that can be drawn between planning and religion (Engwicht, 1999; Hall, 1988; Greed, 1994; Wildavsky, 1973); TODS implementation with its own belief system⁴, places of worship², and prophets and believers³, is however not a simple matter of providence. Here, one should tread lightly as the requisite planning processes involve both individual and collective norms, cultures, and belief systems (Wolsink, 2003). Therefore, the main research question in this project is not poised to debate why pursue TODS⁴, a relevant but much disputed angle; but rather to more constructively ask how to make it happen, if it is indeed desired.

In this Epilogue, the findings from previous chapters will be used to systematically address the research questions and propositions raised. In addition, initial findings of the last phase of research, the testing of lessons learned, are discussed. To conclude, reflections on the relevancy and limitations of the research design and methods, and the practice-academia research process are offered.
The research identified four propositions conceptualising TODS implementation (see Figure 5);

1. Existence of a vicious cycle formed from mutually reinforcing formal and informal barriers,
2. which can be overcome when targeted by a virtuous cycle of formal and informal incentives.
3. This occurs through a process of institutional change,
4. characterised by learning and institutional innovation.
The process of advancing from vicious to virtuous cycle is neither linear or permanent. It is possible to regress and strategic choices can be undone by undesirable habits.

The validity of these propositions is established through the following research questions and findings.
The research sought to understand how TODS implementation can be achieved through institutional change whereby institutional barriers can be overcome through the introduction of institutional incentives in a process characterised by learning and institutional innovation. This has been operationalised in the following five research sub-questions;

*How to identify the institutional barriers to TODS and their interdependency in a given context i.e., the Netherlands?*

A combination of deductive and inductive methods in a four-phase approach led to the identification of context-specific barriers to TODS in the Netherlands. Findings suggest that critical barriers do not occur independently of each other. A mutually reinforcing relationship between formal and informal barriers forming a vicious cycle was traced. Formal barriers of institutional complexity, fragmentation leading to lack of clarity in roles and responsibilities resulted from a composite of factors. These contributed to and amplified informal barriers such as a culture of indifference (towards transit), lack of urgency and knowledge sharing between stakeholders in the Netherlands. For example, lack of (financial) resources was considered critical by practitioners. However, this was symptomatic of governance and financial streams prejudiced towards roads and car-use. The lack of resources existed because financial regulations and funding system had imperfections resulting from and encouraged by an underlying preference for road infrastructure.

*How cases of TODS implementation elsewhere overcome similar barriers and what are the roles that institutional incentives play in this process?*

Evidence from the cases of Perth, Portland and Vancouver confirmed a positive relationship between mutually reinforcing formal and informal incentives lifting barriers resulting in a virtuous cycle conducive to TODS. The three theory-confirming cases showed four combinations of incentives at work that are important for regions seeking to make the shift and overcome barriers. These are (i) legal - financial, (ii) legal - socio-cultural, (iii) financial - socio-cultural, (iv) legal - financial - socio-cultural measures. The shift from a vicious to virtuous cycle relies on a supplementary feedback loop of learning and reflection. For example, practitioners from the above successful metropolitan regions still actively seek ‘better practices’ from other regions. Planners and policy makers are advised that these incentives, within both formal and informal institutions, must be well-matched to the barriers that need to be resolved. In addition, informal institutions should not be underestimated as changes in policies and regulations are dictated by the beliefs and norms of those supporting and enacting them.
What processes of institutional change occurred in cases of TODS implementation, what are the specific elements involved, and if and how they are related?

Evidence from the metropolitan regions of Perth, Portland, Vancouver and Copenhagen proved that processes of institutional change occurred through the existence of critical phases comprising of catalysts, triggering corresponding spontaneous and deliberate reactions and effects. This change was witnessed over time. The direction of change is determined by the accumulation of forces of change resulting in effects induced by various reactions. Findings show that it is possible to deviate from an existing institutional path (i.e. vicious cycle to virtuous cycle), given the right conditions such as political will and public support. Likewise, it is also possible to fall back into bad habits. For example, the deliberate change in the regions above led to a more conducive institutional context, whereby rules and regulations well-matched to societal attitudes encouraged innovations. The role of the individual actor here is not to be underestimated. For planners and policy makers, the strategic and effective capitalisation on the momenta of societal transformation and the involvement of key actors are determinant for directed institutional change.

How does learning facilitate institutional innovation resulting in institutional change, what patterns of learning and markers of institutional innovation can be identified in planning practice, and to what extent does the absorptive capacity of a given planning context affect learning and innovation?

Institutional change is intricately linked to learning and innovation as both cause and effect in an iterative process. Findings in the cases of Perth, Portland, Vancouver and Copenhagen indicated that the process of learning and innovation resulting in institutional change occurred at both individual and collective levels, and vice versa over time. Patterns of learning and markers of institutional innovation characterising this process were observed and identified in the planning practice of all cases. These were defined respectively as the individual and collective actions towards deliberate and positive changes occurring through new practices and meanings facilitated by creation and/or improvement of knowledge through existing and/or new and social and knowledge networks. For all cases, their absorptive capacity at individual and collective level - the ability to recognise, assimilate and apply new knowledge based on prior knowledge - was a prerequisite for learning and institutional innovation.
For planners and policy makers, the facilitation of a functioning linkage between practice, academia and politics with a consistency of beliefs, perspectives and experiences, and openness and willingness to learn are practical lessons derived from the above relationships and dynamics.

The answers to the above four research sub-questions revealed that TODS implementation is achieved through the lifting of mutually reinforcing formal and informal barriers forming a vicious cycle creating a non-conducive context by the introduction of a virtuous cycle of mutually reinforcing formal and informal incentives. This process requires institutional change that is found occurring through the elements of critical phases comprising of catalysts, triggering corresponding spontaneous and deliberate reactions and effects. Learning and institutional innovation are crucial to the above dynamic and iterative process. Their presence can be identified through patterns and markers that can be emulated provided that sufficient absorptive capacity is present. Confirmation of how TODS implementation is achieved however requires further testing in a negative context, e.g., the Netherlands.

How can these processes and elements in successful cases of TODS implementation be transferred towards the Dutch context?

Considering the barriers identified in the Netherlands and the importance of perception of actors and stakeholders in the process of resolution as shown in other cases, a method is proposed to apply the findings of the previous sub-research questions by first establishing the absorptive capacity of practitioners and then facilitating a learning process for practitioners to translate incentives found elsewhere towards their own context. Theoretically, institutional innovation can follow when these adapted incentives compatible to the barriers found are identified, assimilated and applied. However, the time and commitment required for this is beyond the scope of the four-year research project. Thereafter, the processes of institutional change are still subjected to the necessary conditions as evident in the findings above. An ex-post evaluation of the method proposed after a sufficient amount of time (i.e., 15 - 25 years for TODS implementation to be realised) would be required to determine its validity. The first steps in this proposed direction, as practiced within this research project and consortium, will be briefly described and discussed in the following sections, by way of an epilogue. Towards application and testing of findings.
While researching multiple metropolitan regions that succeeded in their pursuit of TODS implementation; close knit communities comprising of practitioners, researchers and even politicians were observed. These individuals were not only well-informed of their own responsibilities but also those of their peers. Some interviewees shared that this was the way they operated, they needed to be well-informed not just about their own projects but also those of potential competition (neighbouring counties or cities). Understanding another’s person position seems crucial to being able to co-ordinate complex planning issues to help result in implementation.

The existence of a functioning social and knowledge network facilitates the learning process of absorbing and applying new information as discussed in Chapter 4, which in turn contributes to implementation. The example shown next is an attempt in applying and testing these new concepts with a two-step approach; i) the ability and potential to apply lessons from abroad as determined by ii) the capacity to learn for those involved.

For the last three scheduled consortium meetings, the format of a focus group workshop was proposed. The premise was simple. The hosting consortium partner would present, with the help of a local expert if necessary, an issue or ‘problem’ perceived to be impeding TODS implementation in their practice during a plenary session with some reflection from the researchers present. The participants are then split up into parallel sessions where they engage in thought experiments armed with information of possible incentives from other (foreign) contexts with which they should select and modify to make the incentives applicable to the problems raised, to the best of their own professional knowledge and experience. The list of incentives are presented as a menu and made available to participants a week before. The ‘problem’ is also described and any available information was shared in that preliminary information package. This is the first step of determining the participants peer group learning process through a thought experiment. The purpose of a small group, tasked with learning is to capitalise on the synergistic, i.e., knowledge generating, effect of focus group discussions (Stewart et al., 2007). This is also a proxy for the collaborative planning process that is typical of contemporary planning practice with multiple stakeholders with multiple perspectives and motivation.

A moderator (external or research team, depending on availability) would chair the sessions held in separate rooms. They facilitated the process of discussions but were forbidden to influence discussions. The researcher or research assistant would take an observational role operating the video camera and audio recording of the process while noting down the content of discussion with a group dynamics chart making note of content, tone, emotions and interactions between the group throughout the session.
The participants are tasked with coming up with applicable solutions to the ‘problem’, with one of the participants summarising it for the group at a plenary session at the end of the day. At the end of the parallel sessions, a survey form is handed out that determines the professional background, experience and responsibility of each participant and asking them to indicate which incentives appealed most to them and why. This is a part of the second step, where the individual absorptive capacity of the participants and learning process is determined.

The first two sessions followed this format. The third session was eventually redesigned due to reactions from practitioners that there was nothing to learn from foreign cases and that they preferred instead to hear and ‘learn’ about positive, local cases (i.e., the Netherlands). The hosting practitioners of the third session were convinced that foreign cases were mainly for inspiration and therefore not applicable to the local context in any form.

The following observations and reflections are based on an initial analysis of the various form of data collected from video recordings, audio recordings, survey forms and group responses.
Competency and capacity

A total of 20 survey forms were filled out. An initial scan of the results revealed a few interesting observations;

- Professional background: Most of the participants (practitioners from within and external to the consortium) did not have a planning background. The most related field mentioned was policy management or civil engineering. More unrelated fields mentioned included chemistry and history.
- Experiences with planning processes: Participants had some experienced with making policy documents (regional growth strategies) and operational tasks such as zoning permissions. However, none indicated they had participated or organised neighbourhood or community meetings (to either inform or canvass opinions or address concerns around planning decisions).
• Attitude towards incentives (foreign): A majority of the participants indicated that certain foreign incentives attracted them including the ones modified or created during focus groups discussions. There was a preference for financial-based incentives regarding taxation of inner city parking or a communal fund for TOD projects. However, all stated that the application of either for their own practice would be difficult, if not impossible.

The results are in sharp contrasts to what I have experienced with practitioners in the four foreign cases where TODS implementation has occurred. The practitioners encountered or interviewed in the four foreign cases expressed unbridled enthusiasm for new lessons or innovations from other contexts. They were of course not faced with problem solving of an issue close to their daily work nor were they surveyed afterwards to determine their interests. However, they were able to provide examples of innovations elsewhere that they have utilised in their own context, in an adapted form. The professional background and experiences with planning processes of experts in those four cases differed from the focus group participants. Experts in those cases were usually educated as planners (both land use and transport) and had a wide range of experiences with different planning procedures in numerous organisations5.

An interesting point was that most of these experts in the four foreign cases had dual, if not triple roles. They were usually practitioners who were also involved in academic research and some were even activists or politicians parallel to their practitioner-academic role or at some point in their career. A question for future research arises here; does the planning process benefit from planning practitioner and researchers taking on a political roles either as activists or politicians? Liu (Tan et al., 2010) in referring to planning in Singapore, states that planners should leave politics to the politicians. On the other hand, solutions could be expedited if one individual encompasses multiple facets (planner, researcher or politician). However, there is also an ethical conundrum here as to social equity and the fair representation of public interests.

Perceptions and emotions

Three parallel sessions were conducted with an average of seven participants per session with a total of 28 participants6. Participants were generally calm, interactive and constructive during all sessions. There were no interpersonal influence within group dynamics observed, there was an absence of dominant personalities and participants contributed equally.
The gender and age distribution of the groups were not controlled but the participants were allocated into groups such that a balance mixed of practitioners according to scale, sector and type was achieved with at least one local expert.

Majority of the conversations were on defining and clarifying the ‘problem’ within the discussion group. Local experts displayed knowledge on the complicated and complex intricacies of their problems. However, when other non-local participants suggested solutions i.e., through possible re-framing of the ‘problem’, these suggestions are usually quickly shut down by those more involved. Reasons given were that the solutions were ‘impossible’, i.e., not applicable or have already been tried or followed by another list of problems that were attributed to the proposed solutions. However, at the end of the sessions, all groups tried to reach some solution to be presented towards the plenary group indicating at least surface conformity (Stewart et al., 2007).

The focus groups discussions did indicate attempts at innovation from participants. For example, in one session some suggested a communal fund that would lighten the burden on municipalities that had too much land to develop in non-TOD locations but were financially obligated to do so. This was a modification from the list of incentives provided and was one of the solutions supported. Another innovation well-embraced was taxation on vacant commercial properties, even though the legality and feasibility aspects were refuted by experts present. These results show that some practitioners were more accepting of ideas and suggestions made by peers rather than those from elsewhere. Here lies an interesting extension for future research, the psychological and cognitive perspective to group based learning in planning practice. Participants in all three groups showed that they were well aware of the issues at hand, an important first step in trying to change, but the ability to recognise and apply new knowledge is still uneven across different participants.

These workshops were also excellent chances to experience how personal perception and emotions were determinant in discussions and the search for suitable incentives. It is more than understandable that those who are professionally and personally invested in the ‘problem’ tend to have very emotional responses which are contrary to reality at times (Schwanen et al., 2012; Talvitie, 2009; Wolman & Page, 2002; Willson, 2001). This is another important feature that practice-academia research needs to explore further, i.e. the effect of perception and emotion in planning processes.
REFLECTING ON THE RESEARCH APPROACH

A novel approach was taken in this research focusing on how TODS implementation is achieved, if it is indeed desired. Next, the methods used, the relevance of the research and its limitations will be reflected upon.

Relevance

A few knowledge gaps are identified and resolved in this research and they contribute to the field and societal debates around this subject by;

- Exploring the institutional aspects of TODS implementation through the comparative analysis of cases constructed from qualitative, empirical findings resulting in a conceptual model illustrating the shift from a vicious to virtuous cycle, which if desired, could be applied to other relevant planning contexts seeking similar change. This includes the consolidation of definitions and understandings on
implementation barriers in Chapter 1, on institutional incentives in Chapter 2, on institutional change in Chapter 3, and on the roles of learning and institutional innovation in Chapter 4.

- Proposing a systematic approach for case study selection based upon a shared point of departure (barriers experienced, see Chapter 1 and lifted through an explicit shift, see Chapter 2-4) between different contexts instead of the conventional selection based on quantitative values (size or density) which tends to negate the value of context-rich case studies. In addition, a rigorous data collection process triangulating context, interview and timeline narratives was applied. Both the case selection process and data collection protocol could be applied to other cases or subjects. A future research step could be examining cases where no change, or a negative change is observed.

Copenhagen waterfront, Copenhagen, Denmark.
• Refocusing on the role of the individual stakeholder as part of the collective in planning practice, while accommodating the issue of subjectivity and perception as discussed in Chapter 4. Here, discussions on planning and learning were also further advanced by combining insights from economics, political and management science.

Combining planning practice and research in a designed research trajectory which incorporates knowledge creation and exchange between researchers and practitioners to reunite planning theory with planning practice. This aspect is central in discussions within this dissertation. The application of the Kolb & Fry model to guide research design phases is also novel, especially with the first step towards testing beyond existing literature (see Research Design and Methods in Introduction). These theoretical discussions were only made possible by being grounded in observations on practice as captured in the findings.

Limitations

Learning and institutional innovation, if it occurs at all, is usually only visible after a decade or so. Time, in terms of decades, is required for such a research subject. It was therefore not possible to complete the Kolb & Fry model of experiential learning within the research trajectory of four years. Though initial steps have been made for testing of abstract concepts in new situations and real-life application, results are therefore still forthcoming.

There are also limitations to such an expansive approach where each phase is directed by the findings of the prior phase. The logistics of conducting such a research is enormous. There has been an incredible amount of information generated. Transcription of 57 interviews in two different languages meant a few hundred hours of work multiplied from almost 100 hours of audio and video recordings from interviews and focus groups. Not to mention the countless hours of preparations and planning required for the conducting of case study fieldwork, focus groups, workshops and evaluation meetings.

Given the intensive nature of the multiple, embedded in-depth case studies; there are several pragmatic limitations to be considered. Sufficient access to key stakeholders, experts and most importantly information (mode shift data, policy documents etc); has to be guaranteed and possible. The availability of data therefore depends upon access to official information sources, professional and academic networks. Language proficiency and time constraints should also be factored into the research process.
There are also constraints on the inclusion of practitioners within the Netherlands. Research should factor into consideration the fast changing political tendencies and interests which are unsurprising considering the political nature of TODS. This has implications on the involvement and commitment of the practitioners even though their involvement imbues the research findings with richness and grounds it with practicality. The research trajectory might not match political attention spans. A once popular research subject, enabling commitment (time and effort) of practitioners, might lose favour or become increasingly politically sensitive and thus not welcomed before the trajectory is completed. The inverse is luckily also possible.

The inclusion of practitioners and the grounding of research in practice is crucial to the development of planning theory. However, attention and effort had to be paid to ensure that a partially practice-sponsored research could still remain independent and unbiased.
“KNOWING IS NOT ENOUGH: WE MUST APPLY. WILLING IS NOT ENOUGH: WE MUST DO.”

JOHANNES WOLFGANG GOETHE
(ALSO ERRONEOUSLY ATTRIBUTED TO BRUCE LEE)
PRACTICE AND ACADEMIA

“Researchers need to engage more in practice (in ‘concrete experience’) and practitioners need to engage more in research (in ‘forming abstract concepts’)” (Straatemeier et al., 2010, pp. 581). The complexity of the issues within TODS implementation as highlighted in the previous chapters justifies the above plea for more engagement between practitioners and researchers. Planning is more akin to a design science than other fields where observations and experimentations are rather directed at explaining, instead of changing the world. It also differs from other design sciences where research could take place in a controlled environment. It is not possible to fully understand any issue without engaging with it, therefore planning practice needs to be included within planning research. After all, knowing how a combustion engine functions does not necessarily guarantee that one can operate a car.

One of the intrinsic values of this research set-up is how interactions with practice, both in the Netherlands and abroad have been facilitated. This research has involved planning practice and practitioners since the beginning. Research results, were consistently communicated through presentations, workshops and evaluation meetings. The research set-up has also allowed for the chance to interact and meet numerous practitioners from elsewhere interested in TODS implementation. From this perspective, the following discussions will reflect on the process of interaction between practitioners and researchers and initial observations and recommendations.

Co-creation of knowledge

Much of the knowledge in planning occurs as non-verbalised tacit knowledge that comes from years of positive and negative experiences. However, the process of acquiring such knowledge might involve emotional experiences that could cloud judgement and perceptions of reality, impeding critical reflection. In addition, planning practice in most cities and regions nowadays have fallen victim to shrinking personnel and resources. Many practitioners here and abroad complain about an ever increasing workload due to a decrease in available personnel and the increasingly complex procedures requiring financial accountability for every hour spent. Such conditions are not conducive to consistent and consequent critical reflection.

To counter this in the case of the Netherlands, research is regularly dispatched through to think-tanks, universities and consultancies by many municipalities, regions and provinces.
The qualifier of this increased interaction is however, the ability then to still conduct unbiased research when conditions are set by the practice partners and delivery of products are expected to fulfil certain expectations such as applicability to practice and political appropriateness.

**Action research**

A common criticism of the above mentioned action-research approach would be the influence of the researcher on the object of research. In this dissertation, the contractor of the research is simultaneously the object of research. The stipulated moments of engagement and contact between researchers and practitioners, in which knowledge is created and exchanged, makes the effects of synergistic learning on planning practice inextricable. The isolation and measurement of these effects require more controlled environments that would, however, be detrimental to the context-rich knowledge exchange that occurs in planning practice. Furthermore, demands made on the research to be applicable might prejudice research directions.
An ex-post evaluation, perhaps by an external party, would be a recommended next step for those seeking to improve on this form of research.

This is however not to say that both planning research and practice should not embrace the pragmatic approach of such research opportunities. The onus here is then on the research team and consortium to set and agree on clear boundaries of responsibilities and conduct discrete expectation management right from the start.

**Group learning and dynamics**

There is a high possibility that peer-group learning occurs during these frequent interactions between researchers and practitioners and between practitioners and their peers. First, second and third loops of learning can occur at both individual and collective levels (Deyle & Slotterback, 2009; Buitelaar et al., 2007; White & Mayo, 2004; Cohen & Levinthal, 1990; Hammond, 1990). Research interactions within this research took place
in group settings due to the desired setting for individual and collective learning, and to minimise logistic complications’. Practitioners involved have remarked often that they enjoyed and benefitted from the critical reflection from the academics in addition to the opportunity to understand and learn about the operations of their peers and simultaneously reflect on their own work.

Nonaka et al. (2009; 1996) emphasises the role that the individual plays in knowledge creation of a firm and the need for a firm to facilitate these innovations. This is further confirmed by findings in Chapter 4, where learning and institutional innovation play important roles in institutional change. Translated into planning practice, this becomes a concrete reason to facilitate more individual and peer-group learning interactions through removing budgetary and personnel restrictions, thereby improving the capacity of the individual to learn and innovate.

The ‘Science’ of Planning

“Planning is a social science but also a social practice. Interaction between science and practice would thus seem essential for progress in planning. However, current developments seem to be pulling planning academics and practitioners further away from each other, with each becoming more self-referential and distant.” (Balducci & Bertolini, 2007, pp. 533). The ‘science’ of planning has been under discussion since most planning researchers tackle problems embedded within a larger societal context, resulting in a need to magpie from other branches of social sciences. The relation to the complex and real-world aspect of planning practice (as object of research) has complicated the establishment of planning as a legitimate science next to the more controlled habitats of natural sciences or other more conventional forms of social sciences.

Grounded in practice

A review of planning literature show a dearth of research grounded in practice, that is applied and tested within practice (Straatemeier et al., 2010). This is also the norm when it comes to issues regarding institutional change, as discussed in Chapter 3. On the other hand, much TOD literature tends to be the opposite of this with its descriptive, practice-based case studies, without systematic generation and testing of hypotheses. Considering that the planning processes of TODS implementation can span decades before realisation on the ground, testing in practice becomes difficult.
This is partly why this research was not able to test out the new concepts formed during research with the practitioners within the consortium as the last step within the experiential learning cycle (Kolb & Fry, 1974).

**Planning researcher**

In the Netherlands, there are many researchers who have only an academic knowledge of planning practice (i.e., zoning plans or the various policy consultation processes). This is in no way a reflection on their abilities as researchers but it presents a communication gap during such practice-academia interactions. Not all researchers are comfortable with such intensive interactions with practitioners. Likewise, practitioners are limited in their time and commitment to the research content. For example, research articles are not effective communication tools for practitioners because most practitioners would not and could not afford the time to read.

A language barrier has also been observed (i.e. English articles for Dutch practitioners). This contradicts a main form of communication in research. Happily, visual and verbal presentations are still accepted and embraced by practitioners. Here lies an opportunity for planning research and education; to nurture research and researchers that are flexible enough to communicate effectively while educating planners who are academically inclined.

Nonetheless, the research content and process benefitted greatly from the consistent inclusion of practitioners and planning practice. The findings were richer for the complexities captured and it is the task of the researcher to keep the findings manageable and applicable for both the practice and academic arenas.
BIBLIOGRAPHY


Just like one experiences and learn about religion through various institutions, places of worships and the narratives of prophets; the same applies to TODS. Planners and researchers have go-to examples of what TOD is, where it is best realised and which document or literature best fulfill their subjective view on TOD and TODS. The conflict in beliefs is also evident in this subject. Just the different names and denomination alone is enough to cause confusion.

Places of worships of TODS are ‘best practices’ where planners and policy makers frequently visit to learn more about TODS in the hope of applying them in their own context. In Australia, there is Perth, Melbourne, Sydney or Brisbane. There are even more examples in the Americas and the rest of Asia. Of course, there are also the European classics in Munich, Zürich, Copenhagen and London. Trying to compare between each TOD is like comparing churches and temple of different periods, orders and form - a futile and tedious exercise.

Prophets are academics and politicians who advocate the virtues of TODS, the well-known figures would be individuals such as Calthorpe, Cervero, Dittmar, Dunphy, Ohland and Litman; to name a few. Believers are planners and policy makers who turn to TODS as an option to sustainable development without consideration to the market demands or externalities involved. The ‘believers’ tend to operate as a close-knit community.

The why of pursuing TODS has been much discussed from the economic, transport engineering and sustainable environment angles (see Introduction). The views are multiple yet divergent.

Refer to case study reports: http://niciskei.wordpress.com/ipvko-foreign-cases/case-study-reports/

Half of the participants of the first workshop were not able to stay after the practice presentation for the parallel sessions. They were sent a digital survey form and the response was dismal.

Our research program manager can attest to how difficult and tedious it is at times to get 15 - 20 practitioners in a room on a certain day for at least 4 hours of interaction. Not to mention the capital costs from the multiplication of hourly wages of all of those involved. The research might be valuable but there is a future research need to weigh off its effectiveness and monetary costs.
APPENDIX

CASE SELECTION
INTERVIEW REQUEST (NL)
INTERVIEW REQUEST (FOREIGN CASE)
LIST OF INTERVIEWEES
MEETINGS
NETWORK
LIST OF FIGURES
CASE SELECTION

Based on existing literature of ‘best practices’ cases, an initial selection of international examples are selected and evaluated for 1) observable shifts: substantial modal shift and changes in real estate values and development patterns as observed throughout a certain time period, ii) conscious intervention: explicit policy and legislative intervention and cultural and behavioural change. The cases are evaluated as shown below and the results are shown in Table A;

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observable shifts</td>
<td></td>
</tr>
<tr>
<td>Modal Shift: Is there significant and/or observable modal shift based on existing transport statistics for the past few decades.</td>
<td>Y: Yes and/or N: No</td>
</tr>
<tr>
<td>Modal Split: What is the mode share of (PT) public transit (rail) and (C) car (private vehicles), based on passenger kilometers and adjusted for national averages.</td>
<td>(--: lower than, - : equivalent, +: higher and ++: extremely higher).</td>
</tr>
<tr>
<td>Real Estate values (RE$): Profit or increases in revenue attributed to TODS.</td>
<td>(--: negative, -: marginal, +: positive increase, ++: extensive increase)</td>
</tr>
<tr>
<td>Developmental patterns (DP): Any observable change in developmental patterns.</td>
<td>(--: negative, -: marginal, +: some change, ++: significant change)</td>
</tr>
</tbody>
</table>

For example, Zurich with 63% (PT) and 25% (C) scores ++ for both categories in comparison to the national mode share of 15% (PT) and 82% (C). Whereas, Adelaide scores -- and - with a mode share of 1% (PT) and 90% (PT) against the national average of 7% (PT) and 85% (C). For example, The increase in revenue around rail transit developments in Washington USD$6 million annually or San Francisco which has reported a booming real estate market.. For example, The creation of multiple multifunctional areas around transit nodes in Washington or the change of urban fabric along transit lines in Stockholm, Copenhagen or Singapore.
**CRITERIA** | **VALUE**
---|---
**Conscious intervention**

**Formal barriers (F):** Are there explicit formal barriers i.e. institutional complexity in terms of multiple administrative levels with fragmented tasks and instruments, lack of clarity of responsibilities due to multiplicity of roles lead to lack of commitment from relevant parties.

(\(\text{--} \): none of above, \(-\): some similarity, \(+\): highly similar, \(++\): exact situation)

**Informal barriers (I):** Are there informal barriers i.e. indifference in the culture towards public transport from both users (automobile culture or aversion to public transport) and/or providers (lack of commitment and/or interest in pushing forward with projects due to a lack of urgency and knowledge sharing).

(\(\text{--} \): none of above, \(-\): some similarity, \(+\): highly similar, \(++\): exact situation)

**Policy and/or Legislation (P):** Introduction of explicit formal institutional changes such as policies or instruments to aid TODS.

(\(\text{--} \): none, \(-\): minimal, \(+\): occasional, \(++\): frequent and intensive)

**Cultural and/or Image (C):** Efforts made to induce a culture conducive to public transport or to increase commitment to planning and developing TOD.

(\(\text{--} \): none, \(-\): minimal, \(+\): occasional, \(++\): frequent and intensive)

For example, Washington DC experienced a multitude of actors with diverse objectives, without national funding, thus requiring a joint development, joint funding scenario, thereby scoring \(++\) in terms of formal barriers observed. Singapore on the other hand had no issues with institutional fragmentation or complexity, thus scoring a \(--\). For example, Portland introduced a series of tax incentives that encourage and initiated TOD along their existing and new metro lines. This is then coupled with intensive legislative arrangements initiated by their mayor. For example, Perth initiated vast survey of their transit consumers to understand their reasons for not taking public transport and aided those who indicated willingness to change with personal guidance on how to access public transport.
## Table A: Results of quick scan of potential cases

<table>
<thead>
<tr>
<th>Modal Shift</th>
<th>PT</th>
<th>C</th>
<th>RE$</th>
<th>DP</th>
<th>F</th>
<th>I</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>America</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boston</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Chicago</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Dallas</td>
<td>Y</td>
<td>--</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>--</td>
</tr>
<tr>
<td>Denver</td>
<td>Y</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Houston</td>
<td>Y</td>
<td>--</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Miami Dade</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>New Jersey</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Portland</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>San Diego</td>
<td>Y</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>San Francisco</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>St. Louis</td>
<td>Y</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Vancouver</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Washington</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>Australia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brisbane</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Melbourne</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Perth</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Sydney</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hongkong</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Singapore</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Tokyo</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td><strong>Europe</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copenhagen</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Karlsruhe</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Munich</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Naples</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Stockholm</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Zurich</td>
<td>Y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Legend:

- **Modes and indicators**
- **Barriers experienced and incentives applied**
  - F: Formal, I: Informal, P: Policy, C: Cultural
### Table B: Types of institutional arrangements found

<table>
<thead>
<tr>
<th>Active parties</th>
<th>Cases</th>
<th>Institutional arrangements</th>
</tr>
</thead>
</table>
| **I** Planning Authority + Transit Agency | Boston, Denver, Houston, Miami Dade, New Jersey, Portland | **Formal but technically creative, transit agency**  
Examples:  
- Mutual agreement between transit agency and developers (Boston)  
- Memorandum of Understanding or Intergovernmental agreement between transit agency and authority (Denver)  
- Special districts, tax reinvestment zones, issuing of bonds - financial and regulatory mechanisms (Houston, Miami Dade)  
- Exercising air-rights above station and issuing design-build contracts (New Jersey).  
- Land acquisition, tax abatements, sharing of technical know how (Portland). |
| **I* Planning Authority + Advocacy Group** | Portland, Chicago, San Francisco | + advocacy groups  
Examples:  
- Service concessions are given out to transit agencies (Chicago)  
- Strong advocacy group sponsoring bill to change regulatory status (San Francisco) |
| **II** Transit Agency + Private Developer | Dallas, San Diego, Vancouver, Washington, Hong Kong, Singapore, Tokyo | **Formal and/or Informal and highly entrepreneurial, transit agency**  
Examples:  
- Lifestyle and/or event programming (Dallas, Washington, Tokyo)  
- Transit agency in joint development, develops property and gives access through transit area (San Diego, Singapore)  
- Transit agency gains revenue through joint development of station area (Vancouver, Washington, Hong Kong) |
| **III** Planning Authority | St. Louis, Brisbane, Melbourne, Perth, Sydney, Naples | **Strategic planning framework**  
Examples:  
- Strong regional authority uses tax initiative to fund when financial crisis hit (St. Louis)  
- No statutory right of joint development (Brisbane, Melbourne)  
- No public-private funding mechanisms (Perth, Sydney)  
- Regional authority solidified by long-range appointments. Selling commercial space (Naples) |
| **IV** Planning Authority + Transit Authority | Copenhagen, Stockholm, Karlsruhe, Munich, Zurich | **Formal, long-term and hierarchical authorities**  
Examples:  
- Long term strategic plans implemented by strong, hierarchical government (Copenhagen, Stockholm, Zurich)  
- Strong regional authorities, use of integrated fare system by transit authority (Karlsruhe, Munich, Zurich). |
INTERVIEW REQUEST (NL)

“Institutionele prikkels voor knooppuntontwikkeling in corridor verband” is een door NICIS gesponsord onderzoeksproject van het onderzoeksprogramma “Kennis, Economie en Innovatie”. Dit onderzoeksproject wordt geleid door AMIDSt, Universiteit van Amsterdam. Het doel van dit project is om een goed beeld te krijgen van institutionele prikkels die verschillende partijen kunnen aansporen om te betogen rond transit georiënteerde ontwikkelingen zoals de Stadsregiorail (Arnhem-Nijmegen) of Stedenbaan, voorbeelden van toekomstige regionaal openbaar vervoer corridor projecten. Het project is ontworpen om te werken vanuit Nederlands oogpunt probleem ervaringen van deskundige te inventariseren en door het verzamelen van “best practices” van internationale kwesties die kunnen helpen met het leveren van inspiratie voor institutionele innovaties voor transit (reizigers) projecten in Nederland.

‘Transit oriented development’ (TOD) refereert aan strategieën die samenlopen in hun algemene streven om duurzaamheid van stedelijke omgevingen te bevorderen, ruimtelijke bereikbaarheid uit te breiden en economische vitaliteit te genereren door te concentreren op en het maximaliseren van stedelijke ontwikkeling kansen rondom knooppunten en door huidige en geplande ontwikkelingen (met een vervoersnetwerk als ruggengraat) te verbinden. Succesvol TOD wordt beschouwd als projecten die een ruimtelijke en functionele integratie van stedelijke ruimtelijke ontwikkeling en openbaar vervoer aantonen en planvormings barrières bovenstijgt. TOD is geen nieuw concept en al zeker niet in Nederland. Discussies over stedelijke netwerkverbindingen zijn er al sinds de jaren 90. Door middels van een literatuur review op dit onderwerp, lijkt het erop dat er nog steeds barrières (vooral op de toepassing fase) zijn die de projecten ervan weerhouden om hun bedoelde potentieel te bereiken.

Het doel van dit interview is om empirische bewijzen te verzamelen van experts en professionals die werken aan dit onderwerp om het karakter van deze barrières vast te stellen en hopelijk deze waardevolle kennis te ordenen voor de vooruitgang van TOD-projecten in Nederland.

Ik wil u graag bij voorbaat danken voor uw tijd en waardevolle meningen. Als u wilt kunt u op de hoogte gehouden worden van dit onderzoeksproject. Ik verzoek u om bij de interviewer aan te geven of u geïnteresseerd zijn in de ontwikkeling van dit onderzoeksproject.

Bijgaand vindt u: Onderzoeksvoorstel (Engels).
Algemeen Vragen

1. Graag een korte beschrijving van uw functie en professionele achtergrond (i.v.m dit project).
2. Geef een beschrijving van uw betrekking of rol in dit project.
3. Duur van betrekking in huidige/vorige functie

Taken

4. Bent u betrokken bij het uitvoeringsfase? Zo ja, hoe?
5. Positieve of Negatieve ervaringen? Graag in kort beschrijven

Project

6. Graag uw project beschrijven.
7. Wie zijn, naar uw mening, hoofdrolspelers betrokken bij het uitvoeringsfase van dit project?

Project barrières

Barrières zijn opgemerkt in verschillende gradaties en fases bij de meeste TOD-projecten. Dit onderzoek definiert het succes van een project door synergie (creëren van toegevoegd waarde en spin-offs) en integratie (ruimtelijke en functionele) te kunnen creëren voor stedelijke ruimtelijke ontwikkeling en openbaar vervoer. Een uitgebreid EU-onderzoek, PLUME (CEC, 2005), vergeleek projecten over vervoer en ruimtelijke planning in Europa en stelde de volgende classificaties voor barrières vast;

<table>
<thead>
<tr>
<th>Types of Barriers (PLUME)</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal</td>
<td>Competency of regulations and legislative framework</td>
</tr>
<tr>
<td>Financial</td>
<td>Availability and distribution of funding</td>
</tr>
<tr>
<td>Institutional and Territorial</td>
<td>Conflict between and within organisational and operational boundaries</td>
</tr>
<tr>
<td>Political and Cultural</td>
<td>Framing and perception issues, acceptability and awareness in professions</td>
</tr>
<tr>
<td>Practical and Technological</td>
<td>Physical and technological roadblocks</td>
</tr>
</tbody>
</table>

9. Zijn er specifieke punten die u bent tegengekomen in uw betrokkenheid die hierboven niet zijn genoemd? Zo ja, geef dit uitgebreid aan.
INTERVIEW REQUEST (FOREIGN CASES)

THE SAME REQUEST IS USED FOR EACH LOCATION. AN GENERAL EXAMPLE IS SHOWN HERE.

[Preamble describing case-study location; for example]
Perth is an interesting case for our research, due to the rapid and conscious application of transit-oriented development (TOD) in planning strategies into TOD corridors for the entire metropolitan area. This is a region that is traditionally known for being car-oriented and has made a visible change towards TOD within a short period of time of 20 years or less. Subiaco, for example, is famed as the crown jewel of the Perth TOD system in the widely differentiated Fremantle line. The opening of the Mandurah line in 2007 was also a key moment.

My research is interested in finding out how and what have led to the success in a change of strategies based on my observations on the barriers experienced and solutions implemented in the [CASE]. The interview will be divided up into two phases, one to determine the barriers experienced and the latter to discuss the process of how TOD has evolved into planning strategy over the last decades (±50 years). We will begin with a set of questions establishing the boundary of the discussion but the interview will be flexible according to your response.

This interview is a co-production of knowledge and will remain anonymous. The questions below are for your reference.

General

1. Please describe your job function and brief professional background.
2. Please describe your involvement in the TOD project(s) (Duration, phase and scope of involvement/Positive/Negative experiences)
3. Who, according to you are the crucial stakeholders involved the TOD projects you have experienced?
Implementation barriers to TOD in [CASE]

In the Netherlands, critical barriers were determined to be fragmentation of governance and lack of transit-oriented culture. In my initial study of [CASE], I have come across similar barriers. Some experts have mentioned the following as barriers for [CASE];

- Sense of financial risk/unwillingness to experiment from developers
- High cost of TOD projects
- Elitist image of TOD locations
- Long lead times of TOD projects
- Lack of leadership/guidance from public sector
- Fragmented governance of TOD projects/system

4. Do you recognise these barriers? If not, what other barriers were there?
5. What was the most critical barrier you have experienced?
6. How were these barriers overcome? (e.g., by introduction of policy/legislation)

Institutional incentives

The introduction of institutional change [CASE EXAMPLE] are often accompanied with a set of incentives (such as tax benefits or traffic reduction policies) that help to promote TOD. Please discuss the pull/push factors (legal, socio-cultural, political) that have led to change that you have observed within your capacity.

7. Were you aware of any significant incentives introduced that have made an impact to TOD in [CASE]? Please list and elaborate on some.
8. How and when were they implemented?
9. How were these incentives selected and decided upon?
10. Were these measures new to the [CASE] planning system?

The success of [CASE]

Looking at the chain of events that occur in creating a successful TOD strategy, sometimes serendipity seems the best way to describe a TOD success. The classic example of Portland has been accredited to political champions and cultural change.

11. Do you think that [CASE] can be called a TOD success story? Why?
LIST OF INTERVIEWEES

All interviewed are guaranteed anonymity. This was crucial to ensure that all interviewees felt unrestricted to share their views and experiences outside of organisational confines. Interviewees were selected for based on their expertise and for each case attention was paid to complete each scale, type and sector; depending on access and availability.

Netherlands [22]

Expert 0901 Urban Agglomeration scale, Public stakeholder in Land Use sector.
Expert 1001 Local scale, Public stakeholder in Land Use and Transport sector.
Expert 1002 Provincial/Regional scale, Public stakeholder in Land Use and Transport sector.
Expert 1003 Urban Agglomeration scale, Private stakeholder in Transport sector.
Expert 1004 Local scale, Public stakeholder in Land Use and Transport sector.
Expert 1005 Urban Agglomeration scale, Public stakeholder in Land Use and Transport sector.
Expert 1007 Urban Agglomeration scale, Public stakeholder in Land Use and Transport sector.
Expert 1008 National scale, Private stakeholder in Land Use and Transport sector.
Expert 1009 National scale, Private stakeholder in Land Use sector.
Expert 1010 Urban Agglomeration scale, Public stakeholder in Transport sector.
Expert 1011 National scale, Public stakeholder in Land Use and Transport sector.
Expert 1012 Provincial/Regional scale, Public stakeholder in Land Use sector.
Expert 1013 Provincial/Regional scale, Public stakeholder in Land Use sector.
Expert 1014 National scale, Public stakeholder in Land Use and Transport sector.
Expert 1016 National scale, Public stakeholder in Land Use and Transport sector.
Expert 1017 National scale, Public stakeholder in Land Use sector.
Expert 1018 National scale, Private stakeholder in Land Use sector.
Expert 1019 Urban Agglomeration scale, Private stakeholder in Land Use sector.
Expert 1020 Urban Agglomeration scale, Private stakeholder in Land Use sector.
Expert 1021 Provincial/Regional scale, Public stakeholder in Land Use and Transport sector.
**Perth Metropolitan Region, Western Australia [14]**

Expert 1101 Provincial/Regional scale, Private stakeholder in Land Use sector.
Expert 1102 Urban Agglomeration scale, Private stakeholder in Land Use sector.
Expert 1103 Provincial/Regional scale, Public stakeholder in Land Use and Transport sector.
Expert 1104 Urban Agglomeration scale, Private stakeholder in Land Use and Transport sector.
Expert 1105 Provincial/Regional scale, Public stakeholder in Transport sector.
Expert 1106 Provincial/Regional scale, Public stakeholder in Transport sector.
Expert 1107 Municipal/Local scale, Public stakeholder in Land Use sector.
Expert 1108 Municipal/Local scale, Public stakeholder in Transport sector.
Expert 1109 Provincial/Regional scale, Public stakeholder in Land Use and Transport sector.
Expert 1111 Provincial/Regional scale, Semi-Private stakeholder in Land Use sector.
Expert 1112 National scale, Semi-Private stakeholder in Other sector.
Expert 1113 Provincial/Regional scale, Semi-Private stakeholder in Other sector.

**Portland Metropolitan Area, Oregon [17]**

Expert 1115 Provincial/Regional scale, Public stakeholder in Land Use and Transport sector.
Expert 1116 Urban Agglomeration scale, Public stakeholder in Land Use and Transport sector.
Expert 1117 Local scale, Private stakeholder in Land Use sector.
Expert 1118 Urban Agglomeration scale, Public stakeholder in Transport sector.
Expert 1119 Local scale, Public stakeholder in Land Use and Transport sector.
Expert 1120 Urban Agglomeration scale, Public stakeholder in Land Use and Transport sector.
Expert 1121 Local scale, Public stakeholder in Transport sector.
Expert 1122 Local scale, Public stakeholder in Transport sector.
Expert 1123 Local scale, Semi-Private stakeholder in Transport sector.
Expert 1124 Local scale, Public stakeholder in Land Use and Transport sector.
Expert 1125 Local scale, Public stakeholder in Land Use and Transport sector.
Expert 1126 National scale, Private stakeholder in Other sector.
Expert 1127 Local scale, Private stakeholder in Land Use sector.
Expert 1130 National, Public stakeholder in Land Use and Transport sector.
Expert 1131 National, Public stakeholder in Land Use and Transport sector.
Greater Vancouver Region, British Columbia [12]

Expert 1132 Urban Agglomeration scale, Private stakeholder in Transport sector.
Expert 1133 Local, Public stakeholder in Land Use sector.
Expert 1134 Urban Agglomeration, Private stakeholder in Land Use and Transport sector.
Expert 1135 Urban Agglomeration, Private stakeholder in Land Use and Transport sector.
Expert 1136 Urban Agglomeration, Public stakeholder in Other sector.
Expert 1138 Local, Public stakeholder in Other sector.
Expert 1139 Local, Public stakeholder in Other sector.
Expert 1140 Urban Agglomeration, Private stakeholder in Land Use and Transport sector.
Expert 1141 Local, Public stakeholder in Other sector.
Expert 1143 Provincial/Regional, Public stakeholder in Other sector.

Greater Copenhagen, Hovedstaden [6]

Expert 1244 National scale, Public stakeholder in Land Use sector.
Expert 1245 Local scale, Public stakeholder in Land Use and Transport sector.
Expert 1246 Provincial/Regional scale, Semi-private stakeholder in Land Use and Transport sector.
Expert 1247 Provincial/Regional scale, Semi-private stakeholder in Land Use and Transport sector.
Expert 1248 Provincial/Regional scale, Public stakeholder in Land Use sector.
Expert 1249 Provincial/Regional scale, Public stakeholder in Land Use sector.
## Selection of experts according to scale/type/sector

<table>
<thead>
<tr>
<th>Scale</th>
<th>Land Use</th>
<th>Transport</th>
<th>Both</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>$1009, #1017, $1018, #1244</td>
<td>#1015</td>
<td>$1008, #1014, #1016, #1011, #1130, #1131</td>
<td>&amp;1112, $1126</td>
</tr>
<tr>
<td>Provincial/Regional</td>
<td>#1012, #1013, $1101, &amp;1111, #1115, #1248, #1249</td>
<td>#1010, #1105, #1106, #1128, #1142</td>
<td>#1002, #1021, #103, #1109, #1130, &amp;1246, &amp;1247</td>
<td>&amp;1113, #1143</td>
</tr>
<tr>
<td>Urban Agglomeration</td>
<td>#0901, $1102, #1137</td>
<td>$1003, $1019, $1020, #1006, #1110, #1114, #1118, #1121, #1129, #1132</td>
<td>#1005, #1007, #1104, #1120, #1116, #1134, #1135, #1140</td>
<td>$1136</td>
</tr>
<tr>
<td>Municipal/Local</td>
<td>#1107, $1117, $1127, #1133</td>
<td>#1108, #1121, #1122</td>
<td>#1001, #1119, &amp;1123, #1124, #1125, #1245</td>
<td>#1138, #1139, #1141</td>
</tr>
</tbody>
</table>

Types: # Public Sector, $ - Private Sector, & - Semi/Both
### MEETINGS

#### FOCUS GROUPS | WORKSHOPS

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Hosting organisation</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Sep 2009</td>
<td>Amsterdam</td>
<td>Stadsregio Amsterdam</td>
<td>1</td>
</tr>
<tr>
<td>1 Mar 2010</td>
<td>Zevenaar</td>
<td>De Stadsregio Arnhem Nijmegen</td>
<td>1</td>
</tr>
<tr>
<td>24 Jun 2010</td>
<td>Ede</td>
<td>Provincie Gelderland</td>
<td>1</td>
</tr>
<tr>
<td>22 Mar 2011</td>
<td>Utrecht</td>
<td>NS/Movares</td>
<td>1</td>
</tr>
<tr>
<td>8 Sep 2011</td>
<td>Amsterdam</td>
<td>Stadsregio Amsterdam/Gemeente Amsterdam</td>
<td></td>
</tr>
<tr>
<td>8 Mar 2012</td>
<td>Elst</td>
<td>De Stadsregio Arnhem Nijmegen</td>
<td></td>
</tr>
<tr>
<td>25 Sep 2012</td>
<td>Arnhem</td>
<td>Provincie Gelderland</td>
<td>2</td>
</tr>
<tr>
<td>11 Dec 2012</td>
<td>Amsterdam</td>
<td>Gemeente Amsterdam</td>
<td>2</td>
</tr>
<tr>
<td>26 Apr 2013</td>
<td>Utrecht</td>
<td>Movares/De Stadsregio Arnhem Nijmegen</td>
<td></td>
</tr>
</tbody>
</table>

#### CONSORTIUM RESEARCH EVALUATION

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Hosting organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>27 Sep 2010</td>
<td>Amsterdam</td>
<td>University of Amsterdam</td>
</tr>
<tr>
<td>5 Nov 2010</td>
<td>Utrecht</td>
<td>NICIS ISRC</td>
</tr>
<tr>
<td>8 Sep 2011</td>
<td>Amsterdam</td>
<td>University of Amsterdam</td>
</tr>
<tr>
<td>25 Jun 2012</td>
<td>Amsterdam</td>
<td>VU University Amsterdam</td>
</tr>
</tbody>
</table>
NETWORK

This entire research, the interviews, in-depth case studies and fieldwork would not have been possible if not for the generosity with their time, the sharing of information, contacts and hospitality of the following individuals (NB: Names, functions and organisations are current at time of contact).

**Netherlands**

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeanet van Antwerpen</td>
<td>Partner-managing director</td>
<td>Inbo</td>
</tr>
<tr>
<td>Reindert Augustijn</td>
<td>Teammanager Traffic and Transport</td>
<td>De Stadsregio Arnhem Nijmegen</td>
</tr>
<tr>
<td>Maarteen Bakker</td>
<td>Policy Advisor (Ruimte &amp; Mobiliteit)</td>
<td>Stadsregio Amsterdam</td>
</tr>
<tr>
<td>Ronald Bandell</td>
<td>Chairman</td>
<td>Stedenbaan</td>
</tr>
<tr>
<td>Willem Benschop</td>
<td>Sector Chief (Transport)</td>
<td>Stadsgeweeest Haaglanden</td>
</tr>
<tr>
<td>Rob van der Bijl</td>
<td>Founder</td>
<td><a href="http://www.lightrail.nl">www.lightrail.nl</a></td>
</tr>
<tr>
<td>Ymkje de Boer</td>
<td>Owner</td>
<td>YM de Boer Advies</td>
</tr>
<tr>
<td>Zjef Búde</td>
<td>Program Manager</td>
<td>Ministerie Volkshuisvesting, Ruimtelijke Ordening en Milieu (VROM)</td>
</tr>
<tr>
<td>Steef Buijs</td>
<td>Director</td>
<td>Buijs Advies BV</td>
</tr>
<tr>
<td>Mattie Busch</td>
<td>Management team</td>
<td>VROM</td>
</tr>
<tr>
<td>Paul Chorus</td>
<td>Policy Advisor</td>
<td>Provincie Noord-Holland</td>
</tr>
<tr>
<td>Francisco Colombo</td>
<td>Senior Policy Advisor</td>
<td>Provincie Zuid Holland</td>
</tr>
<tr>
<td>Rick ten Doeschate</td>
<td>Architect</td>
<td>Atelier Rijksoordbaumeister</td>
</tr>
<tr>
<td>David Dooghe</td>
<td>Designer-Researcher</td>
<td>Deltametropool</td>
</tr>
<tr>
<td>Adrian van Doorn</td>
<td>Program coordinator Prog. Spoorzoneontwikkeling</td>
<td>VROM</td>
</tr>
<tr>
<td>Harmen Dorsser</td>
<td>Program leader</td>
<td>Zuidvleugel</td>
</tr>
<tr>
<td>Kees-Jan Dosker</td>
<td>Department head</td>
<td>ProRail</td>
</tr>
<tr>
<td>Rianne van Dreumel</td>
<td>Communication (Stadsregiorail)</td>
<td>De Stadsregio Arnhem Nijmegen</td>
</tr>
<tr>
<td>Marc Drost</td>
<td>Product Manager (Commercie)</td>
<td>HTM</td>
</tr>
<tr>
<td>Jan Duffhues</td>
<td>Consultant</td>
<td>Movares</td>
</tr>
<tr>
<td>Herman Gelissen</td>
<td>Program Director</td>
<td>Stedenbaan +</td>
</tr>
<tr>
<td>Paul Gerretsen</td>
<td>Agent</td>
<td>Deltametropool</td>
</tr>
<tr>
<td>Pieter Guldemond</td>
<td>Alderman (Kenniseconomie &amp; Ruimtelijke Ordening)</td>
<td>Gemeente Delft</td>
</tr>
<tr>
<td>Ad ter Ham</td>
<td>Project Leader Bleizo</td>
<td>Gemeente Zoetermeer</td>
</tr>
</tbody>
</table>
### Netherlands

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cor Hartogs</td>
<td>Project Leader (Stadsregiorail)</td>
<td>De Stadsregio Arnhem Nijmegen</td>
</tr>
<tr>
<td>Jeroen Haver</td>
<td>Senior Policy Advisor</td>
<td>Ministerie van Infrastructuur en Milieu (IenM)</td>
</tr>
<tr>
<td>Bart van der Heijden</td>
<td>Senior Policy Advisor</td>
<td>DRO Amsterdam</td>
</tr>
<tr>
<td>Willemieke Hornis</td>
<td>Senior Policy Advisor</td>
<td>IenM</td>
</tr>
<tr>
<td>Shirin Jaffri</td>
<td>Project Manager</td>
<td>Provincie Noord-Holland</td>
</tr>
<tr>
<td>Kees de Jong</td>
<td>Policy Advisor</td>
<td>IenM</td>
</tr>
<tr>
<td>Bart Klarus</td>
<td>Program Director</td>
<td>Movares/Bleizo</td>
</tr>
<tr>
<td>Sebastiaan van Kooij</td>
<td>Consultant</td>
<td>Inno-V</td>
</tr>
<tr>
<td>Peter van der Kooij</td>
<td>Project Leader</td>
<td>Provincie Zuid Holland</td>
</tr>
<tr>
<td>Barend Kuenen</td>
<td>Director Asset Development</td>
<td>NS Poort</td>
</tr>
<tr>
<td>Lodewijk Lacroix</td>
<td>Program Manager</td>
<td>Bestuurlijk Platform Zuidvleugel</td>
</tr>
<tr>
<td>Arnoud Leerling</td>
<td>Program Manager</td>
<td>RegioBestuur FoodValley</td>
</tr>
<tr>
<td>Sander van Lent</td>
<td>Consultant</td>
<td>Inno-V</td>
</tr>
<tr>
<td>Jorn Matthijssse</td>
<td>Project Leader/Advisor (Wonen &amp; Ruimte)</td>
<td>De Stadsregio Arnhem Nijmegen</td>
</tr>
<tr>
<td>Henk Meeldijk</td>
<td>Program Manager</td>
<td>Ministerie Verkeer en Waterstaat (VenW)</td>
</tr>
<tr>
<td>Coen Mekers</td>
<td>Senior Policy Advisor Extern</td>
<td>Provincie Gelderland</td>
</tr>
<tr>
<td>Martijn Mentink</td>
<td>Sector Chief (Regionale Ontwikkeling)</td>
<td>De Stadsregio Arnhem Nijmegen</td>
</tr>
<tr>
<td>Gerard Milort</td>
<td>Program Leader (Ruimtelijke Ontwikkeling)</td>
<td>Stedenbaan</td>
</tr>
<tr>
<td>Jaap Modder</td>
<td>Director</td>
<td>De Stadsregio Arnhem Nijmegen</td>
</tr>
<tr>
<td>Merten Nefs</td>
<td>Researcher</td>
<td>Deltametropool</td>
</tr>
<tr>
<td>Harry van Noord</td>
<td>Research Asset Development</td>
<td>NS Poort</td>
</tr>
<tr>
<td>Gert-Jos Peek</td>
<td>Research Director</td>
<td>ING Real Estate Development</td>
</tr>
<tr>
<td>Kees Peters</td>
<td>Consultant</td>
<td>Movares</td>
</tr>
<tr>
<td>Benno Radema</td>
<td>ProgramLeader</td>
<td>Zuidvleugel</td>
</tr>
<tr>
<td>Jeske Reijs</td>
<td>Senior Policy Advisor</td>
<td>Provincie Noord-Holland</td>
</tr>
<tr>
<td>Emiel Rieding</td>
<td>Chief Strategy Unit</td>
<td>IenM</td>
</tr>
<tr>
<td>Rob Roskes</td>
<td>Manager</td>
<td>Provincie Gelderland</td>
</tr>
<tr>
<td>Nanet Rutten</td>
<td>Consultant</td>
<td>Grontmij</td>
</tr>
<tr>
<td>Noor Scheltema</td>
<td>Trainee</td>
<td>NS Stations</td>
</tr>
<tr>
<td>Name</td>
<td>Function</td>
<td>Organisation</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Ebel Schepers</td>
<td>Bureau Ruimte en Ontwikkeling</td>
<td>Provincie Zuid Holland,</td>
</tr>
<tr>
<td>Sjaak Sjerps</td>
<td>Director Project</td>
<td>NS Poort</td>
</tr>
<tr>
<td>Gerard Slag</td>
<td>Team Manager</td>
<td>Provincie Gelderland</td>
</tr>
<tr>
<td>Jildou van der Sluis</td>
<td>Asset Developer Research</td>
<td>NS Stations</td>
</tr>
<tr>
<td>Erik van der Staak</td>
<td>Program Manager</td>
<td>De Stadsregio Arnhem Nijmegen</td>
</tr>
<tr>
<td>Klaas van Staalduine</td>
<td>Project Leader</td>
<td>Programmabureau StedenbaanPluS</td>
</tr>
<tr>
<td>Dick van de Stouw</td>
<td>Project Leader</td>
<td>ProRail</td>
</tr>
<tr>
<td>Thomas Straatemeier</td>
<td>Senior Advisor (Ruimte en Mobiliteit)</td>
<td>Goudappel Coffeng</td>
</tr>
<tr>
<td>Rudy Stroink</td>
<td>Director</td>
<td>TCO</td>
</tr>
<tr>
<td>Jan Termorshuizen</td>
<td>Project Leader (RandstadRail)</td>
<td>Stadsgewest Haaglanden</td>
</tr>
<tr>
<td>Marcel Touset</td>
<td>Consultant</td>
<td>APPM</td>
</tr>
<tr>
<td>Koen van Velsen</td>
<td>Spoorbouwmeester</td>
<td>VROM</td>
</tr>
<tr>
<td>Ton Venhoeven</td>
<td>Rijksbouwmeester</td>
<td>VROM</td>
</tr>
<tr>
<td>Huibert Verdoold</td>
<td>Policy Advisor</td>
<td>Provincie Gelderland</td>
</tr>
<tr>
<td>Cees Verhoeff</td>
<td>Project Leader Bleizo</td>
<td>Gemeente Lansingerland</td>
</tr>
<tr>
<td>Gert de Visser</td>
<td>Project Leader (Ruimtelijke Ontwikkeling)</td>
<td>Stedenbaan +</td>
</tr>
<tr>
<td>Joost de Waal</td>
<td>Director Asset Development</td>
<td>NS Stations</td>
</tr>
<tr>
<td>Nicole van der Waart</td>
<td>Urban designer</td>
<td>Movares</td>
</tr>
<tr>
<td>Liesbeth van de Weerdhof</td>
<td>Hoofd Ontwikkeling</td>
<td>Gemeente Zevenaar</td>
</tr>
<tr>
<td>Pepijn van Wijmen</td>
<td>Director/Owner</td>
<td>APPM</td>
</tr>
<tr>
<td>Sebastiaan de Wilde</td>
<td>Director Asset Development</td>
<td>NS Stations</td>
</tr>
<tr>
<td>Constance Winnips</td>
<td>Senior Policy Advisor</td>
<td>Stadsregio Amsterdam</td>
</tr>
<tr>
<td>Eric van Winsen</td>
<td>Director (South-Western region)</td>
<td>Bouwfonds</td>
</tr>
<tr>
<td>Bart van de Wouw</td>
<td>Project Leader</td>
<td>Gemeente Zevenaar</td>
</tr>
<tr>
<td>Marjolein van de Zandschulp</td>
<td>Project Leader</td>
<td>De Stadsregio Arnhem Nijmegen</td>
</tr>
<tr>
<td>Anita de Zeeuw</td>
<td>Program Secretary</td>
<td>IenM</td>
</tr>
<tr>
<td>Name</td>
<td>Function</td>
<td>Organisation</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Louis Ainsworth</td>
<td>Manager Program Strategy and Innovation</td>
<td>Landcorp</td>
</tr>
<tr>
<td>Jon Bailey</td>
<td>Project Manager, Joondalup</td>
<td>Landcorp</td>
</tr>
<tr>
<td>Dale Bastin</td>
<td>Senior Planning Officer</td>
<td>Western Australia Planning Commission</td>
</tr>
<tr>
<td>Lindsay Broadhurst</td>
<td>Manager, Road Planning</td>
<td>Main Roads</td>
</tr>
<tr>
<td>David Browne</td>
<td>Assistant Executive Director, Safety and Strategic Development</td>
<td>Transperth</td>
</tr>
<tr>
<td>Andrew Cartledge</td>
<td>Director Infrastructure Services</td>
<td>Public Transport Authority</td>
</tr>
<tr>
<td>Carol Catherwood</td>
<td>Planning Officer</td>
<td>City of Cockburn</td>
</tr>
<tr>
<td>Roberto Colalillo</td>
<td>Senior Strategic Planner</td>
<td>City of Cockburn</td>
</tr>
<tr>
<td>Carey Curtis</td>
<td>Professor, Department of Urban &amp; Regional Planning,</td>
<td>Curtin University</td>
</tr>
<tr>
<td>Janni Curtis</td>
<td>Cadet Planning Officer</td>
<td>Town of Kwinana</td>
</tr>
<tr>
<td>Paul Dreschler</td>
<td>Managing Director</td>
<td>Hames Sharley</td>
</tr>
<tr>
<td>Trevor Finlayson</td>
<td>Senior Development Manager</td>
<td>PEET</td>
</tr>
<tr>
<td>Shona Gatenby</td>
<td>Principal Planner</td>
<td>AECOM</td>
</tr>
<tr>
<td>Barbara Gdowski</td>
<td>Senior Project Manager</td>
<td>Landcorp</td>
</tr>
<tr>
<td>William Hames</td>
<td>Executive Chairman</td>
<td>Hames Sharley</td>
</tr>
<tr>
<td>Ross Hamilton</td>
<td>Director Major Projects</td>
<td>Transperth</td>
</tr>
<tr>
<td>Judith Harley</td>
<td>Manager Research &amp; Policy</td>
<td>Urban Development Institute of Australia</td>
</tr>
<tr>
<td>Cole Hendrigan</td>
<td>PhD</td>
<td>CUSP/Curtin University</td>
</tr>
<tr>
<td>Stuart Hicks</td>
<td>Chairman</td>
<td>East Perth Redevelopment Authority</td>
</tr>
<tr>
<td>Louise Howells</td>
<td>Urban Planner</td>
<td>Public Transport Authority</td>
</tr>
<tr>
<td>David Igglesden</td>
<td>Planning Manager, State Infrastructure</td>
<td>Department of Planning</td>
</tr>
<tr>
<td>Pat Italiano</td>
<td>General Manager, Train Operations</td>
<td>Transperth</td>
</tr>
<tr>
<td>Ian James</td>
<td>Strategic Urban Designer</td>
<td>City of Fremantle</td>
</tr>
<tr>
<td>Bob Jeans</td>
<td>Director Planning &amp; Development Services</td>
<td>City of Rockingham</td>
</tr>
<tr>
<td>Charles Johnson</td>
<td>Managing Director, Town Planning</td>
<td>TPG (The Planning Group)</td>
</tr>
<tr>
<td>Anna Kelderman</td>
<td>Planning Manager</td>
<td>GHD</td>
</tr>
<tr>
<td>Ryan Keys</td>
<td>Executive Director Planning</td>
<td>Subiaco Redevelopment Authority</td>
</tr>
</tbody>
</table>
## Perth Metropolitan Region, Western Australia

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stephen Kovacs</td>
<td>Strategic Planning Officer</td>
<td>Stirling City Alliance</td>
</tr>
<tr>
<td>Eric Lumsden</td>
<td>Director General of Planning (retired)</td>
<td>Department of Planning/PA TREC (Planning and Transport Research Centre)</td>
</tr>
<tr>
<td>Sue MacCarrey</td>
<td>Deputy Director General</td>
<td>Department of Transport</td>
</tr>
<tr>
<td>Alannah MacTiernan</td>
<td>ex-Minister for Planning and Infrastructure</td>
<td>Department of Planning and Infrastructure</td>
</tr>
<tr>
<td>Greg Martin</td>
<td>Director</td>
<td>PATREC</td>
</tr>
<tr>
<td>Peter Martinovich</td>
<td>Director of Infrastructure Planning and Land Services</td>
<td>Transperth</td>
</tr>
<tr>
<td>Justin McKirdy</td>
<td>Urban Road Planning Manager</td>
<td>Main Roads</td>
</tr>
<tr>
<td>Gary Merrit</td>
<td>Services Development Manager</td>
<td>Public Transport Authority</td>
</tr>
<tr>
<td>David Milliken</td>
<td>Senior Transit Network Planner</td>
<td>Department of Transport</td>
</tr>
<tr>
<td>Denise Morgan</td>
<td>Senior Project Officer</td>
<td>Hassell</td>
</tr>
<tr>
<td>Mike Mouritz</td>
<td>Executive Director, Urban Policy</td>
<td>PATREC</td>
</tr>
<tr>
<td>Peter Newman</td>
<td>Professor of Sustainability/Director of CUSP</td>
<td>Curtin, CUSP/Infrastructure Alliance</td>
</tr>
<tr>
<td>Brad Osbourne</td>
<td>State Manager</td>
<td>Westfield</td>
</tr>
<tr>
<td>Alix Rhodes</td>
<td>Director of Metropolitan Strategy</td>
<td>Department of Planning</td>
</tr>
<tr>
<td>Gérard Siero</td>
<td>Ecological Architect</td>
<td>Siero Architect</td>
</tr>
<tr>
<td>Martin Spencer</td>
<td>Senior Strategic Urban Planner</td>
<td>City of Melville</td>
</tr>
<tr>
<td>Broderick Stafford</td>
<td>Research Officer</td>
<td>Urban Development Institute of Australia</td>
</tr>
<tr>
<td>Christopher Watts</td>
<td>Transport Planner</td>
<td>Public Transport Authority</td>
</tr>
<tr>
<td>Martin White</td>
<td>General Manager</td>
<td>Transwa</td>
</tr>
<tr>
<td>Craig Wooldridge</td>
<td>Director Network Planning - Moving people</td>
<td>Department of Transport</td>
</tr>
</tbody>
</table>
## Portland Metropolitan Area, Oregon

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gail Achterman</td>
<td>Commissioner</td>
<td>Oregon Transport Commission</td>
</tr>
<tr>
<td>GB Arrington</td>
<td>Vice President and Principal Planner</td>
<td>Parsons Brinckerhoff Quade &amp; Douglas, Inc.</td>
</tr>
<tr>
<td>Rob Benett</td>
<td>Founder</td>
<td>Portland Sustainability Institute</td>
</tr>
<tr>
<td>Hal Bergsma</td>
<td>Principal Planner</td>
<td>City of Beaverton</td>
</tr>
<tr>
<td>Matthew Brown</td>
<td>Principal</td>
<td>Loci</td>
</tr>
<tr>
<td>Colin Cooper</td>
<td>Assistant Planning Director</td>
<td>City of Hillsboro</td>
</tr>
<tr>
<td>Andy Cotugno</td>
<td>Senior Policy Advisor</td>
<td>Metro</td>
</tr>
<tr>
<td>Al Dennison</td>
<td>Executive Director</td>
<td>Pearl District Business Association</td>
</tr>
<tr>
<td>Jillian Detweiler</td>
<td>Director of Real Estate</td>
<td>TriMet</td>
</tr>
<tr>
<td>Steve Dotterrer</td>
<td>Principal Planner</td>
<td>Bureau of Planning and Sustainability</td>
</tr>
<tr>
<td>Eric Engstrom</td>
<td>PDC Liaison</td>
<td>Bureau of Planning and Sustainability</td>
</tr>
<tr>
<td>John Fregonese</td>
<td>Owner</td>
<td>Fregonese Assoc.</td>
</tr>
<tr>
<td>Megan Gibb</td>
<td>TODt Program Manager</td>
<td>Metro</td>
</tr>
<tr>
<td>Marc Guichard</td>
<td>TOD Program</td>
<td>Metro</td>
</tr>
<tr>
<td>Rick Gustafson</td>
<td>Vice President</td>
<td>Shiels Obletz Johnsen Inc.</td>
</tr>
<tr>
<td>Nancy Hales</td>
<td>Program Director</td>
<td>First Stop Portland</td>
</tr>
<tr>
<td>Bob Hastings</td>
<td>Agency Architect</td>
<td>TriMet</td>
</tr>
<tr>
<td>Sarah Iannarone</td>
<td>Assistant Program Director</td>
<td>First Stop Portland</td>
</tr>
<tr>
<td>Gil Kelley</td>
<td>Director of Planning</td>
<td>Portland Development Commission</td>
</tr>
<tr>
<td>Katherine Kelly</td>
<td>Transportation Planning Manager</td>
<td>City of Gresham</td>
</tr>
<tr>
<td>Lisa Libby</td>
<td>Planning and sustainability director</td>
<td>Office of Mayor Sam Adams</td>
</tr>
<tr>
<td>Robert Maestre</td>
<td>Long Range Planning Manager</td>
<td>Oregon Department of Transportation</td>
</tr>
<tr>
<td>Barry Manning</td>
<td>Senior Planner</td>
<td>Bureau of Planning and Sustainability</td>
</tr>
<tr>
<td>Robin McArthur</td>
<td>Planning Manager</td>
<td>Metro</td>
</tr>
<tr>
<td>Neil McFarlane</td>
<td>General Manager</td>
<td>TriMet</td>
</tr>
<tr>
<td>Carter McNichol</td>
<td>Project Manager</td>
<td>Shiels Obletz Johnsen Inc.</td>
</tr>
<tr>
<td>Jason Miner</td>
<td>Executive Director</td>
<td>1000 Friends of Oregon</td>
</tr>
<tr>
<td>Geraldine Moyle</td>
<td>Senior Project Coordinator</td>
<td>Portland Development Commission</td>
</tr>
<tr>
<td>Name</td>
<td>Function</td>
<td>Organisation</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Vanitha Murthy</td>
<td>Transportation Planner</td>
<td>Oregon Department of Transportation</td>
</tr>
<tr>
<td>Brian Newman</td>
<td>Director, Campus Planning, Development &amp; Real Estate</td>
<td>Oregon Health Sciences University</td>
</tr>
<tr>
<td>Lynn Peterson</td>
<td>Sustainable Communities and Transportation Advisor</td>
<td>Oregon Governor’s office</td>
</tr>
<tr>
<td>Pat Prendergast</td>
<td>Developer</td>
<td>Hoyt Street Properties</td>
</tr>
<tr>
<td>Ann Pytynia</td>
<td>Principal Planner</td>
<td>City of Gresham</td>
</tr>
<tr>
<td>Patrick Quinton</td>
<td>Executive Director</td>
<td>Portland Development Commission</td>
</tr>
<tr>
<td>Debbie Raber</td>
<td>Assistant Planning Director</td>
<td>City of Hillsboro</td>
</tr>
<tr>
<td>Lidwien Rahman</td>
<td>Transportation Planner</td>
<td>Oregon Department of Transportation</td>
</tr>
<tr>
<td>Lucia Ramirez</td>
<td>Principal Planner</td>
<td>Oregon Department of Transportation</td>
</tr>
<tr>
<td>Michael Rock</td>
<td>Principal Planner</td>
<td>Oregon Department of Transportation</td>
</tr>
<tr>
<td>Jeannine Rustad</td>
<td>Urban Planner</td>
<td>City of Hillsboro</td>
</tr>
<tr>
<td>Kimberly Schneider Branam</td>
<td>Director of Strategy</td>
<td>Portland Development Commission</td>
</tr>
<tr>
<td>Phil Sellinger</td>
<td>Project Management</td>
<td>ex-TriMet, Willamette Pedestrian Coalition</td>
</tr>
<tr>
<td>Chris Smith</td>
<td>President</td>
<td>Portland Transport</td>
</tr>
<tr>
<td>Steve Sparks</td>
<td>Planning Division Manager</td>
<td>City of Beaverton</td>
</tr>
<tr>
<td>Bob Stacey</td>
<td>Councilor</td>
<td>Metro</td>
</tr>
<tr>
<td>Abigail Thorne-Lyman</td>
<td>Project Director</td>
<td>Reconnecting America</td>
</tr>
<tr>
<td>Ray Valone</td>
<td>Principal Planner</td>
<td>Metro</td>
</tr>
<tr>
<td>Elizabeth Warmpler</td>
<td>Project Manager</td>
<td>Reconnecting America</td>
</tr>
<tr>
<td>Charles Wiggins</td>
<td>Consultant</td>
<td>DS Consulting</td>
</tr>
<tr>
<td>Jeff Wood</td>
<td>New Media Director / Chief Cartographer</td>
<td>Reconnecting America</td>
</tr>
<tr>
<td>Duncan Wyze</td>
<td>President</td>
<td>Oregon Business Council</td>
</tr>
<tr>
<td>Chris Yake</td>
<td>Senior TOD Planner</td>
<td>Metro</td>
</tr>
<tr>
<td>Joe Zehnder</td>
<td>Head of Planning Dept</td>
<td>Bureau of Planning and Sustainability</td>
</tr>
<tr>
<td>Sam Zimbabwe</td>
<td>Director</td>
<td>Centre for Transit Oriented Development</td>
</tr>
<tr>
<td>Name</td>
<td>Function</td>
<td>Organisation</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Jim Bailey</td>
<td>Senior Planner</td>
<td>City of Vancouver</td>
</tr>
<tr>
<td>Ken Cameron</td>
<td>Manager of Policy and Planning</td>
<td>GVRD/Private Consultant</td>
</tr>
<tr>
<td>Patrick Condon</td>
<td>Professor of Urban Design and Landscape Architecture</td>
<td>University of British Columbia</td>
</tr>
<tr>
<td>Jacqui Dawes</td>
<td>Assistant Deputy Minister</td>
<td>BC Ministry of Transport</td>
</tr>
<tr>
<td>Christina DeMarco</td>
<td>Planner</td>
<td>Metro Vancouver</td>
</tr>
<tr>
<td>Larry Frank</td>
<td>Professor</td>
<td>University of British Columbia</td>
</tr>
<tr>
<td>Daniel Freeman</td>
<td>Project Planner</td>
<td>South Coast British Columbia Transportation</td>
</tr>
<tr>
<td>Bob Glover</td>
<td>Planning Department</td>
<td>City of Burnaby</td>
</tr>
<tr>
<td>Michael Gordon</td>
<td>Senior Central Area Planner</td>
<td>City of Vancouver</td>
</tr>
<tr>
<td>Michael von Hausen</td>
<td>President</td>
<td>MVH Urban Planning &amp; Design</td>
</tr>
<tr>
<td>Jennifer Hill</td>
<td>Senior Planner</td>
<td>BC Ministry of Transport</td>
</tr>
<tr>
<td>Bill Knight</td>
<td>Community Relations Officer</td>
<td>SCBCTA/Translink</td>
</tr>
<tr>
<td>Patrick Livolsi</td>
<td>Regional Director</td>
<td>BC Ministry of Transport</td>
</tr>
<tr>
<td>Graham McGarvra</td>
<td>Founding Principal</td>
<td>VIA Architecture</td>
</tr>
<tr>
<td>Stephan Nieweler</td>
<td>Sr. Urban/Transport Planner</td>
<td>Translink</td>
</tr>
<tr>
<td>Gordon Price</td>
<td>Urban Planner/Politician/Director of City Program</td>
<td>Simon Fraser University/City of Vancouver</td>
</tr>
<tr>
<td>Tamim Raad</td>
<td>Project Manager</td>
<td>Greater Vancouver Transportation Authority (Translink)</td>
</tr>
<tr>
<td>Clive Rock</td>
<td>Principal</td>
<td>Silex Consult</td>
</tr>
<tr>
<td>John Schnablegger</td>
<td>Regional Manager</td>
<td>Ministry of Transportation and Infrastructure</td>
</tr>
<tr>
<td>Maria Su</td>
<td>Program Manager, Policy Development</td>
<td>Translink</td>
</tr>
<tr>
<td>Ren Thomas</td>
<td>Researcher</td>
<td>University of British Columbia</td>
</tr>
<tr>
<td>Brent Toderian</td>
<td>Director of Planning</td>
<td>City of Vancouver</td>
</tr>
<tr>
<td>Dan Turner</td>
<td>Executive Vice President</td>
<td>PCI Group</td>
</tr>
<tr>
<td>Kevin Volk</td>
<td>Senior Manager, Transit Projects</td>
<td>Ministry of Transportation and Infrastructure</td>
</tr>
<tr>
<td>Name</td>
<td>Function</td>
<td>Organisation</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Peter Hartoft Nielsen</td>
<td>Project Leader</td>
<td>Miljøministeriet</td>
</tr>
<tr>
<td>Kresten Bloch</td>
<td>Head of City Planning</td>
<td>By og Havn</td>
</tr>
<tr>
<td>Morten Elle</td>
<td>Associate Professor</td>
<td>Aalborg University</td>
</tr>
<tr>
<td>Tom Nielsen</td>
<td>Associate Professor</td>
<td>Aarhus School of Architecture</td>
</tr>
<tr>
<td>Sven Illeris</td>
<td>Professor Emeritus</td>
<td>Roskilde Universiteit/Byplanlab</td>
</tr>
<tr>
<td>Marianne Bendixen</td>
<td>Projektleder</td>
<td>Gladsaxe Kommune/Ringbysamarbejdet</td>
</tr>
<tr>
<td>Birgit Elise Petersen</td>
<td>Chief Consultant</td>
<td>Regio Hovedstaden, Koncern Regional Udvikling</td>
</tr>
<tr>
<td>Helen Lundgaard</td>
<td>Consultant</td>
<td>Regio Hovedstaden, Koncern Regional Udvikling</td>
</tr>
<tr>
<td>Anna Thormann</td>
<td>Consultant</td>
<td>Gate 21</td>
</tr>
<tr>
<td>Anne Holm Sjøberg</td>
<td>Consultant</td>
<td>Regio Hovedstaden, Koncern Regional Udvikling</td>
</tr>
<tr>
<td>Marie Hvid Damborg</td>
<td>Consultant</td>
<td>Regio Hovedstaden, Koncern Regional Udvikling</td>
</tr>
<tr>
<td>Astrid Bruus Thomsen</td>
<td>Project Leader</td>
<td>Realdania</td>
</tr>
<tr>
<td>Peter Kroyer Dahl</td>
<td>Special Adviser</td>
<td>Regio Hovedstaden, Koncern Regional Udvikling</td>
</tr>
<tr>
<td>Patrick Driscoll</td>
<td>Researcher</td>
<td>The Danish Centre for Environmental Assessment</td>
</tr>
<tr>
<td>Lars Gemzoe</td>
<td>Senoir Consultant</td>
<td>Gehl Architects</td>
</tr>
<tr>
<td>Petter Naess</td>
<td>Professor</td>
<td>Aalborg University</td>
</tr>
<tr>
<td>Sigurbjörn Hallsson</td>
<td>Consultant</td>
<td>Regio Hovedstaden, Koncern Regional Udvikling</td>
</tr>
<tr>
<td>Ellen Højgaard Jensen</td>
<td>Director</td>
<td>byplanlab</td>
</tr>
<tr>
<td>Jens Rørbech</td>
<td>Senior Consultant</td>
<td>Gehl Architects/DTU</td>
</tr>
<tr>
<td>Morten Steen Petersen</td>
<td>Senior Consultant</td>
<td>Tetraplan</td>
</tr>
<tr>
<td>Karin Søjberg Holst</td>
<td>Mayor</td>
<td>Gladsaexe/Loop City Light Rail</td>
</tr>
<tr>
<td>Niels Tørsølv</td>
<td>Head of Copenhagen Traffic Department</td>
<td>Københavens Kommune, Centre for Trafik</td>
</tr>
<tr>
<td>Andres Valderrama</td>
<td>Post-doc researcher</td>
<td>Aalborg University in Copenhagen</td>
</tr>
<tr>
<td>Nina Vogel</td>
<td>Researcher</td>
<td>Aalborg University in Copenhagen</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figures and Tables</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1: Common visual representations of TOD as node of in a corridor.</td>
<td>11</td>
</tr>
<tr>
<td>Table 2: Comparison of mode share of European cities against cities in the Netherlands (Source: TEMS: The EPOMM Modal Split Tool. Database: EPOMM)</td>
<td>22-23</td>
</tr>
<tr>
<td>Figure 3: Conceptual model of vicious and virtuous cycle of TODS implementation</td>
<td>32-33</td>
</tr>
<tr>
<td>Figure 4a: Phase I as part of the Kolb and Fry experiential learning cycle, dealing with the identification of barriers.</td>
<td>38</td>
</tr>
<tr>
<td>Figure 4b: Phase II,III &amp; IV as part of the Kolb and Fry experiential learning cycle; dealing with identification of virtuous cycle and the role of incentives, the necessary conditions for institutional change and the roles that absorptive capacity, learning and institutional innovation play in that process.</td>
<td>40</td>
</tr>
<tr>
<td>Figure 4c: Phase V as part of the Kolb and Fry experiential learning cycle, dealing with application towards the Dutch context.</td>
<td>42</td>
</tr>
<tr>
<td>Table 5: (Adapted) Framework on likelihood of transfer between same, similar and different systems (barriers and context) (Spaans &amp; Louw, 2009) by adding the factor of resistance (Wolsink, 2003).</td>
<td>45</td>
</tr>
<tr>
<td>Figure 1.1: Map of Stedenbaan (left) and Stadsregiorail (right) Source: Authors, based on OpenStreetMap</td>
<td>72-73</td>
</tr>
<tr>
<td>Figure 1.2: Schematic framework of four-step approach with deductive and inductive processes of various methods and findings.</td>
<td>76</td>
</tr>
<tr>
<td>Table 1.3: Selection of interviewees per category</td>
<td>77</td>
</tr>
<tr>
<td>Table 1.4: Example of an excerpt with codes (left), notes (middle) and categories (right)</td>
<td>79</td>
</tr>
<tr>
<td>Figure 1.5: Code-categories map derived from excerpt in Table 1.4</td>
<td>80</td>
</tr>
<tr>
<td>Figure 1.6: Results of poll during focus group sessions on most critical barriers based on interview propositions (IP1-9).</td>
<td>82</td>
</tr>
<tr>
<td>Figure 1.7: Conceptual model on dynamics between formal and informal barriers (left) leading towards the possible lifting of barriers (right)</td>
<td>90-91</td>
</tr>
<tr>
<td>Figures and Tables</td>
<td>Page</td>
</tr>
<tr>
<td>-------------------</td>
<td>------</td>
</tr>
<tr>
<td>Figure 2.1: Preliminary conceptual model of vicious and virtuous cycle for TOD in an ideal situation (Tan et al., 2011)</td>
<td>106</td>
</tr>
<tr>
<td>Table 2.2: Comparison of formal and informal institutional barriers and incentives per case</td>
<td>113</td>
</tr>
<tr>
<td>Figure 2.3: Improved conceptual model featuring feedback loop of learning and innovation leading to institutional change</td>
<td>124-125</td>
</tr>
<tr>
<td>Figure 3.1: Model of processes of institutional change in a given timeline</td>
<td>144-145</td>
</tr>
<tr>
<td>Figure 3.2: Mentions of events, plans/policies/programs/projects, organizations/individuals per interviewee for the Portland Metropolitan Area</td>
<td>150</td>
</tr>
<tr>
<td>Table 3.3: Summary of critical junctures across all four cases</td>
<td>151-154</td>
</tr>
<tr>
<td>Figure 4.1: Model illustrating feedback loops between institutional change, learning and innovation.</td>
<td>178</td>
</tr>
<tr>
<td>Table 4.2: Contribution of data to identification of markers of institutional innovation and patterns of learning.</td>
<td>182</td>
</tr>
<tr>
<td>Table 4.3: Evaluation criteria of absorptive capacity (collective and individual)</td>
<td>183</td>
</tr>
<tr>
<td>Table 4.4: Summary of markers of institutional innovation and patterns of learning in PMR, PMA, GVR and CPH.</td>
<td>186-187</td>
</tr>
<tr>
<td>Table 4.5: Analysis of absorptive capacity across all four cases</td>
<td>192-193</td>
</tr>
<tr>
<td>Figure 5: Conceptual model of vicious and virtuous cycle of TODS implementation</td>
<td>214-215</td>
</tr>
</tbody>
</table>
SUMMARIES

SUMMARY

SAMENVATTING

简介
In a world of dwindling natural resources where sustainability has become an increasingly important social and policy goal, Transit-Oriented Development (TOD) is widely embraced by politicians and planners in various cities and regions. TOD is not a new concept, the principles behind it are as old as the process of human settlement where places for shelter and commerce are dictated by nodes of mobility flows. Despite the abundance of literature and examples, the pursuit of TOD remains elusive. This has led to renewed interest in TOD strategies (TODS) within academic, practice and policy arenas in various cities and regions around the world in the recent years, particularly in the Netherlands. TODS encompass plans, policies and projects within cities and regions that seek sustainable development by gathering urban development around transit nodes to encourage transit use, and develop transit infrastructure to connect current and new pockets of development.

TODS in the Netherlands has faced implementation challenges, despite the copious amounts of conflicting discussions in academic and professional, interesting ‘successful’ examples from elsewhere and the numerous initiatives and visions. How did this transpire when it TODS have been implemented in other cities and regions?

What are the barriers that impede TODS in the Netherlands and how could they be overcome?

This dissertation focuses on the institutional aspect of TODS implementation. Current discussions focus predominantly if TODS is ‘good’ or ‘sustainable’, why TODS should be implemented. The fields of economics, engineering and social science have provided conflicting answers to these discussions. However, there has been little attention paid on how to make it happen, if it is indeed desired. This research contributes constructively to these discussions and knowledge gap by seeking to understand how TODS implementation can be achieved through institutional change whereby institutional barriers can be overcome through the introduction of institutional incentives in a process characterised by learning and institutional innovation.

Considering the research direction, the following propositions are postulated;

- That cities and regions experiencing difficulties in TODS implementation are in a vicious cycle whereby mutually reinforcing formal and informal institutional barriers create a non-conducive environment for TODS implementation which will perpetuate unless action is taken.
• The introduction of formal and informal institutional incentives to overcome existing barriers creates a *virtuous cycle* that is conducive to TODS implementation.
• This occurs through a necessary process of *institutional change*.
• This process is characterised by *learning and institutional innovation*.

These propositions are visualised in a conceptual model that implies that there is a possibility to advance to a virtuous cycle as well as regress to a vicious cycle. This process is neither linear or permanent and good choices can definitely be undone by bad habits.

The theoretical considerations behind these propositions highlighted the influence of broader socio-cultural landscapes on planning processes and the importance of subjective perceptions and beliefs of stakeholders on processes of change. The latter aspect emphasises the need for appropriate solutions to the implementation challenge that are acknowledged and recognised by the stakeholders.

The research questions addressed here are;

• How to identify the institutional barriers to TODS and their interdependency in a given context i.e., the Netherlands? Is there a vicious cycle?
• How cases of TODS implementation elsewhere overcome similar barriers and what are the roles that institutional incentives play in this process? Does this lead to a virtuous cycle?
• What processes of institutional change occurred in cases of TODS implementation, what are the specific elements involved, and if and how they are related?

The considerations enter here into the domains of learning and policy transfer within planning literature. The identification of appropriate solutions from other contexts and the selection of those contexts, where similar barriers have been conquered, are therefore crucial. The ‘what’ to learn is just as important as ‘who’ to learn from. This motivates a focus on learning and innovation, as related to the processes of change, for both the individual and the collective.

• How does learning facilitate institutional innovation resulting in institutional change, what patterns of learning and markers of institutional innovation can be identified in planning practice, and to what extent does the absorptive capacity of a given planning context affect learning and innovation?
• How can these processes and elements in cases of TODS implementation be transferred towards the Dutch context?
VICIOUS AND VIRTUOUS CYCLES

The research design is structured around the Kolb & Fry experiential learning cycle. This experiential learning cycle is reminiscent of the heuristic process of planning practice where the observation and reflection of concrete experiences leads to the formation of abstract concepts to be tested in a new situation thereby creating new concrete experiences to be observed and reflected upon. The research propositions are then operationalised through an exploratory approach using empirical data to discover the processes, roles and relationships of the following elements.

Vicious cycle

A method for identification of formal and informal barriers in a non-conducive environment for TODS is developed. Using the hypothesis-generating case of the Netherlands, a four-step approach combining deductive and inductive processes is used to gather qualitative data for analysis. The concurrent steps taken were a literature review, policy analysis, interviews and focus groups. The findings led to the identification and understanding of barriers (in the Netherlands) and a hypothesis that it is possible to break away from a vicious cycle. The systematic method of identification featuring the stakeholder’s perspective can be recommended for other cities and regions seeking TODS implementation.

Virtuous cycle

The presence of a virtuous cycle where formal and informal incentives are introduced to overcome barriers are identified in three theory-confirming cases - the metropolitan regions of Perth, Portland and Vancouver. The selection of cases was based on explicit TODS implementation as mentioned in literature. In addition, cases had demonstrate an observable shift towards a more transit-oriented mobility pattern and more compact urban development achieved through the explicit introduction of incentives. The empirical findings were constructed from a triangulation of literature review and policy analysis, semi-structured interviews, and timeline reconstruction of events, plans, programs, policies and organisational structures leading to implementation.

Institutional change

Necessary conditions for institutional change accompanying the shift towards a virtuous cycle were discovered through a reconstruction of processes of change in four cases - the metropolitan regions of Perth, Portland, Vancouver and Copenhagen. A theoretical framework defining institutional change by grounding it in planning practice was proposed.

Change was observed through its elements of critical phases resulting from catalysts causing reactions and effects.
These elements and their patterns of occurrence were confirmed and refined through the empirical findings from the cases.

**Learning and innovation**

A theoretical framework defining the abstract concepts of learning and institutional innovation from literature and synthesising their relationship to institutional change was proposed. The concepts were further grounded and refined by examining the empirical data from the above four cases with the proposed framework. Patterns of learning and markers of innovation were observed from a comparative analysis of all cases. In addition, the cases were examined for their collective and individual absorptive capacity.

The above research design and methods contributed to the defining and understanding of *barriers, incentives, necessary conditions for change, and patterns of learning and markers of innovation*.

The combination of formulating conceptual models and theoretical framework that were examined and refined with qualitative empirical data from systematically replicated and multiple case studies, without sacrificing either the richness of context or the perception of stakeholders, is a contribution to planning research.

The final step required was to gain insight into the potential application of the accumulated findings towards the Dutch practice context, where desire for a shift towards TODS implementation is expressed. Focus group discussions with practitioners to examine the applicability of incentives from the foreign cases to target barriers in their own contexts were conducted in a group setting as thought experiments. In addition, their capacity for learning was examined with individual surveys on their background and professional experiences. This initial attempt to complete the experiential learning cycle is a contribution to planning literature where the testing of concepts in new situations with practitioners and within practice is rarely attempted.

**HOW TO MAKE IT HAPPEN?**

This research is designed by a practice-academia research consortium, where knowledge exchange and dissemination were facilitated and encouraged. Therefore, the applicability of findings for planners and policy makers were of utmost importance. Planning practice is concerned with the normative goal of ‘improving’ the built environment. The findings below are therefore attuned to practitioners seeking to make the shift towards a virtuous cycle benefitting TODS implementation.
Barriers

Formal and informal barriers reinforce each other, leading to a vicious cycle. For the case of the Netherlands, formal barriers identified are institutional complexity, fragmentation of governance contributing to lack of clarity in roles and responsibilities. The informal barriers identified were indifference towards transit, lack of urgency and knowledge sharing between stakeholders. The lack of financial resources was identified as a crucial barrier echoing current literature. However, the findings also suggested that this barrier as symptomatic of the other formal and informal barriers such as imperfections in the policy system and an implicit preference for road-based infrastructure. Planners and policy makers are advised to diagnose their barriers before seeking solutions elsewhere.

Incentives

A positive relationship between formal and informal incentives, indicative of a virtuous cycle was evidenced in the metropolitan regions of Perth, Portland and Vancouver. Findings indicated common combinations of incentives at work in these cases. These combinations are legal-financial, legal-socio-cultural, financial-socio-cultural and legal-financial-socio-cultural. In addition, the role of informal incentives has been underexposed in current planning literature and practice. A menu of possible incentives appropriate to the Dutch context could be presented to planners and policy makers who are advised that both formal and informal incentives should be utilised in the above combinations to target barriers identified.

Necessary conditions for change

Processes of change were observed through its elements of critical phases of catalysts, reactions and effects. The passage of time is an important factor that is often neglected when examining institutional change. Findings indicated that the cumulative forces of reactions and effects determine the direction of change. It is therefore possible to break away from an existing development path and shift towards a more conducive institutional context for TODS. Likewise, it is also possible to regress. Planners and policy makers are advised to cultivate their ability to capitalise on the elements of change by being aware of societal trends and political directions. The role of key actors, individual or collective, should not be underestimated. Dialogue and consensus should be sought within these networks and with their constituents.
Patterns of learning and markers of innovation

Learning and innovation are intricately linked to institutional change and were observed through their respective patterns and markers. Findings from the cases indicated these patterns and markers as individual and collective actions towards deliberate and positive changes occurring through new practices and meanings facilitated by creation and/or improvement of knowledge through existing and/or new and social and knowledge networks. Furthermore, absorptive capacity was a prerequisite for learning and innovation. Planners and policy makers are advised that facilitating the link between practice and academia is an important first step. In addition, consistency of beliefs, perspectives and experiences at individual and collective levels should be strived for.

Similarly, the openness and willingness to learn within planning practice and political realms should be preserved if the processes of change through learning and innovation are desired.

NEXT STEPS

As stated above, the process of TODS implementation is a process of decades. The final step in testing newly formed abstract concepts from the foreign cases was impeded by the duration of the research project and the realities of planning practices. However, initial steps for testing were made with ‘thought experiments’ and reflections with the practice.

Preliminary findings from two of the three planned focus group indicated slight differences in the professional background, planning process experiences and attitudes towards learning from foreign contexts of Dutch practitioners in contrast with practitioners elsewhere. In the foreign cases, there were more planners involved. Resistance to learning from foreign contexts was present but practitioners were still able to engage and successfully complete the thought experiments. It is recommended to conduct more sessions in several different contexts and settings to verify the findings.

The perception and prior experiences of the individual stakeholder within these group learning settings became apparent and determined the incentives selected, created and applied. This calls for more research into the effect of emotions and subjective cognition in future research on planning processes. The full impact of the testing of concepts in new situations can only be achieved through an ex-post evaluation of the research by external parties after actual projects are implemented (perhaps after 15-25 years).

This research showed that practice-academia interaction through action research is valuable (voor both practitioners and academics) and should therefore be encouraged.
UITDAGINGEN IN DE ZOEKTOCHT NAAR TRANSIT-ORIENTED DEVELOPMENT

Duurzaamheid wordt belangrijk gevonden, in zowel de maatschappij als in het beleid. In het stedelijk beleid wordt Transit-Oriented Development (TOD), ofwel ‘Knooppuntontwikkeling’ steeds vaker omarmt, zowel door politici als door beleidsmedewerkers. TOD is geen nieuw concept. De principes erachter – het combineren van mobiliteit en activiteiten - zijn van alle tijden. Nederzettingen ontstonden bij handelsplaatsen, vaak bij een rivier. TOD strategieën (TODS) zijn momenteel populair in veel steden en regio’s, in Nederland en daarbuiten. TODS bestaan uit plannen, beleid en projecten in stedelijke regio’s en steden die zijn gericht op duurzame verstedelijkking door vastgoedontwikkeling te concentreren rondom OV-haltes om zo het OV-gebruik te stimuleren, en het aanleggen van nieuwe OV-systemen om bestaande en nieuwe ontwikkelingen te verbinden.

Ondanks de overvloed aan wetenschappelijke en praktijkliteratuur, interessant voorbeelden uit het buitenland, en de vele initiatieven en visies die er zijn, blijkt het lastig om TODS in de Nederlandse praktijk te realiseren. Hoe komt dit? En waarom lukt het op andere plekken wel om TOD strategieën (TODS) te implementeren?

Wat zijn de barrières in Nederland voor TODS en hoe kunnen die overwonnen worden?

Pursuing Transit-Oriented Development

Dit proefschrift richt zich op de institutionele aspecten van TODS-implementatie. Tot nu toe gaan discussies vooral over of TODS ‘goed’ en ‘duurzaam’ zijn, waarom TODS geïmplementeerd zouden moeten worden en welk materieel het beste is.

In de disciplines van economie, verkeerskunde, planologie en de technische wetenschappen bestaan hier vele verschillende meningen over. Dit onderzoek gaat ervanuit dat TODS gewenst zijn, en besteedt juist aandacht aan hoe men dit kan doen. Hiermee probeert dit onderzoek een constructieve bijdrage te leveren aan het debat.

Verder hoopt het inzicht te vergroten in hoe TODS implementatie bereikt kan worden door middel van institutionele veranderingen waarbij barrières worden overwonnen met prikkels in een proces gekenmerkt door zowel leren als institutionele innovatie.
In het onderzoek staan de volgende vier proposities centraal:

- Steden en regio’s die problemen ondervinden met de implementatie van TODS bevinden zich in een *vicieuze cirkel*, gecreëerd door wederzijds versterkende formele en informele institutionele barrières. Dit is een ongunstige context voor TODS-implementatie, die zal voortduren totdat er actie wordt ondernomen.
- Invoering van formele en informele institutionele prikkels kan bestaande barrières slechten en daardoor ontstaat een *virtuoze cirkel*: een context die TODS-implementatie bevordert.
- Hiervoor is een proces van *institutionele verandering* nodig.
- Dit proces wordt gekenmerkt door *leren en institutionele innovatie*.

Deze proposities zijn gevisualiseerd in een conceptueel model. Schematisch is aangegeven dat er een mogelijkheid tot vooruitgang naar een virtuoze cirkel is, evenals het terugvallen naar een vicieuze cirkel. Het proces kan beide kanten op gaan. Goede keuzes kunnen zeker ongedaan gemaakt worden door slechte gewoonten en vice versa.

De theoretische overwegingen achter deze proposities gaan uit van een brede sociaal-culturele invloed op planningsprocessen. Daarnaast staan subjectieve percepties en overtuigingen van actoren in de veranderingsprocessen centraal. Dit laatste aspect benadrukt de noodzaak om samen met belanghebbenden te zoeken naar oplossingen voor de onderkende barrières.

De bijbehorende onderzoeksvragen zijn:

- Hoe kunnen barrières voor TODS geïdentificeerd worden in relatie tot de belanghebbenden? Is er sprake van een vicieuze cirkel?
- Wat zijn de institutionele prikkels die kunnen leiden tot een virtuoze cirkel?
- Wat zijn de noodzakelijke voorwaarden van institutionele veranderingen naar een meer gunstige context voor TODS?

Deze overwegingen zich richting de domeinen van het leren en ‘policy transfer’ binnen de planningsliteratuur. Het identificeren van mogelijke lessen en oplossingen in andere contexten die met vergelijkbare barrières hebben gekampt is interessant.

Aansluitend bij planningsliteratuur en aanverwante disciplines over leren en ‘policy transfer’, is er daarom in dit onderzoek gekeken naar leer- en innovatie aspecten voor institutionele verandering op zowel individueel als collectief niveau.
VICIEUZE EN VIRTUOZE CIRKELS

De onderzoeksopzet is gestructureerd rond het Kolb & Fry ‘experiential learning model’. Dit model weerspiegelt het heuristische proces waarin het observeren en reflecteren van concrete ervaringen leidt tot de vorming van abstracte concepten die kunnen worden getest in een nieuwe situatie.

Dit leidt dan tot nieuwe concrete ervaringen waarop vervolgens geobserveerd en gereflecteerd kan worden. Dit is ook toepasbaar op de planningspraktijk. De onderzoeksproposities zijn geoperationaliseerd in een benadering waarin empirische data zijn gebruikt om de volgende processen, rollen en relaties te ontdekken.

Vicieuze cirkel

Hier voor is een methode voor het identificeren van formele en informele barrières in een TODS ongunstig klimaat ontwikkeld. Het betrof een vier-stappenvaanpak waarin een combinatie van zowel deductieve als inductieve onderzoeksmethoden werden gebruikt om kwalitatieve gegevens te verzamelen. Nederland diende als ‘hypothesis generating’ case. De vier stappen waren: een literatuurstudie, beleidsanalyse, interviews en focusgroepen. De bevindingen hebben geleid tot het identificeren van en het beter begrijpen van barrières voor TODS in Nederland.

Dit heeft geresulteerd in een hypothese dat het mogelijk is om uit een vicieuze cirkel te komen door de bestaande barrières te slechten via prikkels. De systematische methodiek van identificeren van barrières vanuit de perspectieven van belanghebbenden is ook interessant voor andere steden en regio’s op zoek naar TODS-implementatie.

Virtuoze cirkel

De aanwezigheid van een virtuoze cirkel gevormd door het invoeren van zowel formele als informele prikkels om barrières te overwinnen is aangetroffen in drie ‘theory-confirming’ cases: de metropoolregio’s van Perth, Portland en Vancouver. De cases waren geselecteerd op basis van hun expliciete succesvolle TODS-implementatie, na het slechten van vergelijkbare barrières als in Nederland.

De case-selectie vond plaats op basis van een literatuurstudie. Succesvol hield in dat in de metropolitane regio’s de mobiliteitspatronen meer ‘transit’ georiënteerd moesten zijn geworden en de stedelijke ontwikkeling meer compact als gevolg van de expliciete invoering van prikkels voor TODS.
De empirische bevindingen zijn gedaan om basis van literatuurstudie en beleidsanalyse, semigestructureerde interviews en een tijdlijn-reconstructie van de TODS-gerelateerde gebeurtenissen, plannen, programma’s, beleid en organisatiestructuren.

Institutionele verandering

De noodzakelijke condities voor institutionele veranderingen tijdens de overgang naar een virtuoze cirkel zijn ontdekt door de veranderingsprocessen in vier cases (de metropoolregio’s van Perth, Portland, Vancouver en Kopenhagen) te reconstrueren. Vanuit de theorie is een model gemaakt waarin het proces van institutionele verandering voor TODS is weergegeven. Verandering wordt daarin gekenmerkt door de elementen van de ‘critical phases’, als gevolg van katalysatoren die reacties en effecten veroorzaken. Vervolgens is dit model aan de hand van het verzamelde materiaal getoetst, en verfijnd.

Leren en institutionele innovatie

De abstracte begrippen van leren en institutionele innovatie zijn aangescherpt met behulp van bestaande literatuur. Dit is in een conceptueel model samengebracht. De relatie van beide begrippen tot institutionele verandering is hierin ook aangeduid.

De begrippen zijn verder verfijnd met de empirische gegevens uit de bovenstaande vier cases. Patronen van leren en markers van innovatie zijn waargenomen in elk van de vier cases. Uit deze vergelijkende analyse volgde dat het theoretische model klopte. Daarnaast volgde uit de analyse dat er in de cases sprake is van zowel collectieve als individuele ‘absorptive capacity’.

De bovenstaande onderzoeksoptzet en methoden hebben bijgedragen aan het definiëren en begrijpen van barrières, incentives, noodzakelijke voorwaarden voor verandering, en patronen van leren en markers van innovatie, allemaal in relatie tot het implementeren van TODS.

De bevindingen zijn echter ook voor andere planningsprocessen interessant en relevant. De combinatie van conceptuele modellen en theoretisch kaders die zijn onderzocht en verfijnd tezamen met de systematische manier waarop de verschillende case studies zijn onderzocht, zonder de context of de perceptie van actoren uit het oog te verliezen, blijkt een goede manier om tot nieuwe inzichten voor zowel de planologische praktijk als wetenschap te komen. Op deze manier kan en is bijgedragen aan het huidige debat.

De laatste stap van de onderzoeksaanpak betrof het genereren van inzichten voor mogelijke toepassing van de bevindingen binnen de Nederlandse praktijk.
Hiervoor zijn verschillende focusgroepdiscussies over de toepasbaarheid van de prikkels vanuit de buitenlandse cases gehouden met actoren uit de Nederlandse praktijk.

Er zijn gedachtenexperimenten in een groepsproces gedaan. De aanwezigen is gevraagd om zich op de barrières binnen hun eigen context te richten en vandaar te discussiëren over de mogelijke toepasbaarheid van de prikkels zoals die uit het onderzoek naar voren waren gekomen. Bij dit deel van het onderzoek is ook het leervermogen van de participanten uit de praktijk onderzocht en is hun gevraagd naar hun achtergrond en professionele ervaringen. Deze discussies waren een eerste poging om de ‘experiential learning cycle’ te voltooien door gevormde abstracte concepten te testen in nieuwe situaties.

**HOE MOETEN WE TOD IMPLEMENTEREN?**

Dit onderzoek is opgezet door een onderzoeksconsortium met zowel praktijkpartijen als wetenschappers. De uitwisseling van kennis tussen beide velden is voortdurend gefaciliteerd en aangemoedigd. De toepasbaarheid van deze onderzoeksbevindingen voor zowel politici als beleidsmedewerkers van het grootste belang.

De praktijk houdt zich bezig met normatieve doelstelling zoals het verbeteren van de gebouwde omgeving. De onderstaande bevindingen zijn dan ook afgestemd op toepassing in de praktijk waarin naar een virtuoze cirkel voor TODS-implementatie is gezocht.

**Barrières**

Formele en informele barrières versterken elkaar en dat leidt tot een vicieuze cirkel. In Nederland zijn de geïdentificeerde formele barrières: de complexiteit in wetten en regelgeving en versnippering van de bestuurlijke taken, wat leidt tot onduidelijkheid in rollen en verantwoordelijkheden. De geïdentificeerde informele barrières zijn: onverschilligheid over openbaar vervoer in beleid, een gebrek aan urgentie en ontoereikende kennisuitwisseling tussen belanghebbenden.

Het ontbreken van financiële middelen werd ook gezien als een cruciale barrière. Dit blijkt ook uit de literatuur. Echter, de bevindingen suggereren dat deze barrière enkel een symptoom is van andere formele en informele barrières zoals imperfecties in het beleidssysteem en een impliciete voorkeur voor infrastructuur in wegen. Het is belangrijk de barrières goed te kennen, om zo ook naar de juiste oplossingen te zoeken.
Prikkels

Een positieve relatie tussen formele en informele prikkels wijst op een virtuoze cirkel. Dit is bewezen in de metropoolregio’s van Perth, Portland en Vancouver. Uit de bevindingen is gebleken dat de volgende combinaties van prikkels veel voorkomen. Deze combinaties van prikkels zijn: juridisch-financieel, juridisch-sociaal-cultureel, financieel-sociaal-cultureel en juridisch-financieel-sociaal-cultureel. De rol van informele prikkels is momenteel erg onderbelicht. Een menukaart met mogelijke opties voor prikkels die ook in Nederland zouden kunnen is aangeboden aan de praktijk.

Noodzakelijke voorwaarden voor verandering

Processen van verandering worden gekenmerkt door elementen van ‘critical phases’ van katalysatoren, reacties en effecten. Tijd is een belangrijke factor die vaak wordt verwaarloosd bij het analyseren institutionele verandering. Zeker binnen de ruimtelijke ordening duurt verandering lang; processen hebben tijd nodig. De verzamelde krachten van verschillende reacties op en effecten van en katalysator voor verandering bepalen de richting van verandering. Uit het onderzoek blijkt dat het mogelijk is om met een bestaand ontwikkelingstraject dat ongunstig is voor TODS te breken en in te gaan zetten op een meer bevorderlijke institutionele context voor TODS.

Het omgekeerde kan echter ook. Het advies aan de praktijk is om zich meer bewust te zijn van de dynamische veranderingen van maatschappelijke trends en politieke richtingen om zodoende eventuele kansen goed te benutten. Verder moet de rol van sleutelfiguren en organisaties niet worden onderschat. Dialoog over TODS kan meer gefaciliteerd worden, waar het zoeken naar consensus in belangrijke kennisnetwerken en met hun deelnemers kan helpen.

Patronen van leren en markers van innovatie

Leren en innovatie zijn nauw gekoppeld aan institutionele verandering. In dit onderzoek is deze relatie voor TODS implementatie bewezen door het vinden van patronen van leren en markers van innovatie. Bevindingen uit de cases hebben laten zien dat deze patronen en markers de individuele en collectieve acties zijn die leiden tot bewuste en positieve veranderingen. Dit gebeurt door middel van het faciliteren van nieuwe praktijken en betekenen en het creëren en/of verbeteren van kennis in bestaande en/of nieuwe sociale- en kennisnetwerken.

‘Absorptive capacity’ bleek een belangrijke voorwaarde voor het proces van leren en innoveren te zijn binnen de cases.
Een belangrijk conclusie van dit onderzoek is dat het in stand houden van verbindingen tussen de praktijk en de academische wereld een belangrijke eerste stap is hiervoor. Daarnaast moet er worden ingezet op samenhang tussen overtuigingen, perspectieven en ervaringen op zowel individueel als collectief niveau. Het is ook belangrijk dat beleidsmedewerkers en de politiek – maar ook de wetenschap – bereid moeten zijn om te leren om tot innovatie kunnen komen.

VOLGENDE STAPPEN

Zoals gezegd is het implementeren van TODS een proces van jaren en geen eenmalige handeling. De doorlooptijd van dit onderzoek is te kort om daadwerkelijk te experimenteren met de lessen uit het buitenland. Met de gedachte-experimenten en de reflectie vanuit de praktijk is een eerste – geringe – stap gezet.

Hieruit volgde dat er verschillen zijn tussen de professionele achtergrond, ervaringen en houdingen van de Nederlandse praktijk en die in de buitenlandse praktijk. In het buitenland waren er bijvoorbeeld veel meer planologen betrokken.

Er bleek ook weerstand te zijn tegen het leren van buitenlandse cases. Desondanks waren de deelnemers aan de focusgropen wel in staat om de ‘thought experiments’ af te ronden.

Er bleek wel dat de selectie en het aanpassen van prikkels om deze vervolgens – in gedachten toe te passen op hun eigen context, gekleurd werden door de perceptie en ervaringen van de individuele deelnemers binnen de groepsomgeving. Dit vraagt om meer onderzoek naar het effect van emoties en het subjectieve opnemen van kennis in vervolgonderzoek.

De volledige impact van het testen van concepten in nieuwe situaties kan alleen worden bereikt met een ex-post evaluatie. Deze evaluatie zou door externe partijen uitgevoerd kunnen worden nadat de TODS zijn gerealiseerd (misschien na 15-25 jaren).

In elk geval heeft dit onderzoek aangetoond dat praktijk-wetenschappelijk interactie via ‘action research’ zeer waardevol is (voor zowel praktijk als wetenschap) en dus zeker aangemoedigd moet worden.
综上所述，本研究提出以下假设：

- 那些较难落实 TODS 的城市与地区陷入了制度性障碍的恶性循环中。除非采取措施，这个不利环境会将延续。
- 引进正式和非正式的激励措施来克服现有障碍，会建立一个有利于实施 TODS 的良性循环。
- 从恶性循环改善到良性循环的过程必须通过带有学习与制度创新特征的制度变迁。

研究的概念框架体现了以上构想，并提出任何面临 TODS 实施挑战的城市及区域都有可能转入良性循环中。相反的，实施成功的城市及区域也有可能陷入于恶性循环中。这不是个线性的或永久的过程，坏的惯性是可以消减正确决策的结果的。

这些研究假设背后的理论考虑强调了广义的社会文化背景对规划进程的影响，以及利益相关者的主观看法和信念对于制度变迁过程的重要性。后者强调要想实现制度变迁，应当寻求受到利益相关者了解及认可的适当措施。

研究问题包括：

- 如何界定荷兰语境中实施 TODS 的制度障碍？是否存在恶性循环？
- 其他案例中相似的 TOD 实施障碍是如何被克服的？激励机制在其中起到什么作用？这是否带来了良性循环？
- 这些 TODS 的实施过程中发生了哪些制度变迁？具体包括那些要素？它们之间如何关联？
该研究使用的理论涉及到学习和政策借鉴的相关学术领域。因此，关键在于界定不同语境中对相似问题的对应解决方法。从外界案例学些“什么”与跟“谁”学习一样重要。研究方向也因此专注于制度变迁过程中个人及集体的学习和创新能力。

恶性及良性循环

研究设计以科尔布和弗莱(Kolb & Fry)体验式学习循环过程(experiential learning cycle)为本。体验式学习过程中记录了规划实践中的具体经验：观察以及反思具体经验形成了崭新的抽象概念，而这些概念必须能经得起放入新的局面中的测试，继而得出新的具体经验和观察，并引发思考。为了探索上述设想，本研究通过探索性的方式处理经验数据，以调查以下各要素在流程中的角色和互相关系：

制度变迁

对珀斯、波特兰、温哥华和哥本哈根这四个都市地区变迁过程进行案例研究，从而总结出转向良性循环的制度变迁的必要条件。本研究提出了基于规划实践的新理论框架。通过实证研究，观察催化性事件所引发的连锁反应，从而确认了导致关键性制度变迁的要素及模式。

学习与制度创新

本研究基于文献提出了一个新理论框架，以期定义“学习和制度创新”这两个抽象概念，以及其与制度变迁间的关系。该框架被应用于上述案例研究中，从而对于学习和制度创新这两个抽象概念有了更实在更细致的理解。在对四个案例对比分析后，总结出具体的学习模式和创新标志。此外，本研究还考察了以上案例中集体和个人的学习吸收能力。

上述研究设计及方法论有助于定义和理解障碍、措施、制度变迁的必要条件及学习模式和创新标志。本文对于现有学术研究的贡献在于：其概念构架与理论框架相结合，经多案例比较的实践佐证与改善，既未缺失实际案例经验的丰富性，也未忽略利益相关者的看法及态度。
研究的最后步骤，则是探讨将上述研究结果在荷兰应用的潜在可能性。由荷兰规划业界专家构成了相应的研讨小组，讨论从国外案例汲取的经验能否借鉴到荷兰语境中。各规划专家被要求以“思想试验”（thought experiments）的方式，针对自己面对的TOD实施障碍采用或改善被研究者提供的制度措施。此外，为了调查其个人学习能力，也针对专家们的学历背景和专业经验进行了问卷调查。该步骤旨在完成体验式学习循环过程，从而弥补文献中所缺失的在新实践局面下验证相关概念的缺憾。

### 如何落实？

本研究是由业界及学术界共同支持参与的，因此，研究设计及做法非常注重其成果的交流及传播。其对规划师和决策者的指导性尤为重要。规划实践往往秉承着“改善”环境的范式目标。下述研究成果将满足那些旨在在实践中将TODS 实施转向良性循环的诉求。

### 障碍

正式及非正式的障碍相互依存，导致恶性循环。以荷兰为案例，正式的障碍包括：体制的复杂性，零散式治理而导致的角色和职责的不明确性。非正式的障碍则指：对公交的冷漠态度，缺乏紧迫感和信息知识共享。此外，虽然缺乏财政资源也被学术界广泛认为是重要障碍之一；然而，研究结果表明，这仅是其他正式和非正式的障碍的表症而已。例如：政策体系不完善、或对于道路优先的交通设施的明显偏好。规划者和决策者应首先明确自身的制度缺陷，继而才能从别处寻求解决办法。

### 激励措施

在珀斯、波特兰和温哥华大都市地区体现的 TOD 良性循环，是由正式和非正式的制度激励措施之间的良性关系造成的。案例分析结果展示了这些制度措施的常见组合，包括：法律性－金融性措施，法律性－社会文化性措施，金融性－社会文化性，以及法律性－金融性－社会文化性措施。此外，目前的规划文献和实践中都忽略了非正式的激励措施。规划者和决策者应当针对以上常见组合，采取正式及非正式的相结合的制度措施，应用于荷兰规划实践中。

### 制度变迁的必要条件

通过观察制度变迁过程，本研究小结了以催化事件、相应反应和影响等要素组成的关键阶段。在研究制度变迁时，往往会忽视时序这个重要因素。分析结果表明，制度变迁方向的转变由反应和影响的日积月累决定的。因此，各案例都有可能摆脱现有的发展方向，转向更有利的 TOD 制度环境。

同理，有利环境也有可能倒退为不利环境。规划师和决策者应当关注社会发展趋势和政治向变动，从而培养把握制度变迁元素的能力。不能低估任何利益相关者，无论是个人或集体；而应在其关系网络中寻求达成对话和共识。

### 学习模式和创新标志

制度学习和创新，以及其相对应的模式与标志，与制度变迁有着复杂而紧密的联系。研究结果表明，这些学习模式和创新标志是来自于个人和集体所采取的主动行为，他们通过创建或提升现有的知识、或社会知识网络来
实现制度变迁。
此外，学习吸收能力和创新能力是不可或缺的先决条件。规划师和决策者都应当意识到，建立实业界和学术界之间的联系是重要的第一步。另外，无论是个人还是集体，其信仰、观点和经验也应保持延续性。同样的，若想通过学习和创新实现制度变迁，规划实践和政治决策领域内都应保持对外开放学习的意念。

后续步骤

如前文所述，落实 TODS 并不能一日而蹴。本研究最后的试验步骤，难免受到了项目时间及规划实践的限制，因而无法完全实现在新形势下检验新概念的初衷。然而，研究者在有限的时间内通过“思考试验”的方法，开展了初步的测试。原本计划的三个小组讨论只能实现两个。

讨论的结果显示，与国外案例相比，荷兰规划实践者的专业背景、对规划过程的经验、以及对制度学习的态度等，仅有细微的差别，即：国外案例牵涉了较多的规划师。尽管荷兰规划师对于借鉴外国优秀案例有所抗拒，但仍然能够参与并完成研究所设置的“思想实验”。建议后续试验应当推广应用于不同背景，以验证本研究结果。

利益相关者的先入为主的个人偏好与经验，显而易见的影响了小组讨论的决策方向，例如：选择或创新什么激励措施，以及如何应用这些措施。这也正需要未来研究更专注于个人情绪及主观认知对规划过程的影响。只有在实际项目实施后（也许十五到二十年后），通过外界独立方进行事后评估，才能全面衡量这些抽象概念在新形势下的全面影响。

据此，本研究证明，规划实业界与学术界的双赢互动应受到更多鼓励。