Transit Oriented Development:

Identifying market constraints for development of Public Transport Nodes in the Netherlands

Graduation thesis, Letty de Jong

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Preface and acknowledgement

This is the graduation thesis of Laetitia Catharina de Jong.

This report shows the research, presented on the defence presentation on the 25th of August, 2014. This research project is part of the Construction Management and Engineering Master of the 3TU Master at the Faculty of Civil Engineering at the Delft University of Technology.

During an internship of three months at NS Stations I have had the chance to study railway station development. The interfaces between station developments, urban planning, policy and project management were a large part of this internship, and interested me highly. During the course "Infrastructure Projects: assessment and planning" (CIE4760), I gained interest in financial, economic and social evaluation of urban projects. Therefore, my personal objective for this research thesis was to develop myself in these fields. Because of my passion for the subjects named above, I would like to contribute to daily practice in urban development and scientific theory.

I look back on an inspiring and intensive period. Through this thesis report, I hope to convey my enthusiasm to the reader. I would like to thank my graduation committee: Bert van Wee, Jan Anne Annema, Remon Rooij and Nanet Rutten for their inspiration, constructive feedback and guidance during the entire process. Moreover, my gratitude goes to my fellow students, family and fellow interns at Grontmij. You were great sparring-partners and I found it inspirational to discuss our ideas during my graduation research.

Enjoy reading!

Letty de Jong

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Summary

Introduction into Transit Oriented Development - This research conducts a study on Transit Oriented Development (TOD). TOD concerns tailoring traffic and transport networks to the development of locations. Therefore, TOD contributes to the economic and social functioning of urban areas by making the most important destinations accessible. Moreover, TOD contributes to sustainable mobility as important locations are developed to be less dependent on cars and scarce open green space will be protected.

Problem statement - Although TOD serves many objectives, according to literature and expert interviews carried out within this research, many TOD projects remain unfeasible in current economic conditions and potentials remain unused. Moreover, literature study shows the market will obtain a central role in future TOD practice. As this new role implies that the emphasis might shift from supply driven (the government determines the development) to more demand driven (market parties initiate projects) development, it seems paramount to gain better insights into the constraints of market parties concerning the practice of TOD projects.

Research objective - This research aims to gain more insight into the constraints of market parties for TOD focussing on development around railway stations. These areas are referred to as Public Transport Nodes (PTNs). Predominately these are larger railway stations in city centres combined with other types of public transport stops like busses and trams and surrounded by high density of mixed functions. Therefore, the central research question of this research project is: "Which constraints limit the participation of the market in development of Public Transport Nodes in the Netherlands?"

Methods - I use both literature study and empirical research to explore the market constraints. The literature study's aim is to gain knowledge about the theory behind TOD and to set a theoretical framework for the empirical research. The empirical research consists of a market consultation with eleven face-to-face interviews with market parties from three sectors: property developers, investors and end-users. The objective of the empirical study is to identify the constraints of the market regarding development of PTNs. I also organised a workshop with representatives of Leiden Council to check the relevance and the practical implications of the constraints I identified.

Results of the empirical study - To structure the results of the empirical study, I use a categorisation of four: 'Programme & Facilities', 'Finance & Economy', 'Policy & Regulations' and 'Cooperation & Vision'. The largest part, 40%, of the constraints identified in the market consultation relate to 'Programme & Facilities'. 26% of the constraints relate to 'Finance & Economy' and 22% are connected with 'Cooperation & Vision'. Only 12% of the constraints relate to 'Policy & Regulations'. From the three interviewed sectors, the Property developers state the largest number of constraints, as 46% of the constraints listed are from interviews with developers. End-users and investors identify 30% and 24% of the constraints, respectively. 100% of the respondents indicate to some extend to believe in the benefits (PTN development.

Although the constraints identified cover a wide range of perspectives and views from different parties, there is some common ground between the different sectors. I analysed the answers between categories and sectors according to the cross-case analysis. The following three sections summarise these findings:

1. *Lack of: multifunctional areas, quality of public space and car accessibility*

Market parties show interest in PTN locations primarily because of the multi-modal accessibility and the potential for multifunctional urban programming on these locations. Nevertheless, the market parties interviewed find the current car accessibility, the multifunctional programming and the quality of public space insufficient. Despite the fact that TOD increases the accessibility by public transport, market parties (specifically in the office sector) state that accessibility for private cars is an important condition for potential urban development around PTNs.

2. *Restricted client-driven development*

Although market parties gain a more prominent role in TOD practices, the market consultation shows market parties are not capable of or willing to make the same large financial investments in public projects as governments would, without any security about its sale or lease. Therefore, developers nowadays hardly ever acquire land positions (to develop plots without clients to buy or lease the

property, and risking vacancy). They prefer phased, flexible, small-scale projects to respond to the existing demands of their clients.
Simultaneously, client-driven developments increase the applications for land-use plan changes, as designs and programmes become more specific. The developers I interviewed explain that current practices (tight land-use plans and lengthy inflexible spatial planning processes) impede a flexible and fast application of these land-use plan changes. The market consultation indicates that less restrictive land-use plans and flexible spatial planning processes might provide more space for development initiatives. Developers believe that foreign businesses might be more inclined to enter Dutch urban development projects if spatial planning processes would be less complex.

3. Lack of vision and coordination between municipalities

According to the people I interviewed, governments often defeat their own goals regarding the creation of PTNs. They invest significant amounts of money in the development of less accessible locations (companies are offered cheap alternatives in meadows and suburbs), which threaten their own multi-million investments in PTNs. Not surprisingly, the interviewed market parties state that they are less inclined to invest in the relatively expensive locations near railway stations. The market consultation shows that clear preconditions and frameworks should be established which would allow market parties to invest in developments at PTNs. The frameworks should indicate the exact areas in which market parties are offered space for development or investments, and not allow property development outside these areas.
Finally, the market consultation shows lack of coordination between municipalities about the urban programming on PTN locations. Despite the fact that TOD would ensure that there is less need for the development of certain facilities in every town and village (as the region becomes better accessible), municipalities compete for the same facilities and developments, regardless of the city's core 'competence'. This leads to vacant office parks in numerous towns and lack of focus on urban quality. This is why market parties insist that more cooperation and coordination between councils would be needed to optimise programming and facilities for PTNs.

During the evaluation workshop in Leiden, the council representatives label 40% of the constraints named by the market parties as "known information that is inevitable". They question the relevance of these constraints, as they believe many of those constraints have been solved and are not current. However, the large number of market parties still mentioning these constraints might indicate that there is a gap between current practice and government policy.

Possible approaches to mitigate constraints - In addition to stating constraints, market parties also propose solutions to mitigate these constraints. As a solution to the constraints related to car accessibility, market parties favour an increase of the parking ratio. Other solutions they mentioned are allowing organisations to rent dedicated parking space in public car parks or attracting businesses that are less dependent on cars (creative sector, start-ups and freelancers). Developers and investors I interviewed explain that start-ups and freelancers could be served using multi-tenant leases at PTN locations. Nevertheless, to cater for these organisations and to secure a 70% occupancy for investors, different business models would be needed. Finally, only a few of the people I interviewed believe that P+R solutions will be successful.

The market parties believe that spatial planning procedures could be speeded up using coordinated procedures, where a certain number of objection procedures and consultation rounds could take place simultaneously. Furthermore, according to the people I interviewed, prioritisation of certain permit applications would promote development too. Likewise, some respondents indicate that the continuation of the Crisis and Recovery Act (CHW, Crisis- en herstelwet) could accelerate relevant procedures. Finally, in order to prevent high amounts of objections, it should be mandatory for citizens and organisations to present their objections in a more detailed and structured way. Examples from other countries show that this requirement would considerably reduce the number of objections.

Finally, market parties give examples of what "establishing clear frameworks" by the government would entail. An example is the restriction of retail and catering facilities next to peripheral retail facilities (PDV, perifere detailhandelsvoorzieningen) and large-scale retail facilities (GDV, grootschalige detailhandelsvoorzieningen). According to the market this restriction contributes to TOD because the spread of facilities away from PTN locations is limited. Some respondents believe that regulation of land allocation and monitoring of new land-use plans should be organised at provincial or regional level. They

insist that the provincial authorities should demand more of the local councils, and make them focus more on TOD. In addition, the respondents think that less rigid land-use plans would facilitate development at PTN locations.

Conclusion and recommendations - The results of this study show the constraints, which limit the participation of the market in the development of PTNs in the Netherlands and cover a wide range of perspectives and views from different parties. Nevertheless, several constraints are mentioned unanimously and I identified various common factors: lack of multifunctional areas, lack of car accessibility and a lacking quality of public space; restricted client-driven development; lack of vision and coordination between municipalities.
Finally, the research shows potential for TOD as well. First of all, because of the overall interest of market parties to develop properties at PTN locations (100% show interest). Secondly, the research shows that a significant part of the constraints mentioned (26%) are related to economic and financial aspects. Market parties assume that these constraints will be lifted once the economic situation and the current investment climate have improved.
The Leiden Council Workshop indicates that local authorities may not be up to date with current market constraints. More research should be done in other municipalities to substantiate these findings and to analyse the relevance of the constraints in different municipalities. Overall, the Council shows interest in the constraints in general and possible practical implications of a user interface regarding these constraints. More research should be done to develop an application that enables policy makers and project team members to gain insight in the constraints and share best practice. Furthermore, this report indicates that small businesses and freelancers could find office space at PTN locations using multi-tenant leases. More research should be done to study potential business models, fitting this type of businesses.

Key words: Constraints, Transit Oriented Development, Public Transport Nodes, Market consultation

Nederlandse samenvatting rapport

Introductie 'Transit Oriented Development' - Dit onderzoek bestudeert 'Transit Oriented Development' (TOD). TOD gaat over het afstemmen van verkeer en transportnetwerken op de ontwikkeling van locaties. Daarnaast draagt TOD bij aan het economisch en ruimtelijk functioneren van stedelijke gebieden, door het bereikbaar maken van de belangrijkste bestemmingen. Ten slotte draagt TOD bij aan duurzame mobiliteit aangezien belangrijke locaties zo worden ontwikkeld dat deze minder afhankelijk zijn van auto's en daarnaast blijft beperkt openbaar groen beschermd.

Probleem - Ook al dient TOD meerdere doelen, volgens de literatuur en expertinterviews uitgevoerd in deze studie, blijven velen TOD projecten onuitvoerbaar in de huidige economische situatie en potenties blijven onbenut. Daarnaast laat literatuurstudie zien dat de markt een centrale rol gaat spelen in toekomstige TOD praktijken. Omdat deze nieuwe rol inhoudt dat de nadruk van een aanbodgerichte (de overheid bepaalt de ontwikkeling) naar een vraaggerichte (marktpartijen initiëren projecten) ontwikkeling verschuift lijkt het noodzakelijk om beter inzicht te verkrijgen in de belemmeringen van marktpartijen voor TOD.

Onderzoeksdoel - Dit onderzoek heeft als doel inzicht te verkrijgen in de belemmeringen van marktpartijen voor TOD, waarbij de focus ligt op de ontwikkeling rondom treinstations. Deze gebieden worden in dit rapport aangeduid met de term openbaarvervoersknooppunten (OV-knooppunten). OV-knooppunten zijn voornamelijk grotere treinstations in stadscentra gecombineerd met verschillende typen van verkeersmodaliteiten (trams, bussen, metro's) en omringd door een multifunctioneel vastgoedprogramma. De onderzoeksvraag is als volgt gedefinieerd: "Welke belemmeringen limiteren de deelname van de markt in de ontwikkeling van OV-knooppunten in Nederland?"

Methodes - Ik gebruik zowel literatuur als empirisch onderzoek om de belemmeringen van de markt te onderzoeken. De literatuurstudie heeft als doel om inzicht te verkrijgen in the theorie achter TOD en om een theoretisch kader op te zetten voor het empirisch onderzoek. Het empirisch onderzoek bestaat uit een marktconsultatie met elf face-to-face interviews met marktpartijen uit drie sectoren: ontwikkelaars, investeerders en eindgebruikers. Het doel van het empirisch deel is om de belemmeringen van de markt te identificeren aangaande de ontwikkeling van TOD. Daarnaast heb ik een workshop georganiseerd met medewerkers van de gemeente Leiden om de relevantie en het mogelijke gebruik van de belemmeringen te testen.

Resultaten empirisch onderzoek - Om de resultaten van het onderzoek te structureren heb ik gebruikgemaakt van vier categorieën: 'Programma & Faciliteiten', 'Financiën & Economie', 'Beleid & Regelgeving' en 'Samenwerking & Visie'. Het grootste deel, 40%, van de belemmeringen uit de marktconsultatie, valt in de categorie 'Programma & Faciliteiten'. 26% van de belemmeringen hoort bij 'Financiën & Economie' en 22% valt onder 'Samenwerking & Visie'. Enkel 12% van de belemmeringen valt onder 'Beleid & Regelgeving'. Van de drie geïnterviewde sectoren benoemt de ontwikkelaar de meeste belemmeringen aangezien 46% van de belemmeringen uit de marktconsultatie van deze sector komt. Eindgebruikers en investeerders benoemen respectievelijk 30% en 24% van de belemmeringen. 100% van de respondenten geven aan in bepaalde mate te geloven in de voordelen van OV-knooppuntontwikkeling.

Ook al wordt er een breed scala aan belemmeringen benoemd vanuit verschillende perspectieven en inzichten door verschillende partijen, toch zijn er raakvlakken tussen de verschillende sectoren te vinden. Ik heb de belemmeringen gerangschikt in een tabel en vervolgens de belemmeringen per categorie en per sector bestudeerd. De volgende drie paragraven vatten deze bevindingen samen.

1. Gebrek aan: multifunctioneel gebied, kwaliteit van openbare ruimte en bereikbaarheid per auto

Marktpartijen tonen voornamelijk interesse in OV-knooppunten door de multimodale bereikbaarheid en de potentie voor multifunctionele stedelijke programma's op deze locaties. Toch vinden de geïnterviewde marktpartijen unaniem de huidige bereikbaarheid per auto, de kwaliteit van de openbare ruimte en de multifunctionaliteit niet voldoende. Ondanks dat TOD met name gaat over bereikbaarheid met het openbaarvervoer, geven marktpartijen (met name in de kantorenmarkt) aan dat de bereikbaarheid met de auto een belangrijke voorwaarde is voor het succes van een ontwikkeling op een OV-knooppunt.

2. Beperkte klantgerichte ontwikkeling

Ondanks dat marktpartijen een prominentere rol gaan spelen in TOD laat de marktconsultatie zien dat de marktpartijen niet in staat zijn om investeringen in publieke projecten te doen van de zelfde orde en grootte als dat overheden doen, zonder daarbij zeker te zijn van toekomstige huurders. Daarom ontwikkelen ontwikkelaars nauwelijks nog op basis van grondpositie (ontwikkeling van een kavel zonder specifieke huurvraag vanuit een bestaande klant, daarbij het riskeren van leegstand). Ontwikkelaars geven de voorkeur aan gefaseerde, flexibele, kleinschalige projecten om zo te kunnen reageren op de bestaande vraag van de klant.

Tegelijkertijd vergroot een dergelijke klantgerichte ontwikkeling de aanvraag van bestemmingsplanwijzigingen aangezien het programma en ontwerp specifieker worden. De geïnterviewde ontwikkelaars leggen uit dat de huidige praktijk (krappe bestemmingsplannen en langdurige en inflexibele ruimtelijkeordeningsprocessen) de flexibele en snelle aanvraag van deze bestemmingsplanwijzigingen tegen gaan. De marktconsultatie geeft aan dat minder krappe bestemmingsplannen en flexibele ruimtelijkeordeningsprocessen meer ruimte bieden voor ontwikkelingsinitiatieven. Ontwikkelaars denken ook dat buitenlandse bedrijven eerder geneigd zijn in Nederlandse ontwikkelingsprojecten te stappen als ruimtelijkeordeningsprocessen minder complex zijn.

3. Gebrek aan visie en samenwerking tussen gemeentes

Volgens de respondenten, werken lokale overheden vaak hun eigen doelen tegen aangaande de ontwikkeling van TOD. Er worden aanzienlijke bedragen geïnvesteerd in de ontwikkeling van minder bereikbare locatie (bedrijven krijgen goedkope alternatieven geboden in weilanden en buitenwijken) die een bedreiging vormen voor de gedane miljoenen investeringen in OV-knooppunten. Vervolgens zijn marktpartijen minder geneigd te investeren in de relatief dure locaties rondom trainstations. De marktconsultatie laat zien dat er daarom behoefte is aan heldere kaders en voorwaarden die de markt in staat stelt te investeren op OV-knooppunten. Deze kaders moeten de exacte gebieden aangeven waarbinnen de marktpartijen de ruimte hebben om te ontwikkelen en te investeren. Daarnaast zou een ontwikkeling buiten deze kaders niet meer mogelijk moeten zijn.

Ten slotte laat de marktconsultatie zien dat er gebrek is aan coördinatie en samenwerking tussen gemeentes over het stedelijk programma op OV-knooppunten. Ondanks het feit dat TOD het mogelijk maakt dat door bereikbaarheid minder behoefte is aan faciliteiten in elk dorp of stad (de regio wordt beter bereikbaar) blijven gemeentes concurreren om de zelfde bedrijven en voorzieningen, ongeacht the 'kernkwaliteit' van de stad. Dit leidt tot leegstand van kantoorpanden en gebrek aan focus op de stedelijke kwaliteit. Om deze reden staan marktpartijen erop dat meer samenwerking en coördinatie tussen gemeentes gaat plaatsvinden zodat programma en faciliteiten op OV-knooppunten geoptimaliseerd worden.

Tijdens de evaluatiestudie in Leiden geven de twee respondenten van de gemeente aan dat 40% van de belemmeringen uit de marktconsultatie bekend zijn bij de gemeente en dat deze belemmeringen onontkoombaar zijn. Ze vragen zich af in welke mate de belemmeringen relevant zijn voor de praktijk aangezien volgens de gemeente veel van de belemmeringen al opgelost zijn in het verleden of onontkoombaar zijn. Echter, het grote aantal marktpartijen dat deze belemmeringen noemt kan een indicatie zijn dat er een gat is tussen de huidige praktijk en het beleid van de overheid.

Mogelijke benaderingen van belemmeringen - Naast het benoemen van belemmeringen, stellen marktpartijen ook oplossingen voor om belemmeringen weg te nemen. Als oplossing voor de belemmering aangaande de bereikbaarheid per auto hebben marktpartijen de voorkeur voor een verhoging van de parkeernorm op OV-knooppunten. Andere oplossingen die genoemd worden zijn het huren van speciale parkeerplekken in publieke parkeerplaatsen of het aantrekken van organisaties en bedrijven die minder afhankelijk zijn van auto's (creatieve sector, startende bedrijfjes en zelfstandige ondernemers zonder personeel). Ontwikkelaars en investeerders die geïnterviewd zijn leggen uit dat startende bedrijfjes en zelfstandige ondernemers zich kunnen vestigen in vastgoed op OV-knooppunten door gebruik te maken van gedeelde huurdercontracten. Echter, om hierin te voorzien en tegelijkertijd te voldoen aan de eis van de investeerders die voor 70% van het verhuurbare oppervlak zeker willen zijn van huurders, zijn nieuwe verdienmodellen nodig. Ten slotte, geen van de geïnterviewde partijen gelooft in het succes van 'Park and Ride' (P+R) oplossingen.

Marktpartijen geloven dat ruimtelijkeordeningsprocedures versneld kunnen worden door gebruik te maken van gecoördineerde procedures, waar een aantal bezwaarprocedures en inzagen rondes

tegelijkertijd plaats vinden. Daarnaast, kan het prioriteit geven aan bepaalde vergunningsaanvragen ook de ontwikkeling positief stimuleren volgens die partijen. Zo geven ook enkele respondenten aan dat het doorzetten van de Crisis- en herstelwet procedures kan versnellen. Ten slotte zou het verplicht moeten worden voor omwonenden en organisaties om bij het indienen van bezwaren dit gedetailleerder en gestructureerder te beschrijven om zo de grote stroom aan bezwaren terug te dringen. Voorbeelden uit het buitenland laten zien dat dit de stroom aan bezwaren aanzienlijk terugdringt.

Marktpartijen geven voorbeelden van wat volgens hen 'heldere kaders' zijn. Een voorbeeld is de beperking van winkels en horecavoorzieningen naast perifere detailhandelsvoorzieningen en grootschalige detailhandelsvoorzieningen (locaties vaak buiten het centrum langs de snelweg gelegen). Volgens de markt draagt deze beperking bij aan TOD omdat de spreiding van voorzieningen buiten het bereik van het OV-knooppunt gelimiteerd wordt. Sommige respondenten geloven dat het reguleren van gronduitgifte en het monitoren van nieuwe bestemmingsplannen georganiseerd zou moeten zijn door de provincie of de regio. Zij staan erop dat provinciale autoriteiten meer druk uitoefenen op gemeentelijke besturen om te focussen op TOD. Daarnaast vinden de respondenten dat minder krappe bestemmingsplannen de ontwikkeling ook zullen bevorderen.

Conclusies en aanbevelingen - De resultaten van deze studie laten een breed scala aan belemmeringen zien die de deelname van marktpartijen limiteert in de ontwikkeling van OV-knooppunten in Nederland. Toch zijn er verschillenden belemmeringen unaniem genoemd en er zijn verschillende raakvlakken tussen sectoren te vinden: gebrek aan multifunctionele gebieden, gebrek aan bereikbaarheid per auto, gebrek aan kwaliteit van de openbare ruimte, beperking van de klantgerichte ontwikkeling, gebrek aan visie en samenwerking tussen gemeentes. Ten slotte laat het onderzoek potentie voor TOD zien. In eerste instantie omdat alle partijen aangeven interesse te hebben in ontwikkeling op OV-knooppunten (100% toont interesse). Ten tweede, het onderzoek laat zien dat er een significant deel van de belemmeringen (26%) gerelateerd is aan economische en financiële aspecten. De marktpartijen verwachten dat deze belemmeringen verdwijnen als de economie en het huidige investeringsklimaat weer aantrekt. De workshop bij de gemeente Leiden geeft aan dat lokale autoriteiten wellicht niet up-to-date zijn met de huidige belemmeringen in de markt. Meer onderzoek moet gedaan worden om deze bevindingen te bevestigen en om de relevantie van de gevonden belemmeringen te bevestigen bij andere gemeentes. Over het algemeen geeft de gemeente aan meer inzicht in belemmeringen te willen en toont de gemeente interesse in een gebruikersapplicatie waarmee de belemmeringen en ervaringen ook regionaal gedeeld kunnen worden tussen gemeenten. Meer onderzoek zou gedaan moeten worden om een dergelijke applicatie te ontwikkelen die beleidsmakers en projectteams in staat stelt inzicht te verkrijgen in de belemmeringen. Verder geeft dit rapport aan dat kleine bedrijven en zelfstandige ondernemers kantoorruimte zouden kunnen verkrijgen op OV-knooppunten door gebruik te maken van gedeelde huurdercontracten. Meer onderzoek zal gedaan moeten worden om potentiële verdienmodellen te analyseren passend bij deze contract- en bedrijfsvormen.

Kernwoorden: Belemmeringen, Transit Oriented Development, Openbaarvervoersknooppunten, Marktconsultatie

Content

Introduction

1 Introduction of this study 21
1.1 Transit Oriented Development 21
1.2 The introduction stays behind in practice 21
1.3 The division of roles between government and market is shifting 21

2 Problem statement and research objective 23
2.1 Problem statement 23
2.2 Research objective 23
2.3 Research Question 23

3 Research relevance 24
3.1 Description of societal relevance potential 24
3.2 Description of scientific relevance potential 24
3.3 Description of utilisation potential 24
3.4 Description of practical potential for Grontmij 24

4 Report structure 26

Background

5 Transit Oriented Development 29
5.1 Definition 29
5.2 Objectives 30

6 Current state in the Netherlands 32
6.1 Transit Oriented Development in the Netherlands 32
6.2 Dutch interpretations 34
6.3 Recap 35

7 Scope 36

Methodology

8 Research methods and techniques 39
8.1 Literature study and expert interviews - Phase I 39
8.2 Market consultation and validation interview - Phase II 41
8.3 Evaluation study at Leiden - Phase III 97
8.4 Research techniques to interpreted results 44

Empiricial research

9 Constraints 49
9.1 Overview of constraints 49
9.2 Study of constraints in the first row: Programme & Facilities 55
9.3 Study of constraints in the second row: Finance & Economy 56
9.4 Study of constraints in the third row: Policy & Regulations 57
9.5 Study of constraints in the fourth row: Cooperation & Vision 58
9.6 Study of constraints in the first collumn: Developers 60

9.7 Study of constraints in the second collumn: Investors ... 60
9.8 Study of constraints in the third collumn: End-user ... 61

10 Evaluation study ... 62
10.1 Setup workshop ... 62
10.2 Results ... 63
10.3 User interface ... 64

11 Possible approaches for constraints ... 67
11.1 Higher parking ratio or shifting focus ... 67
11.2 Different views on financing ... 67
11.3 Keep PTN development out of politics ... 68
11.4 Speed up the process ... 68
11.5 Cooperation and vision ... 69

Evaluation

12 Conclusion ... 73
12.1 Answering the research question ... 73
12.2 Potential ... 73

13 Recommendations for further research ... 74

14 Reflection ... 76
14.1 Graduation Company - Grontmij ... 76
14.2 Scientific & societal relevance ... 76
14.3 Practical relevance ... 77
14.4 Methodology: reflections and validity ... 77

Bibliography

Reference ... 83

Terminology ... 89

Appendices

Appendix A - Constraints found in market consultation ... 93

Appendix B - List of fail factors ... 104

Appendix C - Interview questions for the market consultation ... 107

Appendix D - Definition of Transit Oriented Development ... 108

Appendix E - Arrival and implementation of TOD in the Netherlands ... 110

Appendix F - Questions expert interviews ... 113

Appendix G - Setup workshop Leiden ... 115

Appendix H - Identification options for market parties ... 117

Appendix I - Lessons learned from foreign experience ... 119

Appendix J - Economical context importance TOD ... 121

Appendix K - Categorisation of constraints relevant for the consultation ... 122

Table of figures

Figure 1 Overview Transit Oriented Development, made by author based on the 'OV-logo' 30
Figure 2 Public transport node, made by author, based on the 'OV-logo' 36
Figure 3 Constraints from market consultation per category in percentages, made by author 54
Figure 4 Constraints from market consultation per sector in percentages, made by author 54
Figure 5 Horizontal study of constraints on 'Programme & Facilities', made by author 55
Figure 6 Horizontal study of constraints on finance, made by author 56
Figure 7 Horizontal study of constraints on law and regulation, made by author 57
Figure 8 Horizontal study of constraints on cooperation, made by author 58
Figure 9 Unknown and relevant constraints in the evaluation study in leiden, made by author 64
Figure 10 User interface, made by author 65

Table of tables

Table 1 Report structure, made by author 26
Table 2 Overview of research methods, made by author 39
Table 3 Technique to analyse data from the interviews, made by author, based on (yin, 2006, p. 23) 44
Table 4 Representation of constraints 52
Table 5 Indication of the colours from the workshop, made by author 62
Table 6 Results of the workshop, made by author 63
Table 7 Market parties (Peek, 2006, p. 30) 117

Introduction

1 Introduction of this study

1.1 Transit Oriented Development

This research conducts a study on Transit Oriented Development (TOD). TOD concerns tailoring traffic and transport networks to the developments of locations (Gerretsen et al., 2013). Therefore, TOD contributes to the economic and social functioning of urban areas by making the most important destinations accessible (Ram et al., 2013, Newman et al., 2010). Moreover, TOD contributes to sustainable mobility as important locations are less dependent on cars and scarce open green space will be protected (Ram et al., 2013). Higher returns on public investments in railways and stations will be created if better use is made of stations, station areas and rail network (Modder & van Uum, 2014, Savelberg & Korteweg, 2011). Therefore, more and more provinces and municipalities prioritise TOD (Peek, 2014).

1.2 The introduction stays behind in practice

Although TOD serves many objectives, many TOD projects remain unfeasible in current economic conditions and potentials remain unused (Tan, 2013, Bertolini, 2014, Schrijnen, 2014, Peek, 2014). Bertolini (2014) affirms that hardly any successful TODs are undertaken in the Netherlands. In the Netherlands, numerous large investments are done in the development of public transport, the quality of the rail network, and larger railway stations (Tan, 2014). Nevertheless, according to Tan (2014), the focus and overall understanding about the potential of TOD is missing, as spatial developments often do not take place at the most accessible sites. The many under-exploited station locations in the Dutch province North Holland and the majority of the residential property developments outside the catchment area of the stations in the province South Holland are examples of projects where focus and overall understanding about the potential of TOD is missing (Gerretsen et al., 2013, Modder & Klinkenberg, 2013). Hence, the modal split in the Netherlands remains focussed on car-use rather than shifting towards a bigger share of public transport (Modder & Klinkenberg, 2013). According to Modder and Klinkenberg, far more return could have come from past investments in rail network.

1.3 The division of roles between government and market is shifting

Literature study shows the market obtains a central role in future TOD practice. In the Dutch urban development and planning practice, the emphasis shifts toward the private sector (Hafkamp et al., 2013). However, urban development projects, like TODs, include high levels of risks and uncertainties. Risks that most market parties are not willing or able to take (Lenferink & Tillema, 2009). As this new role implies that the emphasis might shift from supply driven (the government determines the development) to more demand driven (market parties initiate projects) development, it seems paramount to gain better insights into the constraints of market

parties concerning the practice of TOD projects (Sturm-Reijnders, 2010). Nevertheless, policy makers seem unaware of the constraints and preconditions that determine the commitment of the market regarding these projects (Heurkens, 2009, Bertolini, 2014). The following sections discuss the shifting roles of private parties and governments and the lack of insight in market constraints that hamper commitment of the market.

Shifting roles

Since the beginning of the 20th century, national and local governments strictly control urban development (Urhahn Urban Design, 2010). Recent urban development projects though, show a change towards a more private-led development. For instance, the National Policy Document on Spatial Planning (Nota Ruimte) of 2008 discusses development planning, in which the role of the market is increasingly shifting towards public development tasks (Hagendijk & Franzen, 2012, Heurkens, 2012, Bijsterveld & Laverman, 2011, Hafkamp et al., 2013). After 2010, the economic crisis has been an important factor in the shifting roles between public and private parties (Hagendijk & Franzen, 2012, Heurkens, 2009). According to Hagendijk & Franzen (2012) and Heurkens (2009), governmental expenditure remains under pressure as the need for investments in public facilities increases.

Overall, this suggests that the role of private parties in urban area development is on the rise. This means that market parties, while bearing most of the financial risks, are facing complex urban development challenges (Papenhuijzen & Schotanus, 2013, Liong, 2010).

Lack of insight

According to Bertolini (2013) many Dutch TODs are supply-oriented and ideologically driven, where sustainability objectives dominate the demand and preference of the market. Overall, research shows that many projects are autonomous bodies, where there is little cooperation and coordination with the demand from the market (OV-bureau Randstad, 2013, Hofs, 2009). According to the Urban Development Department of Delft Technical University, area development should be about interaction, cooperation, bundling ambitions and interests of actors (Praktijkleerstoel gebiedsontwikkeling, 2011). According to many, the problems of slow project execution lie in a lack of understanding and the way the different stakeholders deal with goals, interests and constraints of other parties (Peek, 2006, Muskee, 2007, Wolting, 2008, Ministry of Infrastructure and Environment, 2011, Bruil et al., 2004, Franzen & de Zeeuw, 2009). In 'Gebiedsontwikkleing 2.0', Sturm-Reijnders (2010) mentions insight in the market interests and constraints will improve project execution.

2 Problem statement and research objective

2.1 Problem statement

Although TOD serves many objectives, according to literature and expert interviews carried out within this research, many TOD projects remain unfeasible in current economic conditions and potentials remain unused. Moreover, literature study shows the market will obtain a central role in future TOD practice. As this new role implies that the emphasis might shift from supply driven (the government determines the development) to more demand driven (market parties initiate projects) development, it seems paramount to gain better insights into the constraints of market parties concerning the practice of TOD projects.

2.2 Research objective

The research objective is to gain more insight into market constraints for TOD with primarily focus on development around railway stations. This report uses the term Public Transport Nodes (PTNs) to refer to these locations.

PTNs function as a central HUB in the urban areas in the Netherlands. Predominately these are larger railway stations in city centres combined with other types of public transport stops like busses and trams and surrounded by high densities of mixed use (Bertolini & Spit, 2005, Bernick & Cervero, 1997, Groenemeijer & Bakel, 2001).

2.3 Research Question

The central research question of this research project is:

"Which constraints limit the participation of the market in development of Public Transport Nodes in the Netherlands?"

3 Research relevance

3.1 Description of societal relevance potential

This thesis focuses on TOD and the willingness of market participants to take part in the developments, taking into account the current economic context. Gaining insight into the interests and constraints of the market could contribute to the development of mutual understanding by analysing overlap and integrating difference. According to Peek (2006) synergies can exist by recognising interdependence and opportunities for added value and by analysing each other's interests in the location.

3.2 Description of scientific relevance potential

The findings from this research form a small step in the existing and possible new flow of studies on TOD. First, this study analyses different views of TOD to define a clear definition of the subject, which may increase the overall understanding of TOD in the Netherlands. Second, the study aims to result in new insights in constraints of market parties for the development on PTN locations. In addition, the study defines possible mitigation for the constraints and the report mentions recommendations for further research. These recommendations give opportunities for research in the areas that I did not cover in this study.

3.3 Description of utilisation potential

Market research on constraints for development on PTN locations reduces the information gap between the public and private sector (Sturm-Reijnders, 2010). Hence, the results of this research may allow project managers to be able to discuss, with the market or with specific pre-selected market parties, market constraints for the proposed project. These discussions provide knowledge about their own needs (and limitations) and the capability and willingness of the market to meet these needs. Papenhuijzen and Schotanis (2013) expect that the interaction with the market is going to be more relevant in the coming years. Furthermore, the results of this graduation thesis may enable policymakers and government to make well-balanced project decisions.

3.4 Description of practical potential for Grontmij

This research is done on behalf of Grontmij. Grontmij, established in 1915, is a leading European company in the Consulting and Engineering industry. Grontmij has expertise in the fields of energy, highways, roads, light rail, sustainable buildings and water (Grontmij, 2013).

For Grontmij, the relevance of the research can be interpreted in many ways. First, once Grontmij is up to date with constraints in the market, it could hold a position as advisor of the market parties. Furthermore, Grontmij could also focus on the local governments. Since

Grontmij has much experience with advising governments, this might be an opportunity. Furthermore, Grontmij could take a potential user interface of the results in production. In addition, the interviews in the empirical research might strengthen the existing (and some new) contacts of Grontmij. Overall, knowledge of the market constraints in general will deliver a contribution to the organisation. This contribution can be used in other projects and it might help increasing the quality of tender applications.

4 Report structure

This chapter explains the content of the report. The remainder of the report is divided into four main parts: background, methodology, empirical research and evaluation. Table 1 shows the contents of these parts.

	Chapters	Explanation
Background	5. Transit Oriented Development 6. Current state in the Netherlands 7. Scope	These chapters discuss the meaning and objectives of TOD and whether TOD has caught on in the Netherlands. Based on findings from foregoing chapters, chapter seven defines the research scope.
Methodology	8. Research methods and techniques	This chapter discusses the study design, the data used for this study and the different methods and techniques used to reach the objectives of this study.
Empirical research	9. Overview of constraints found in the market consultation 10. Evaluation study 11. Possible approaches for constraints	First, the results from the market consultation are discussed. Then, the constraints are studied and comparisons and contradictions between constraints are analysed. Thereafter, an evaluation study is done with the Leiden council to study the practical relevance of the constraints found. Finally, possible approaches formulated by market parties to mitigate some constraints are discussed.
Evaluation	11. Conclusion 12. Recommendations 13. Reflection	The last chapters summarise the results, discuss points of attention, weak points in this research and recommendation for further research.

Table 1 Report structure, made by author

Background

5 Transit Oriented Development

There are divergent views of TOD that different actors or sectors relate to (Priemus & Zonneveld, 2003). The coming chapter analyses the definition of TOD. This first section discusses different definitions of TOD and the second section discusses the objectives of TOD.

5.1 Definition

Appendix D shows a table, which presents definitions of TOD, adopted by different organisations and agencies. Some definitions relate to smart-growth and sustainability principles in general, although most focus on the design characteristics of transit-supportive environments. Most definitions emphasize the importance of high-quality walking environments. Nine of the definitions call for mixed land-use and five specifically mention higher-density development. Also five definitions tie TOD to the increase in public transport use.

Many of the descriptions of TOD define the purpose as the concentration of real estate around railway stations. According to Tan and Koster this description is too limited (2012). In the report 'Knooppuntontwikkeling in een nieuwe perspectief', they mention that concentrating development, functions and programs around Public Transport Nodes could indeed achieve: economic, sustainable and agglomeration benefits. Nevertheless, according to Tan and Koster that objective is not the sole purpose of TOD. Moreover, according to Bertolini (2014), Tan (2014) and Van der Hoeven (2005), the theory behind TOD is unknown in the Netherlands. Therefore, many municipalities focus solely on the development of stations and the densification around nodes. While, according to many, TOD should relate to the entire network (Tan, 2014, koster & tan 2012, Bertolini, 2014, Calthorpe, 1993, Dittmar & Ohland, 2004, van der Bijl, 2013, van der Hoeven, 2005). Likewise, Cervero (2013) describes TOD as a phenomenon, which includes local and inter-regional levels. Thereby stating that PTNs are never stand-alone objects. They must be developed within the context of at least a corridor and in most cases a regional metropolis (Cervero, 2013). Based on the reviewed literature, this thesis report defines TOD as follows: *TOD is a strategy focusing on the integration of land-use and transport in planning practices which often manifests in high-density patterns of mixed functions on Public Transport Nodes (PTNs).* This report uses the TOD definition mentioned above. For instance, chapter 6 uses this definition of TOD to analyse whether TOD really exists in the Netherlands.

Figure 1 gives a schematic presentation of TOD. The figure is based on the logo for public transport, which is used by different public transport organisations in the Netherlands. The pink s-shaped line represents the public transport that connects the two nodes. The two circles at the

ends of the line and the pink blocks represent the PTNs. Within the PTNs the two circles represent the transfer areas. The transfer area consists of the station building, infrastructure facilities, platforms, bus stops and tracks. The blocks surrounding the transfer area represent the density of real estate on the PTNs. The different patterns of the blocks represent the mix of functions and facilities. The black arrow represents the inter-regional level where different municipalities communicate about functions and facilities in the network. Finally, the smaller arrows represent the routing and linking between railway station and city centre (pre- and after-transport).

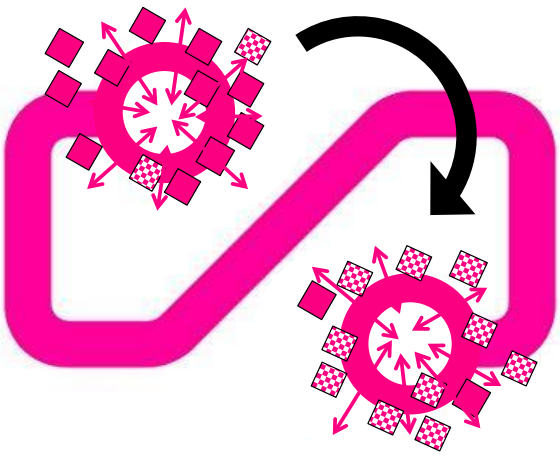


Figure 1 Overview Transit Oriented Development, made by author based on the 'OV-logo'

5.2 Objectives

Based on literature study and expert interviews this study defines three areas, which describe the primary objectives of TOD.

The first set of characteristics of TOD contributes to **environmental** objectives in a sense that it contributes to congestion relief, land conservation and reduced outlay for roads. The reduction in the outlay of roads is facilitated when development and use of public transport is supported (Transit Cooperative Research Program, 2004, Bakker & Zwanenveld, 2009). Likewise, the development of high concentrated real estate around public transport stops enhances the conservation of scarce land, as developments in green areas are restricted (Shafer & Leea, 2000).

Furthermore, TOD contributes to **financial** objectives in a sense that it contributes to promoting economic development, raising revenues for transit properties and in terms of optimal usage of already done investments in the current public transport network (Transit Cooperative Research Program, 2004, Calthorpe, 2011, Peek, 2014, Bertolini, 2014, Tan, 2014).

Finally, TOD contributes to **social** objectives in a sense that it enhances quality of life because of improved accessibility of services in the network society (Shafer & Leea, 2000, Transit Cooperative Research Program, 2004, Calthorpe, 2011, Lund, 2006, Porter, 1998, Peek, 2014, Tan, 2014, Bertolini, 2014, Schrijnen, 2014).

6 Current state in the Netherlands

This chapter discusses the current state of TOD in the Netherlands. The first section discusses the presence of TOD in the Netherlands, according to the definition from section 5.1. Eventually, the second section in this chapter discusses the Dutch interpretations of TOD. Finally, the last section presents a conclusion about the presence of TOD in the Netherlands. Appendix E gives an elaborated overview about the history and the implementation of TOD in the Netherlands.

6.1 Transit Oriented Development in the Netherlands

First, one short sub-section explains the node and place value because of their function in the subsequent discussion.

Place and node value

Within the definition of TOD a distinction can be made between the node and the place value. Primarily, this distinction intends to determine the functionality of a station or PTN. Bertolini's (1999) findings show a PTN is optimal functioning when the node and place value correspond to each other. The place value describes the spatial extent of the functions and activities present in and around the node: housing, work, public affairs, entertainment and the extent to which these features are blended together. The node value describes the existing supply of infrastructure and transport systems: the frequency of public transport that serves a node, the range of the network that is connected to the node and the modes of transport that can reach the node. The coming sections use the node and place value to analyse whether TOD exists (and in what form) in the Netherlands. Moreover, the section makes a devision between local and regional precence of TOD.

Railway station development

In the Netherlands, the place value of TOD becomes visible (primarily on local level) in the vast amounts of railway station developments. Over the past years, several large railway stations have been redeveloped and increased in size. Thereby, the safety, routing and retail in railway stations have improved considerably (NS, 2013). The Dutch rail company (NS, Nederlandse Spoorwegen) performs, usually in cooperation with ProRail and the municipalities, various projects in the country to redevelop existing stations. Small-scale renovations are referred by as Small Station Projects (KSPs, Kleine Stations Projecten). Large-scale renovations or expansion are mainly described as Large Station Developments (GSPs, Grote StationsProjecten). Besides GSPs and KSPs, National Key Projects (NSPs, Nationale SleutelProjecten) are special types of projects where the government targets to redevelop major stations along the High Speed Rail (HSL, Hoge SnelheidsLijn). In particular, these projects are done to increase the connection with

the European network. This connection will positively influence the international presence of the Netherlands (NS, 2013). Today, there are six NSPs in Netherlands: Arnhem Central Station, The Hague Central Station, Rotterdam Central Station, Utrecht Central Station, Amsterdam Central Station and Breda Central Station. An exception among the six stations is The Hague Central Station. This station is included in the NSP's but is not located along the HSL.

According to Bertolini (2014), many examples of successful individual stations are present in the Netherlands. But there are few examples of networking systems, regions and metropolitan cities that are organised around nodes. Bertolini (2014) states that TOD should be a strategy for the development of the entire metropolitan region. Especially, the coordination is missing between various stations about the urban programme and the facilities. Rather than strengthening the entire corridor by integrating ones programme on other locations, different stations choose their own program. Furthermore, coordination between municipalities is missing (Tan et al., 2013, Bertolini, 2014, Schrijnen, 2014, Peek, 2014). Likewise, next to the development of stations, there is little focus on the development of the entire PTN area, as too many developments are accepted in scarce green areas and meadows (Thomas, 2014, Reijnders, 2014, NS, 2013). As allready explained in chapter 1, many under-exploited station locations are present in North Holland and in South Holland the majority of the residential property developments are outside the catchment area of the stations (Gerretsen et al., 2013, Modder & Klinkenberg, 2013).

Public transport development

On regional level and on node value, TOD is present as the investments in regional rail infrastructure. In the Netherlands we constructed many transit networks, for a wide variety of modalities over the years. Already in the 50s, the first new (horses and steam) tramways were developed (van der Woud, 2006). Looking back over the period 1983-2013, the existing rail infrastructure improved and was extended (van der Woud, 2006). For instance, improvements are noticeable in the extensive urban-regional infrastructure in the 'South Wing' (Stedenbaan); and the regional train, light rail, subway and high-quality bus infrastructure (Tan et al., 2013, van der Woud, 2006, van der Bijl, 2013, Gerretsen et al., 2013, VROM, 2003, Liong, 2010).

At local level, the focus on the node value increases as well. A good example is the research on routing and linking between railway station and city centre in the Netherlands, by Inouk Brouwer (2010). In her research, Brouwer discusses the importance of the railway station as entrance to the city. In addition, she mentions the possibilities of attracting visitors and stimulating the local economy by promoting city centres (Brouwer, 2010). The idea that pre- and after transport are part of the journey and that the overall experience could contribute to

the promotion of the city centre is acknowledged by Tan. According to Tan (2014), TOD goes beyond sole NS stations. Tan explains that if people want to go from one location to the other, the journey from the station to the destination should also be part of the TOD strategy. Today, NS does research on this topic and enhances routing in and around the station (Reijnders, 2014). Hence, the relation with the city centre and the atmosphere of these locations improve (Brouwer, 2010, van der Hoeven et al., 2008, Reijnders, 2014).

6.2 Dutch interpretations

In 'Benut Bestaande Stad en Netwerk', Rutten et al., (2013) does research on TOD in the Netherlands, studying six important urban regions: The metropolitan region Amsterdam, South wing Randstad, Utrecht, City region Arnhem Nijmegen, Southern Netherlands and Groningen-Drenthe. According to Rutten et al. all these regions are examples of connecting and integrating urbanisation with transport networks. However, there are large differences in the extent, to which this integration occurs and the ambition whereby it occurs. According to Rutten et al. (2013), Cervero and Landis (1997) and Bertolini (2014), the South wing and City region Arnhem Nijmegen approach TOD best, as both interpretations show examples of a TOD strategy on network level. The section below described both interpretations.

Stedenbaanplus – South wing

In the platform 'Stedenbaan Plus' the following provinces and cities join forces: the province of South Holland, the Cities of Rotterdam and the Hague, the Urban district (Stadgewest) Haaglanden, the regions Leiden, Gouda and Dordrecht, NS and ProRail. The objectives are: integrated programme for spatial development; adequate chain facilities and high quality public transport in the South Wing. The network of Stedenbaan Plus consists of the train connection in the province of South Holland together with the underlying high-quality public transport network of the subway, the tramPlus, the Randstadrail and a number of high-end bus connections. The core idea behind Stedenbaan Plus is that people who live and/or work near high-quality public transport are more often inclined to make use the public transport (instead of the car). The ambitions focus on the construction of homes, offices, P+R locations and bicycle parking in the area of the high-end public transport network (HOV-network, Hoogwaardig openbaar vervoers netwerk) (Tan et al., 2013, Cervero & Landis, 1997, www.stedenbaanplus.nl).

In the South wing, agreements have been made with relevant stakeholders about the development of infrastructure, the development of new stations, the urbanisation of public

transport stops, and the exploitation of the network. Nevertheless, according to Rutten et al., (2013), the agreements are too ambiguous, allowing the operationalization to lag behind.

City region rail – city region Arnhem Nijmegen

By means of several projects, the city region wants to enhance the accessibility and the international position of the region. City Region Rail is a programme to encourage traveling of people by rail in the city region of Arnhem Nijmegen. With this program, the city region collaborates with the province, the municipality, ProRail, NS, other public transport companies and the Ministry of Infrastructure and Environment. The programme invests in three new stations and the expansion of the infrastructure, allowing more regional trains to travel in the metropolitan area. In the coming years, new developments in the field of housing and mobility will further develop the region rail. Finally, the expansion of bicycle and P+R facilities, as well as better connections between buses and trains belong to this programme (Tan et al., 2013) (www.encyclo.nl) (Cervero & Landis, 1997) (www.destadsregio.nl).

The City region rail formulates a strategy that connects public transport and urbanisation. The city region has a vision that formulates an order in the development of public transport stops. Nevertheless, only for some transport stops concrete agreements have been made (Rutten et al., 2013).

6.3 Recap

TOD is present in the Netherlands as a way of developing public transport on multi-modal ways and developing stations as multifunctional location. Nevertheless, the understanding of TOD is still very limited to station areas and railway infrastructure. For instance, at regional level TOD is visible in the vast amount of (public) infrastructure and on local scale the routing between the city and the station are being improved. Nevertheless, integration on network level is lacking. Likewise, because of acceptance of developments on less complex areas, the focus on real estate development around railway stations is not optimal.

7 Scope

The research focuses on Dutch policy and Dutch urban development practice. Therefore, the research involves Dutch constraints formulated by Dutch market parties. Nevertheless, the literature study includes several international sources as well.

Within the wide scope of TOD, primarily this research takes into account the development of real estate on PTNs. Figure 2 represents a PTN location. As is shown in figure 2, the urban area within a radius of about 1200m around the railway station is defined as the influence area of the station (Nefs & Duffhues, 2013). In reality, this area will never exactly be a circle. However, the circle does give a good indication of what the size of such an area could be. This indication of the entire area helps the respondent to think of a wider area than only the station. In this report, a PTN is divided into two interaction areas, namely: the transfer area and the area around the station (Kizimenko, 2010). The empirical research takes into account both areas. The transfer region forms the core of the PTN. This region is an area within a radius of about 100 meters to the railway station. The transfer area consists of the station building, infrastructure facilities, platforms, bus stops and tracks. Directly to the transfer area is the station area. Large-scale commercial and meeting functions can be located in this environment. The level of commercialism can vary greatly between locations. Often, strict laws and regulations about noise and safety only accept residential property and healthcare facilities in the outer circle.

In the evaluation part of the report, the reflection reflects upon the restrictions of the research, due to the definition of the scope.

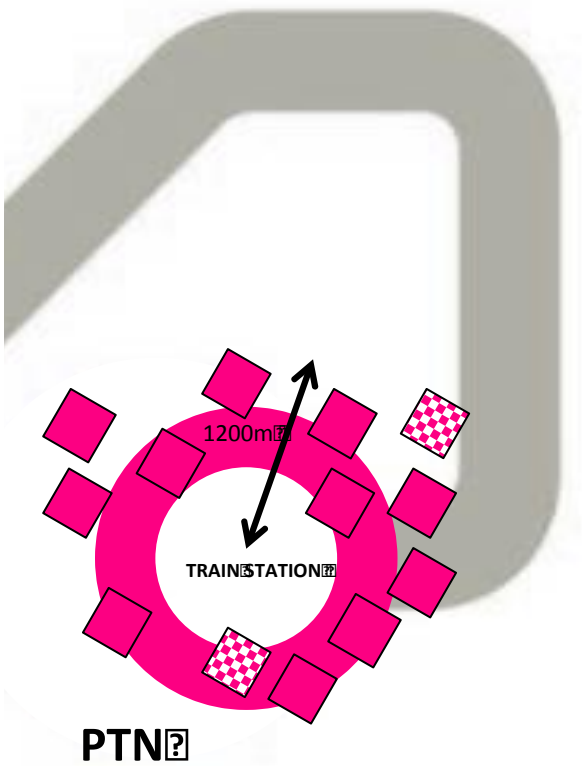


Figure 2 Public Transport Node, made by author, based on the 'OV-logo'

Methodology

8 Research methods and techniques

Below, a matrix structures 6 sub-questions (table 2), which support the main research question. The second, third and fourth columns present the appropriate source and method to unlock the information for every question. The coming sections give a justification per phase of the given method and source mentioned in table 2. The last section in this chapter discusses the techniques used to interpret the results. The reflection in the evaluation part of the report reflects on the restrictions of the research due to decisions in research methods.

Questions	Source(s)	Detailed information	Method(s) for unlocking source
Main research question: Which constraints limit the market in participating in development of PTNs?	• Validation interview to test methodology before the market consultation • Market consultation	• Market parties: end-users, investors and developers	• Closed one-sided oral market consultation with face-to-face interviews
Sub-questions: Define a clear definition of TOD	• Experts • Documents	• Gert-Joost Peek, Luca Bertolini, Joost Schrijnen & Wendy Tan • Newspaper articles, internet & scientific articles	• Face-to-face interviews • Content analyses
What are the objectives of TOD?	• Experts • Documents	• Gert-Joost Peek, Luca Bertolini, Joost Schrijnen & Wendy Tan • Newspaper articles, internet & scientific articles	• Face-to-face interviews Content analyses
What is the current state of TOD in the Netherlands?	• Experts • Documents	• Gert-Joost Peek, Luca Bertolini, Joost Schrijnen & Wendy Tan • Newspaper articles, internet & scientific articles	• Face-to-face interviews • Content analyses
What scope of TOD is relevant for the market consultation?	• Experts • Documents	• Gert-Joost Peek, Luca Bertolini, Joost Schrijnen & Wendy Tan • Newspaper articles, internet & scientific articles	• Face-to-face interviews • Content analyses
Does the city council recognise the constraints and to what extent are the research results relevant?	• Evaluation study of constraints	• The Leiden council	• Interview • Workshop

Table 2 Overview of research methods, made by author

8.1 Literature study and expert interviews - Phase I

Phase one studies the first four sub-questions from table 2. This phase exists of both expert interviews and literature study. The grounded theory approach is used, which compares

different aspects based on practice and theory to add new theory to existing knowledge and to gain insights in existing theories (Verschuren & Doorewaard, 2007). The grounded theory approach is both deductive and inductive. This research primarily does inductive research. As, data from different sources is analysed to make overall conclusions about specific sectors. Furthermore, this study uses triangulation to verify these conclusions. Triangulation presents similarities and differences between different sources and practice.

Methods for expert interviews

The method used for the expert interviews is semi-structured face-to-face interviewing. Opdenakker's (2006) and Wengraf's (2001) define the benefits of face-to-face interviewing as follows:

- Due to this synchronous communication, as no other interview method, face-to-face interviews take its advantage of social cues, such as voice, intonation, body language e.g. On the other hand this visibility can lead to disturbing interviewer effects, when the interviewer guides with his or her behaviour the interviewee in a special direction. This disadvantage can be diminished by using an interview protocol and by the awareness of the interviewer of this effect**.**

- In face-to-face interviews there is no significant time delay between question and answer; the interviewer and interviewee can directly react on what the other says or does. Another advantage of synchronous communication is that the answer of the interviewee is more spontaneous, without an extended reflection. Moreover, termination of a face-to-face interviews is easy, compared to other interview methods. In the interaction between interviewer and interviewee enough clues can be given that the end of the interview is near.

According to Verschuren and Doorwaard (2007), there are two ways of doing an interview: interviewing with a degree of pre-structuring or open questioning. This research uses semi-structured interviewing. The benefits of semi-structured interviewing for the study are the following:

- Semi-structured interviews offer room for the respondent to talk freely about some topics. In this way information, such as unknown-unknowns, would reach the interviewer where in strict structured interviews this relevant information might miss out.

- Structured interviews with questions worked out before hand, help the interviewer to compare the given answers of all respondents in a later phase.
- Semi-structured interviews could insert information in interviews that came up in earlier interviews.

Selection experts

Four experts are interviewed: Joost Schrijnen, Gert-Joost Peek, Luca Bertolini and Wendy Tan. The selection of experts is based on the level of substantial knowledge of the experts. All four experts published (sometimes in collaboration with third parties) a recent amount of articles on TOD or related topics. Furthermore, Grontmij established good contacts with all four experts. Therefore, it is feasible to contact these experts and make appointments. To enable sources to complement each other and to analyse differences, the interviews are done parallel to the literature study analysis.

8.2 Market consultation and validation interview - Phase II

Phase two studies the main research question (see first row table 2). This phase exists of a market consultation with face-to-face interviews. The objective of the market consultation is to formulate the constraints of the market for development on PTN locations and possible mitigations for constraints. The technique used is a closed market consultation with a self-selected group of market parties. According to Tazelaar (2011) a market consultation can either focus on the content, process, or the market. It can be carried out both one-sided and two-sided. A two-sided market consultation tests ideas and concepts in the market. A one-sided consultation gathers information without going into the substance of future projects (Tazelaar, 2011). This market consultation uses a one-sided consultation with focus on the process as well as the content.

Selection market parties

Selecting respondents is complex as different actors can be placed in different sectors. In addition, roles of actors are shifting. In this way, an engineering company could deploy his employees to public and building organisations and contractors start taking on management positions. Therefore, this study attempts to classify actors on the basis of their main activities.

The market consultation uses criteria to select parties and organisations for the consultation. Boy Wesel from Grontmij Capital Consulting (GCC) supports in drawing up criteria and selecting respondents. The criteria for incorporating parties in the market consultation are:

- organisations with experience in financing, developing or exploiting real estate around stations or in city centres;
- organisations in both commercial and public property;
- organisations in residential property, offices or retail;
- parties should be private shareholders according to the theory of Peek (see appendix H). Stakeholders, which are not directly involved in the project, will no be incorporated in the market consultation.
- Parties from three sectors: developing, financing, and exploiting. (At least three or four respondents within every sector.) Only a small group of respondents per sector is incorporated as, according to Wesel (2014), an opinion from one party in a sector, to a large extent responds to the opinion in the entire sector.

To select respondents within the chosen organisations, this section mentions four criteria:

- the respondent should have knowledge about the law and regulation in project development and project financing in inner city construction projects;
- the respondent should have knowledge about processes, shareholders and stakeholders in large scale construction projects (in inner cities);
- the respondent should have a management function within a company or organisation. This function is important because it is in the research's interest to interview a respondent that states the opinion of the company and not its own opinion;
- preferably, (not critical) contacts and relations of Grontmij.

List of organisations participating in the market consultation:

End-users	**Developers**	**Investors**
1. Grontmij (office sector)	4. AM	8. CBRE DOF (office fund)
2. Sissy boy (retail sector)	5. MAB	9. CBRE DRF (retail fund)
3. Staedion (housing sector)	6. MULTI	10. Altera
	7. OVG	11. NS stations (end-user, developer and investor)

The respondents within the organisations will remain anonymous. Overall, most respondents were Executives or Managers Real Estate Portfolio.

Validation study

A validation interview with Herman Snoek, Executive Operations and Facilities from Grontmij, validates the relevance of the interview questions and interview structure before using these in the market consultation.

Overall, the structure of the interview works sufficient. The respondent has no difficulty understanding questions. Appendix C shows the interview questions for the market consultation. The validation study tests the output form for the interview's results as well. The interviewer asks the respondent to mention constraints for different levels: place value on local scale, node value on local scale, place value on regional scale, node value on regional scale. A matrix structures the constraints mentioned according to these four levels. The validation study show the division in the levels named above is less relevant for the formulation of market constraints. As almost every constraint mentioned relates to local scale and place value. None of the constraints mentioned relates to regional level and only one constraint belongs to node value. During the market consultation these findings repeat itself. Therefore, the sub-division in the matrix is taken out.

8.3 Evaluation study at Leiden - Phase III

Phase three consists of an evaluation study at the Leiden council. The aim of the evaluation study in Leiden is to evaluate the relevance and practical implication of the results from the market consultation. The evaluation study uses a workshop to study the relevance and practical implications of the constraints and a face-to-face interview to discuss the results of the workshop. Appendix G presents an overview of the evaluation study and interview questions.

Selection Leiden case

Leiden has an interesting railway station and station area because ProRail and NS use the station as test station. Prorail and NS try out new concepts for stations in Leiden. In addition, the Leiden council has a strong focus on the development around Leiden Central Station (Bergenhenegouwen, 2014). For instance, the council aims for a multifunctional urban program. Therefore, different business and facilities are attracted to the station area. The respondents from the Leiden council are Ingeborg de Jong, Executive at the city of Leiden; and Robert Bergenhenegouwen, area manager of Leiden.

8.4 Research techniques to interpreted results

This research uses a qualitative approach. There is benefit in qualifying and interpreting research, involving verbal and contemplative reporting. This approach may, in particularly, be useful for interpreting information from face-to-face interviews. Reading between the lines and the correct interpretation of results from interviews is therefore often of qualitative nature. If there are large numbers of individual case studies available, the synthesis can incorporate quantitative techniques common to other research synthesis or meta-analysis. But in this case, when only a moderate number of respondents are available, alternative techniques are needed. Below two short sections show techniques used in the research.

Technique: Cross-case analysing

This research uses a word table, as described in the cross-case technique used by Yin (2006). The table displays the data from the individual interviews according to a uniform framework. The analysis of the entire collection of data in the word table enables the study to draw cross-case conclusions (see table 3). The technique explores whether different experts or respondents in the market consultation share similarities or differences. Appendix F shows two tables with transcripts from the expert interviews.

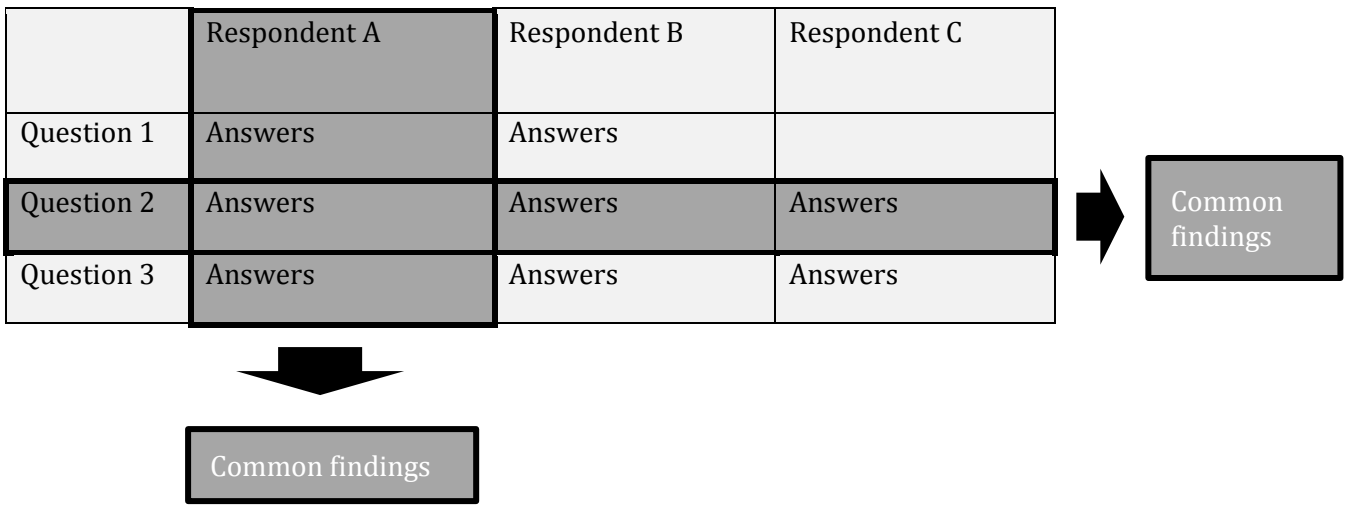


Table 3 Technique to analyse data from the interviews, made by author, based on (Yin, 2006, p. 23)

Technique: Category formation

To manage the otherwise overwhelming variety of experiences and data, the research uses category formation. According to Scot et al (1997) it would be impossible to make any sense of the interview data if every constraints or precondition observed is regarded as unique, bearing no relationship to any previous observation (Scot et al, 1997).

According to Scot et al, the strict definition of category formation works as follows: Given a set of entities X and a similarity metric S, find an equivalence relation Exs, that partitions X into equivalence classes such that similarity within equivalence classes is maximised and similarity between equivalence classes is minimised. In addition, not all equivalence relations would generate a partition that we would recognise as a sensible or useful set of categories. Worthwhile categorisation systems typically have the property that members of a given category resemble each other rather than they resemble the members of other categories (scot et al, 1997).

This research uses categorisation formation to structure the results (constraints) from the interviews. This research interprets category formation as follows:

- First, I study literature to find possible categorisations for the constraints. (Appendix K)
- Second, I compare these categories to 'fail factors for TOD' found in literature to validate if the categories cover all factors. (Appendix B)
- Last, I optimize categories to make sure that the similarity within equivalence classes is maximised and similarity between equivalence classes is minimised.

Empirical research

9 Constraints

The coming chapter presents the overview with constraints from the market consultation (table 4). Section 9.1 explains the structure of the overview with constraints and discusses the first findings. Furthermore, section 9.1 explains how to read the overview of constraints and presents the overview itself in table 4. Eventually sections 9.2 up until 9.8 discuss and study the constraints and draw conclusions according to the cross-case technique (see §8.4 research techniques).

9.1 Overview of constraints

Table 4 gives an overview of all the constraints found in the market consultation. Appendix A gives an overview with detailed description of the separate constraints from table 4. The coming sub-section discusses the categorisation used in table 4.

Four categories

Appendix N shows a study on categorisation which analyses several categorisations found in literature in order to obtain insight into relevant categorisation methods. The analysis shows six sources that offer potential categorisation. The categories enable users of the overview of constraints to find specific information within the user's field of expertise.

The analysis shows most categorisations exist of four recurring themes: **substance, finance, regulations and process**. Within these themes, different sources use different terminology. For instance, within the theme of substance, sources use the following terminology to describe a category: technical, substantive, functional, content, e.g. All these words say something about the substantive content of the project. Likewise, different terminology is used to describe categorisation relating to finance, regulation and process.

As described in the category formation theory in section 8,4 the next step I use in finding the right categorisation is the comparison of the categories above to the 'fail factors for TOD' found in literature to validate if the categories cover all factors. Studying literature on fail factors for TOD (see appendix B) shows 20 out of 60 fail factors relate to three of the categories above (substance, finance or regulations). Within the list of 60 fail factors 27 fail factors discuss the lack of government **vision** and 13 discuss the complex **cooperation** between the large amounts of parties involved.

Last, I optimize categories to make sure that the similarity within equivalence classes is maximised and similarity between equivalence classes is minimised. Thereafter, I check the

categorisation one more time by beginning every interview of the market consultation with an open question. The market parties have to mention constraints, without knowing the categories in advance. In none of the interviews constraints were mentioned that could not be placed in in of the categories. Hence, this final check shows the categories are suitable for the formation of market constraints in the development of PTNs.

The categorisation used in the overview of constraints exists of the following categories:

- **Programme & Facilities**
  Informs about the accessibility, real estate and programming, atmosphere and functionality on the location.

- **Finance & Economy**
  Informs about the current economy, risk identification, bankability, possibility to insure the project, alternatives for financing and investment forms.

- **Policy & Regulations**
  Informs about Dutch law and regulations and how these regulations are operationalized on both national and local level in policies.

- **Cooperation & Vision**
  Informs about the process, communication, trust and long-term view of actors involved.

Reading the overview

The overview in table 4 shows the constraints mentioned by the market during the interviews. The horizontal rows present the constraints per category. The columns show which constraints are mentioned by separate sectors. Comparing the columns shows which constraints are mentioned by all sectors. For instance all three sectors mention “Lack of multifunctional areas” (see row ‘Programme & Facilities’ in table 4, all three columns). Sections 9.2 up until 9.5 discuss common factors according to the cross-case technique.

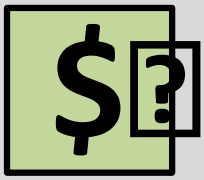
Table 4 Representation of constraints from the market consultation, made by author

Sector: Developers

Category: Program & Facility

Lack of multi-functional areas	Quality of public space falls short	Lack of car parking facilities
Lack of accessibility by car	Little financially affordable property (students, start-ups)	Municipalities are reluctant in accepting retail
Program is limited due to required land revenue	Program is limited due to noise around stations	Existing infra-structure hampers construction
Extreme high architectural demands on these locations	The contractor has no space	

Category: Finance & Economy



The chicken and the egg story	Financing has become difficult	High land values
Difficult to finance before occupation of the ground	Shrinkage on the current office market	Taxations change all the time
Project becomes a number	Investors prefer to buy close to completion	'Glass roof'

Category: Policy & Regulations

The land use plans are too tight	Large spatial plan-ning problems (RO-problematiek)	Large spatial plan-ning problems (RO-problematiek)
Increasingly stringent safety requirements	Every four years development is held hostage	Too many objection procedures
Policies change every four years		

Category: Cooperation & Vision

Market is not big enough	Too much on too many locations is accepted	Not all parties come clean at the beginning
Prorail and hs have less interest		

Sector: Investors

Lack of multi-functional areas

Quality of public space falls short

Lack of car parking facilities

Lack of accessibility by car

Extreme high archi-tectural demands on these locations

PTN is less interesting for retail and residence

Too large projects and not demand in the market

High risk when tenants are unknown

Investor is dependent of pension funds

Prices are high around public transport nodes

The business case is leading

The land use plans are too tight

Market is not big enough

Too much on too many locations is accepted

Not all parties come clean at the beginning

Government makes money with land values

Sector: End-users

Lack of multi-functional areas

Quality of public space falls short

Lack of car parking facilities

Lack of accessibility by car

Terminals in the station hamper natural traffic flow

Little financially affordable property (students, start-ups)

Lack of insight in future neighbours

Too long the con-struction site is in front of your door

Lack of insight in future passenger flo s

Retail is located on unfavourable plots

The rent is too high compared to the quality given

Long-term projects while we have short-term goals

Wage difference between railway and retail staff

Shrinkage on the current office market

Market is not big enough

Too much on too many locations is accepted

Not all parties come clean at the beginning

Retailer has no choice about location in station

Not transparent how other retailers are chosen

Retailer has no choice what city he is assigned to

Government shows little long-term commitment

Constraints

Figure 3, presents the percentages of constraints per category from table 4. The largest part, 40%, of the constraints identified in the market consultation relate to 'Programme & Facilities'. 26% of the constraints relate to 'Finance & Economy' and 22% are connected with 'Cooperation & Vision'. Only 12% of the constraints relate to 'Policy & Regulations'.

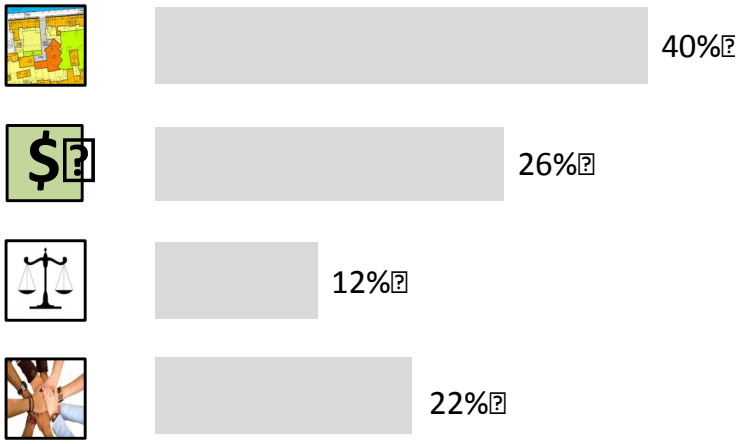


Figure 3 Constraints from market consultation per category in percentages, made by author

From the three interviewed sectors, the Property developers state the largest number of constraints, as 46% of the constraints listed are from interviews with developers (see figure 4). End-users and investors identify 30% and 24% of the constraints, respectively. Leiden Council representatives expect this distribution, as developers (traditionally) bear most of the risks regarding building projects. 100% of the respondents indicate to some extend to believe in the benefits of Public Transport Node (PTN) development.

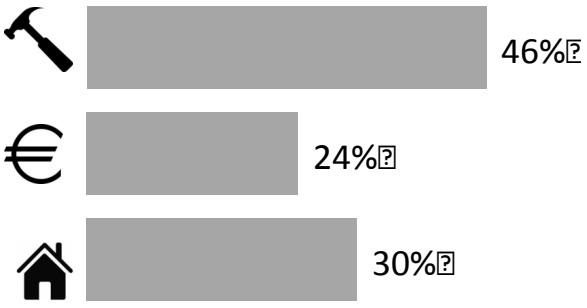


Figure 4 Constraints from market consultation per sector in percentages, made by author

Although the constraints identified cover a wide range of perspectives and views from different parties, there is some common ground between the different sectors. I analysed the answers between categories and sectors. The following sections summarise these findings.

9.2 Study of constraints in the first row: 'Programme & Facilities'

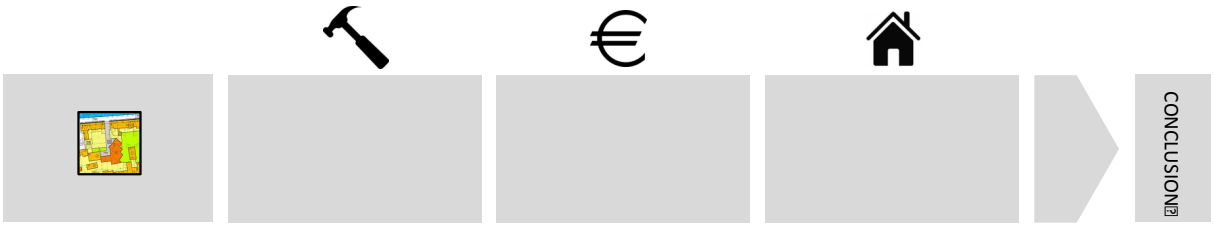


Figure 5 Horizontal study of constraints on 'Programme & Facilities', made by author

As shown in figure 5, this section discusses the similarities between sectors within the category 'Programme & Facilities'. Table 4 shows the three sectors have four similar constraints in the category 'Programme & Facilities'. This section discusses these four constraints.

Lack of multifunctional areas

As shown in table 4, all sectors indicate that the lack of multifunctional programs (mix of business, housing, leisure and retail) is a constraint to develop around PTN locations. According to the interviewed, there are too many monotonous areas around railway stations.

Yet, the respondents make a distinction between the type of retail and leisure that is wished for. The interviewed investors only desire retail that is primarily supportive to the main function of the area. According to the investors, retail on these locations should not attract dedicated shopping audience, looking for a shopping experience. The shops and leisure on PTNs should reflect the need of the office workers. (E.g.: shops with umbrellas, dry cleaning, small groceries and stationary stores.) Nevertheless, the interviewed developers prefer a wider range of retail and leisure on PTN locations.

Finally, interviews show multifunctional areas should offer retail, but restrict the amount of fashion retail to compromise for the existing fashion stores in city centres. For instance, developers mention that city councils are reluctant in accepting retail around railway stations. Because they are afraid retail at PTNs competes with retail in shopping streets. NS restricts the amount of fashion retail in the railway stations as well. Executive of NS stations Jaap Reijnders (2014) explains that ideally most shops in the railway stations sell products focussed on train passengers. For instance, in the coming years, NS will allow less fashion retail in railway stations and will focus more on coffee to-go stores and catering in general.

Lack of quality of public space

Another shared constraint mentioned by all three sectors is the lack of quality of public space. Although, for the past years, municipalities and NS have been working to improve the areas around stations (Reijnders, 2014). The interviewed prioritise the overall experience and environmental quality as very important. The interviewed mention the lacking quality of primarily: (above ground) bicycle parking, bus stops, poor routing and poor pedestrian flows into the city centre. Moreover, the only retail owner interviewed within the group of end-users advocates that when project team members assign plots of ground to retailers in and around stations, little is thought of the passenger traffic flows.

Lack of car accessibility and car parking

Finally, two shared constraints are the lack of car accessibility and car parking. Primarily, the market shows interest in PTN locations because of the multi-modal accessibility and the potential for multifunctional urban programming on these locations. Nevertheless, the market parties interviewed find the current car accessibility and the multifunctional programming insufficient. Despite the fact that TOD increases the accessibility by public transport, market parties (specifically the office sector) find car accessibility a strong condition for potential urban development around PTNs. Moreover, the office market considers the lack of accessibility by car the largest constraint. Investors explain that the amount of car parking in urban projects directly relates to the value of the investment. Decreasing parking places in the urban program, means decreasing the value of the investment. Nevertheless, the developers mention, that the development of retail and residential property is less dependent on the accessibility by car.

9.3 Study of constraints in the second row: 'Finance & Economy'

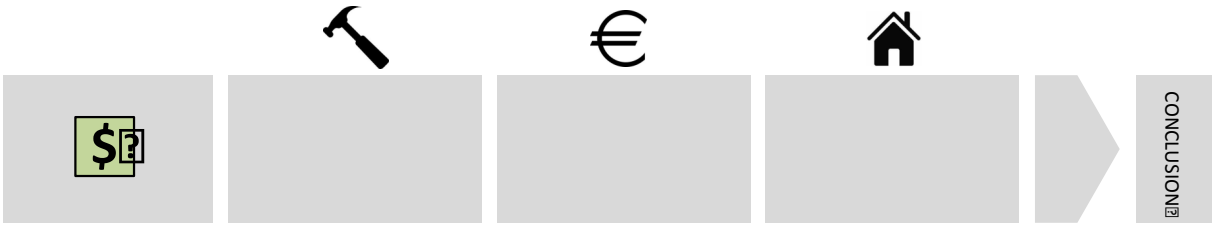


Figure 6 Horizontal study of constraints on finance, made by author

As shown in figure 6, this section discusses the constraints within the category 'Finance & Economy'. Table 4 shows the sectors mention no corresponding constraints in the category 'Finance & Economy'. Only the developers and the end-users have one shared constraint:

'shrinkage on the current office market'. This section discusses the contradictions and common factors between constraints of different sectors within the category of 'Finance & Economy'.

Difficult to finance the project

Table 4 shows that developers experience most constraints in the category 'Finance & Economy'. First, a large constraint according to developers is the difficulty to finance the project. Due to the financial crisis (see §1,3), developers have difficulty to find investors especially since land values around PTNs are high, taxations change regularly (E.g. property tax and transfer tax) and parties need to have more private equity to secure future cash flows. The investments on PTNs must repay themselves in selling prices. Nevertheless, according to the interviewed, in the Netherlands there is a 'glass roof' of about 200,- euro rent per m^2. (Office park the Zuid-as, which is located next to railway station Amsterdam Zuid, is an exception) Furthermore, banks have to clear their balance to meet EU guidelines. Therefore, according to the developers interviewed, banks look less at the quality and type of project. Instead, banks make a trade-off about investing in 'stones' at all. Resulting in the project becoming a number.

Potential for smaller tenants

The developers prefer larger tenants or one large tenant accompanied by smaller tenants because they mention that smaller tenants are difficult to 'sell' to the investors. On the other hand, the investors say they have no strict preference for the tenant's size. On the contrary, the investors mention they prefer multi-tenant leases. As multi-tenant leases reduce risk considerably. Thereby, investors prefer multi-tenant leases with varying expiration dates and an average of 70% leased, before investing. Developers and investors I interviewed explain that start-ups and freelancers could be served using multi-tenant leases at PTN locations. Nevertheless, to cater for these organisations and to secure a 70% occupancy for investors, different business models would be needed.

9.4 Study of constraints in the third row: 'Policy & Regulations'

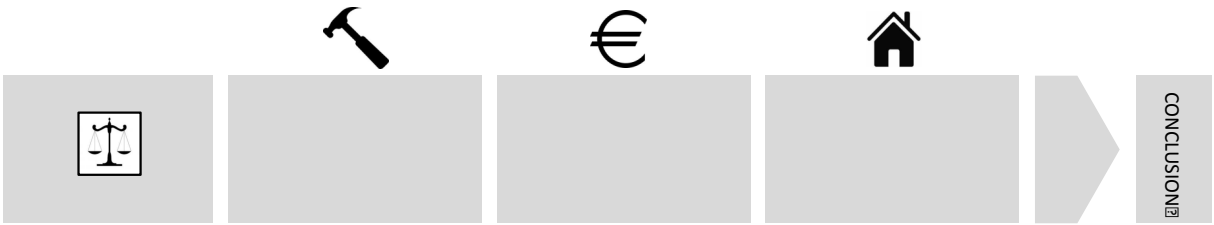


Figure 7 Horizontal study of constraints on law and regulation, made by author

As shown in figure 7, this section discusses the constraints within the category 'Policy & Regulations'. Table 4 shows that the end-user does not formulate any constraints in the

category of 'Policy & Regulations'. The investors formulate one constraint. The developers formulate seven constraints in this category.

Restricted client-driven development

Although market parties get a more prominent role in TOD practices, the market consultation shows market parties are not able or willing to make the same large financial investments in public projects as governments do, without security about future tenants (see table 4 third row). Hence, the acquisition of land positions (developing plots without clients and risking vacancy) hardly happens anymore. Developers prefer phased, flexible, small-scaled projects in order to respond to the demand of their client.

Simultaneously, client-driven developments increase the applications for land-use plan changes, as designs and programmes become more specific. The interviewed explain that current practices (tight land-use plans and lengthy inflexible spatial planning processes) restrict the flexible and fast application of these land-use plan changes. The market consultation shows less restrictive land-use plans and flexible spatial planning processes might provide more space for development initiatives. Simultaneously, developers believe that foreign organisations might be more inclined to enter Dutch urban development projects if spatial planning processes would have less complex procedures.

9.5 Study of constraints in the fourth row: 'Cooperation & Vision'

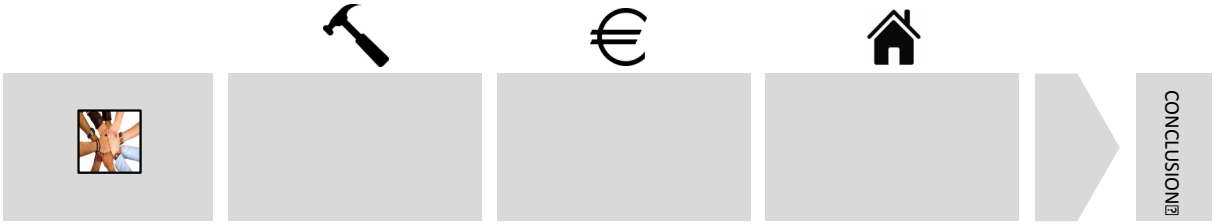


Figure 8 Horizontal study of constraints on cooperation, made by author

As shown in figure 8, this section discusses the constraints within the category 'Cooperation & Vision'. Table 4 shows that the three sectors all mention two similar constrains: 'the government accepts too much on too many locations' and 'the market is not big enough'. This section discusses these constraints.

According to the interviewed, governments often defeat their own goals regarding the realisation of TODs, because they do large investments for the development of less accessible locations, as municipalities offer companies cheap alternatives in meadows and suburbs. These offers threaten the multi-millions investments at PTNs (Buitelaar, 2013, Geurs, 2013). For example, Reijnder (2014) of NS Stations mentions that in the last 20 years, not one relevant

organisation showed interest in property or development near Utrecht Central Station. Only, the organisations, that were already located near the station (re)developed plots. Because of cheap alternatives, interviewed market parties are less inclined to invest in the relative expensive locations near railway stations.
The market consultation shows clear preconditions and frameworks should be established that create the conditions for the market, whereby the market is only willing to invest in development on PTNs. For instance, an important condition is to create scarcity. According to the interviewed, the feasibility of TOD might increase, as developments are restricted in less complex areas. Thereby, a framework should indicate the boundaries in which market parties are offered space for development or investment as outside these boundaries no developments are allowed. In addition, most interviewed advocate guidance at regional level as current local guidance is without obligations.

Finally, the market consultation shows lack of coordination between municipalities about the urban programming on PTN locations. Despite the fact that TOD can ensure that there is less need for the development of certain facilities in every town and village (the region becomes better accessible), municipalities compete for the same facilities and developments, regardless of the city's core 'competence'. Nevertheless, research shows the market is not large enough for an office park in every town (DTZ Zadelhoff, 2013). Resulting in vacant office parks in numerous towns and lack of focus on urban quality. Hence, market parties desire more cooperation and coordination between municipalities about the programming and facilities on PTNs.

Context information:
In the Netherlands, office building vacancy has increased to 7,2 million square meters in 2013. This is 14,6% of the total office supply in the Netherlands. Despite the fact that office space is taken away from the total supply, vacancy is increasing due to reduction of organisations and the amount of square meters per employee (DTZ Zadelhoff, 2013).

Context information:
Abroad, local authorities are often limited to establishing planning frameworks and granting licensing. In the Netherlands the councils act more like entrepreneurs. Several have strategic land positions and they participate risk bearing in the exploitation of those areas. In recent years land exploitation has become one of the main sources of income (Veldhuizen, 2010).

9.6 Study of constraints in the first collumn: Developers

As was shown in figure 4, the developers experience most constraints. According to the interviewed, over the past years about 80% of the developers went bankrupt or were taken over by banks. Developers say the market is volatile, therefore they are forced to react faster and more flexible. According to some developers the fact that the developers who have taken on this flexible approach are the ones still operating might confirm that this flexible strategy works. Nevertheless, more research should be done on this subject to confirm this statement.

9.7 Study of constraints in the second collumn: Investors

All the investors interviewed indicate to see the importance of TOD. In addition, some of the investors even say that they would only invest in property on PTNs. According to the investors, they have become more critical in formulating criteria for attractive investments because of the financial crisis. Therefore, in particular, the investors find the PTNs in the four major cities (Utrecht, Amsterdam, Rotterdam and The Hague) attractive development locations for the coming years. For instance, investors expect the job growth is fastest in these cities. Likewise, the investors expect Dutch PTNs are interesting locations from an international perspective. According to the interviewed this interest is largely due to the fact that many international organisations are willing to use public transport instead of cars. Hence, these parties want to be located near railway stations. Investors explain which stations are attractive for office property: Bijlmer arena, Amsterdam Zuid, Utrecht Central Station, Rotterdam Central Station and The Hague Central Station (the Hague to a lesser extend). However, interviews show, retail and residential markets are less restricted to these four larger cities. According to investors, the spectrum of investment opportunities in the retail and residential market goes beyond the 30 major cities in Netherlands.

Potential for residential property

Finally, the investors I interviewed depend largely on the demand of pension funds. According to these investors, within the next few years pension funds will focus more on residential property. Therefore, investors will do so as well. According to the investors, prices at PTNs are at a premium though, which makes it difficult to develop residential property at PTNs. In addition, the strict regulations for residential property near railway stations restrict development as well. In addition, the interviewed market parties state that accessibility to public transport is less important for the residential sector. Moreover, in the Netherlands there is hardly any demand for residential property in the high-end sector (well-off households which

could afford these expensive leases) on PTN locations. To conclude, studies should be done to explore ways to meet the demand for residential property at PTNs.

9.8 Study of constraints in the third collumn: End-user

The end-user experiences most constraints in the category 'Programme & Facilities'. However, the results show clear differences between constraints mentioned by retail, office and residential property users within the group of end-users. For instance, the office user experiences the lack of car accessibility as a large constraint, whereas the retailer depends less on car use. In particular, the retailer depends on the flow of passenger as the passenger flow influences the income of the retailer directly. Therefore, the location, walking streams, quality of public space and the adjacent retailers are very important for the retailer. In general, according to the retailer, they have little influence on these aspects as they are left out of the discussion.

10 Evaluation study

This chapter discusses the evaluation study at the Leiden council. The aim of the evaluation study in Leiden is to evaluate the relevance and practical implication of the content of table 4 (overview of the constraints). The evaluation study uses a workshop to study the relevance and practical implications of the constraints and a face-to-face interview to discuss the results of the workshop. Firstly, a short section explains the setup of the workshop. Then, a section discusses the results of the study. Finally, a section discusses a potential user interface that shows practicability of the constraints found.

10.1 Setup workshop

Both participants (Ingeborg de Jong, Executive at the city of Leiden; and Robert Bergenhenegouwen, area manager of Leiden) are handed a deck of constraints. In every deck, 31 constraints are represented on 31 cards. The workshop uses only the constraints of the developers. Every card shows a constraint and a category ('Programme & Facilities', 'Finance & Economy', 'Policy & Regulations', 'Cooperation & Vision') from the market consultation. Both participants place the cards with constraints on four papers with different colours. Table 5 shows what the different colours indicate.

Pink	constraints I already knew of, but which are inevitable
Orange	constraint I already knew of, and which might be relevant for the council
Yellow	constraints I did not know of, but which are inevitable
Green	constraints I did not know of, which might be relevant for the council

Table 5 Indication of the colours from the workshop, made by author

In this case the term 'relevant' means that the council might be able to mitigate, or eliminate the constraint (despite the positive or negative attitude of the council towards the constraint). It might be possible that the council does not agree, or does not want to mitigate a constraint. Nevertheless, the difference between 'able to do something' and 'desire to do something' is not taken into account in this part of the study. Inevitable means: the constraints could not be mitigated or eliminated by the council because the constraint is inevitable according to the council.

10.2 Results

Table 6 shows the results from the workshop. The participants in the workshop recognise 55 constraints from the total of 62 constraints. But within the known constraints, the council labels 32 constraints as potential interesting information. This amount of constraints resembles 52% of all constraints in the two decks of cards. 10% of the constraints are unknown according to the council. Within the 10%, 3,2% of the constraints are both unknown and relevant. Figure 9 shows the constraint mentioned by both participants as unknown and relevant: 'large spatial planning problems resulting in restriction on demand-driven development in PTN development'.

In particular, the council names constraints in the categories 'financial & economy' and 'Policy & Regulations' inevitable. Nevertheless, based on discussion afterwards, it seems as if the respondents have placed cards based on their cause rather than their effect. For instance, the constraint about the government who switches every four years (see appendix A) is named inevitable. But the actual constraint is not about the fact that the government is switching but on the effect it has on long-term policy and temporary stops of projects. These aspects of the constraint might not be inevitable.

25 constraints out of 62 (2 decks of 31):	are known but inevitable
30 constraints out of 62 (2 decks of 31):	are known and relevant for the council
5 constraints out of 62 (2 decks of 31):	are unknown but inevitable
2 constraints out of 62 (2 decks of 31):	are unknown and relevant for the council

Table 6 Results of the workshop, made by author

Possible gap between current practice and government policy

During the evaluation workshop in Leiden the council labels 40% of the constraints named by the market parties as 'known information that is inevitable'. The council questions whether these constraints are still relevant or whether these have not already been solved in the past. However, the large numbers of market parties that appoints these constraints might indicate that there may be a gap between current practice and government policy.

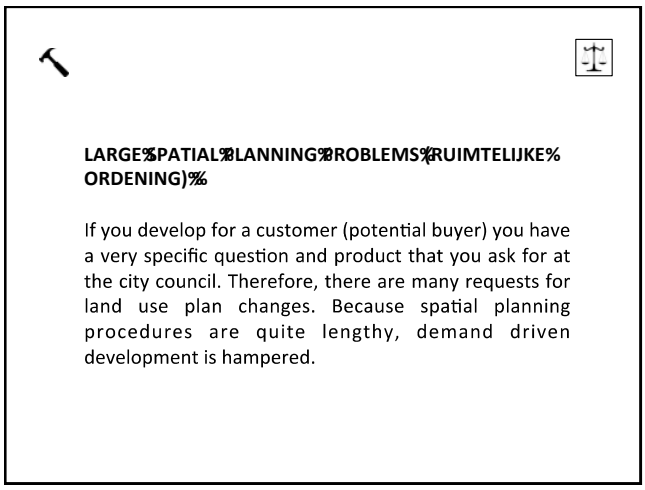


Figure 9 Unknown and relevant constraint in the evaluation study in Leiden, made by author

10.3 User interface

To operationalize the information in table 4, the council comments on some questions about the preferred functioning of a potential user interface. The coming section discusses the results from this interview and the criteria for a possible user interface.

Results interview

According to the Leiden council, the user interface should focus on the project manager and the project team dedicated on the PTN project. Within the project team, different expertise is present. Therefore, the user interface should be functional for all this expertise. Hence, the city council thinks the categorisation might be useful for a potential user interface. The user interface will be used during project initiation and should have the ability to share best practices between municipalities.

Finally, earlier sections discuss competitiveness between municipalities. This research expects sharing best practices inter-regional will decrease the competitive attitude between municipalities and will contribute positively to the lack of vision and coordination between municipalities (see table 4 fourth row).

Criteria for the user interface

The council states the following criteria:

The user interface:

- should enable a project team member of the council to get insight in the constraints within his or her expertise;
- should enable a project team member of the council to find intern and regional extern colleagues;
- should be simple and clear in use;
- should be fast in use;
- should provide the ability to keep data up to date.

Possible layout user interface

This report shows a first step for a user interface in the form of a web-based application for local governments. The application gives insight in market constraints. Figure 10 shows the constraints structured per category and per sector in the first two screens. In that way, users of the application are able to find specific information within their expertise. Furthermore, the user can share best practises with local and regional colleagues (see fourth screen). The Leiden council mentions no such tool exists for sharing best practice between municipalities. More research with different municipalities should be done to confirm these findings and to design a final user interface.

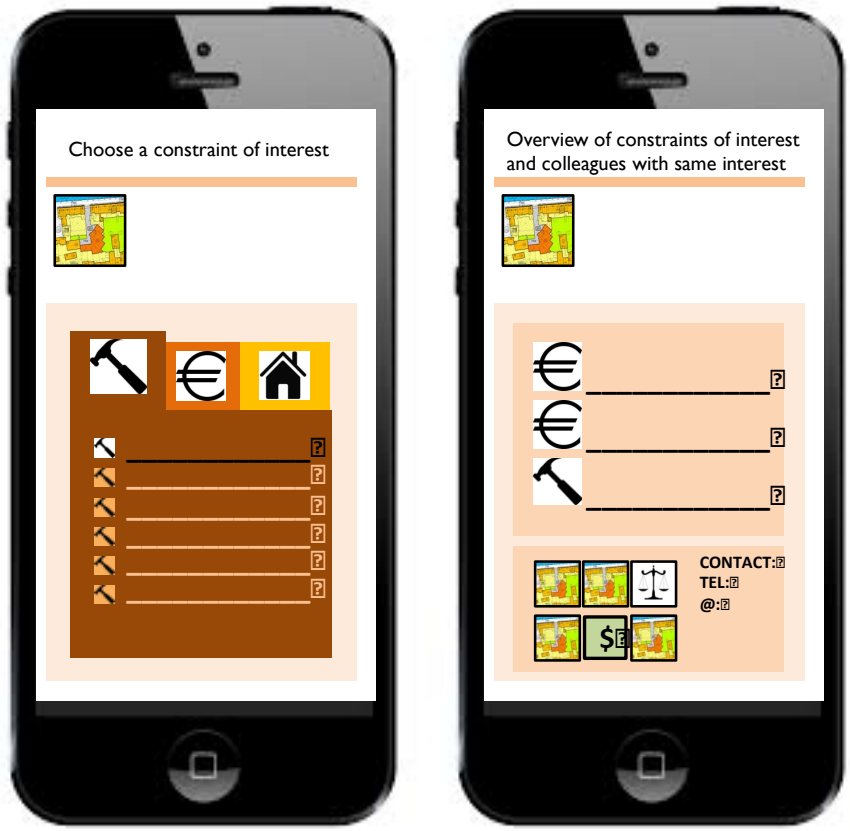


Figure 10 User interface, made by author

11 Possible approaches for constraints

In addition to formulating constraints, market parties propose mitigation for the constraints, which they thought as most critical. The first section discusses mitigation for the lack of car accessibility. Thereafter a section shows different mitigation options for constraints related to financing. Eventually, three sections give mitigation for constraints related to policy changes, spatial planning and lack of vision.

11.1 Higher parking ratio or shifting focus

One of the most frequent mentioned constraint is the lack of car parking. Most of the market parties desire higher parking ratios. Moreover, investors mention the occupancy rate in the offices increases thereby increasingly detaching the parking ratio from the demand of organisations. According to the respondents, recent years have shown that buildings with cramped parking standards are difficult to sell and re-use.

Different approaches

Different municipalities maintain other approaches to address this issue: increasing the parking ratio or allowing organisations to rent dedicated parking spaces in public car parks. By accepting organisations to rent parking spaces in public parking, it is possible to get around the parking ratio. Eventually, none of the interviewed parties believes in the success of P+R solutions.

During interviews parties discuss one other alternative: attracting businesses that are less dependent on cars. According to the interviewed developers and investors, creative businesses, start-ups and freelancers are less dependent on car use. They expect more conservative organisations and business service providers to continue to use the car as prior transportation method.

Finally, according to the interviewed, if the size and the scale of the city permit, people and organisations will accept the lack of car accessibility. Nevertheless, in this light, the respondents only mention Amsterdam as possible city with less need of car parks in the future.

11.2 Different views on financing

Market parties mention different mitigation for financial constraints. Among others, the following are frequently mentioned:

- lending money from the government to finance the project. Governments are able to rent against a more favourable interest;

- more continuity in fiscal regulations;
- development of small areas instead of the entire city. According to the market, it is impossible to finance such large-scale projects and the demand in the market is low;
- allow investors to pay in instalments;
- BIRK-funds (Budget Investments Spatial Quality, Budget Investeringen Ruimtelijke Kwaliteit);
- leasehold constructions;
- lower property tax (onroerendzaakbelasting);
- subsidy.

In addition, among these alternatives, market parties mention land option financing. Although interviewed parties present different views and opinions about land option financing. For example, some developers are positive about land options. According to these parties, the option gives the developer time to find cooperating parties. On the other hand, many parties believe options are not favourable for the development of PTNs. They indicate that keeping land occupied (developers wait for better offers) is disadvantageous for the realisation of the entire area.

11.3 Keep PTN development out of politics

During the interviews market parties discuss ways to run PTN developments without too much constraint from governmental changes. According to different developers, governments change every four years allowing the applications for projects to delay for three to four months. When there is no guidance from above; no decisions are taken on heavy files. Nevertheless, there are ways to run development processes through a separate project or steering group. In addition, the interviewed parties discuss the possibility of the province playing a role in PTN development by steering certain important developments along the city council. In this way, local politics has little grip on the process.

11.4 Speed up the process

Market parties proclaim a lack of proactive, fast and flexible processing of (non-standard) permits and applications of land-use plan changes. Applications take months and procedural errors are the direct malefactors of the amount of objections the developer receives. The market proclaims that the spatial planning procedures could be fastened by means of coordinated procedures, where a certain number of objection procedures and consultation rounds are done at similar moments. In addition, according to the interviewed parties, prioritizing of certain license applications stimulates development too. City councils may use prioritizing as a means to stimulate parties to develop on PTN locations. Likewise, some respondents indicate that the

continuation of the Crisis and Recovery Act (CHW, Crisis- en herstelwet) could speed up procedures as well.

Finally, in order to prevent high amounts of objections, it should be mandatory for citizens and organisations to present their objections in a more detailed and structured way. Examples from other countries show that this requirement would considerably reduce the number of objections (OVG, 2014).

11.5 'Cooperation & Vision'

The market desires tight and clear frameworks focussing on development of PTNs. Market parties give different interpretations of establishing clear frameworks by the government.

An example is the restriction of retail and catering facilities next to peripheral retail facilities (PDV, perifere detailhandels voorzieningen) and large-scale retail facilities (GDV, grootschalige detailhandels voorzieningen). According to the market this restriction contributes to TOD because the widespread of facilities away from PTN locations reduces.

Moreover, the interviewed show regulation of land allocations and monitoring of new land-use plans should be organised at provincial or regional level. Where provincial executives must toughen their demands for municipalities. Therefore, steering municipalities to focus more on TOD. In addition, the interviewed mention less rigid land-use plans, which could enable development at PTN locations.

Finally, parties perceive trust in the other parties as very important. The market consultation shows parties must agree on programs and individual needs and incentives. In addition, the respondents in the market consultation define that parties should share each other's interest in the project. Therefore, more parties should be present at the table at project initiation. In particular cases, it might be relevant for retailers and end-users to be present at these meetings as well.

Evaluation

12 Conclusion

This research aims to gain insight in the constraints of market parties. The central research question of this research project is: “Which constraints limit the participation of the market in development of Public Transport Nodes in the Netherlands?”

12.1 Answering the research question

The results of this study show the constraints, which limit the participation of the market in the development of Public Transport Nodes in the Netherlands, cover a wide range of perspectives and views from different parties. Nevertheless, several constraints are mentioned unanimously and I identified various common factors: lack of multifunctional areas, lack of car accessibility and lack quality of public space; difficulty to finance the project; restricted client-driven development; lack of vision and coordination between municipalities.

Of all the parties I interviewed, the developers state the most constraints. Developers mention they are forced to react faster and in a more flexible way because of market volatility. Research shows that current Policy and Regulations restrict the flexible and fast approach that developers would require.

12.2 Potential

My research shows potential for TOD. First of all, because of the overall interest of market parties for PTN locations (100% show interest). Many of the respondents have a strategy dedicated to PTN locations. This strategy generally focuses on PTN locations in the four larger cities in the Netherlands.

However, the market feels that development is risky due to the poor economic situation. A significant number of constraints (26%) relates to economic and financial aspects. These constraints do not specifically relate to PTN development or TOD, but relate to financing and economy in general. Market parties assume that these constraints will be lifted once the economic situation and the current investment climate have improved.

13 Recommendations for further research

This research is a small first step in TOD research. Further steps will be necessary to reach more solid ground regarding this subject. This chapter discusses recommendations for further research.

The evaluation study in Leiden shows local governments may not be up to date with current market constraints. More research should be done in other municipalities to substantiate these findings and to analyse the relevance of the constraints in different municipalities. Furthermore, the council shows interest in practical implications of the constraints in the form of a user interface. More research should be done to develop an application that enables policy makers and project team members to gain insight in the constraints.

This report also indicates that small businesses and freelancers could be targeted for multi-tenant leases on PTN locations. Developers need different business models to meet the needs of these organisations and secure a 70% occupancy for investors. Property developers in the Netherlands are currently exploring new models for potential implementation. A study of different possible business models would be useful.

More research is needed into the potential of the TOD network level. This report focuses on local constraints. However, many of the 'fail factors' (see appendix B) concern the lack of TOD strategy at network level. Therefore, more research could be done into the role of provinces and regions in steering, integrating and regulating TOD. In addition, many of the constraints concern the need for regulations and directions from higher authorities (provincial level or regional level). Further research regarding TOD regulation at a provincial and regional level would be needed.

This research studies constraints of market parties. In future studies, research should specifically address the constraints of the local councils and national governments regarding PTN development. Moreover, this report discusses several initiatives for the mitigation of constraints, which could be implemented by local councils. Nevertheless, the study slightly underexposes the role of market parties to remove or reduce constraints. More research could be done to investigate the role of the market parties. I expect it would be interesting to do a similar research like this one, but instead interviewing local councils and national governments to investigate if there are similar constraints and mitigation of constraints with the results from the market.

This report includes interviews with eleven respondents. Although several important parties for urban development were approached, other parties should be asked for their input as well. That way, insight in current market constraints would become more comprehensive and consistent.

It would be important to study ways of reducing spatial planning problems. This report shows the restriction of client-driven development due to lengthy procedures, as specific requests from clients require more land-use plan changes and permit applications. In this context, a study on flexible and smoother spatial planning procedures would be needed.

Finally, the investors I interviewed depend largely on the demand of pension funds. According to these investors, within the next few years pension funds will focus more on residential property. Therefore, investors will do so as well. Prices at PTNs are at a premium though, which makes it difficult to develop residential property at PTNs. In addition, the strict regulations for residential property near railway stations restrict development as well. New studies might explore new ways to meet the demand for residential property at PTNs.

14 Reflection

This research aims to gain insight in the constraints that limit the participation of the market in development of Public Transport Nodes in the Netherlands. This chapter describes whether this objective has been achieved. The first section discusses the practical relevance and relevance for Grontmij. The following section elaborates on the scientific and societal relevance. The final section offers a reflection and validity check of the methodology.

14.1 Graduation Company - Grontmij

The same workshop I used in Leiden, I carried out with employees of Grontmij first. The aim of the workshop is to validate the workshop method before using the same method in Leiden. At Grontmij, 8 employees participate in the workshop. Afterwards, the participants formulate potential work for Grontmij, derived from constraints. In general, the participant formulate the following:

- Grontmij could take its position in advising the market
- Grontmij could take its position in advising local governments
- Grontmij could develop a user interface

The interviews in the market consultation show developers consult with a lawyer specialised in spatial planning in 70% of the cases to help overcome spatial planning problems. For instance, a spatial planning lawyer would support the developer during objection procedures and safeguard the development objectives and processes. Therefore, the spatial planning lawyer is often placed at the city council office concerned, to direct the project on behalf of the developer. Grontmij could present itself as a spatial planning specialist and advise local councils regarding PTN developments.

In addition, the market interviews might be valuable for Grontmij as well as new contacts and development of existing relationships. Furthermore, substantive knowledge on TOD could strengthen the position of Grontmij in the market. It could help the organisation to develop projects and winning tenders.

14.2 Scientific & societal relevance

Primarily, the scientific value of the research relates to the new insight in market constraints for development of PTNs. This research interprets the amount of unknown constraints in the case study in Leiden as contribution to existing knowledge. 11% of the constraints were unknown.

Furthermore, the scientific value of the constraints is different from other scientific data, as constraints are opinions of parties instead of scientific facts. Nevertheless, the opinions determine whether a specific party or sector is interested in cooperation or investment.

Secondly, besides insight in market constraints, this report shows relations between constraints of different sectors and categories. These relations might be useful in mitigating constraints and analysing impact of the constraints. Therefore, the research considers the cross-case analysing in sections §9.2 to §9.8 a valuable contribution to existing knowledge. Moreover, analysed options to mitigate the constraints are part of the scientific contribution too. Finally the overall explanation and visualisation of the theory of TOD contribute to the knowledge on TOD in the Netherlands.

"Interesting subject, because, as far as I know, little research has been done on the subject from the point of view of the market (Hubers, 2014, p. 1)."

14.3 Practical relevance

This research considers the amount of unknown and relevant constraints (labelled by the council, see §10.2) the contribution to practical relevance. The case study in Leiden shows 3% of the constraints are unknown and relevant.

Nevertheless, the council labels 52% of the constraints known information but relevant. These constraints, might contribute to practical relevance as well, because confirmation of existing knowledge might create awareness.

During the evaluation workshop in Leiden the council labels 40% of the constraints named by the market parties as 'known information that is inevitable'. The council questions whether these constraints are still relevant or whether these have not already been solved in the past. However, the large numbers of market parties that appoints these constraints might indicate that there may be a gap between current practice and government policy. This research hopes to contribute by closing gaps for these topics. Furthermore, the first setup for an application will enhance the operationalization of the content of the table with constraints, as the application will help finding specific information within the user's field of expertise. Moreover, the application will encourage sharing best practices, which the council mentions to be lacking. Sharing best practices might enhance inter-regional cooperation between municipalities as well.

14.4 Methodology: reflections and validity

Reflection on scope

This reports presents research on constraints and potential mitigation. However, the study shows little research on the effects of interventions coming from these mitigations. Hence, it is not clear which new constraints might come from these interventions.

The areas discussed may not give a clear picture of the entire area of TOD. Primarily, the interviewed discuss Utrecht, Rotterdam, Amsterdam and The Hague in their answering. Talking about residential and retail property, the interviewed mention the potential of the Randstad, the cities in Southern parts of the Netherlands (Brabantse steden), Zwolle and Groningen as well.

Reflection use of relevant data in literature study

This research shows great effort to incorporate most relevant literature. But, in general it is quite arbitrative whether this research uses all relevant sources. Moreover, the research uses only interviews with four experts. These interviews might form a limited source of information. Nevertheless, based on the vast amount of sources written by all experts on TOD, I expected that the knowledge on TOD is extensive enough for the research. Moreover, in general little (Dutch) literature is available as TOD is an upcoming topic.

Reflection on the representativeness of the respondents

The research attempts to classify participants on the basis of their main activities (sectors). But that is a complex matter as different actors could be placed in different sectors and the roles of actors shift as well. For instance, an engineering company might deploy employees to public and building organisations and constructing parties start taking on management positions. To conclude, the research uses some arbitrariness to select the participants per sector for the interviews.

The research uses four or three respondents per sector as representatives for the entire sector. Looking at the consistency and similarities in interview results from parties within the sector, it appears to be valid for developers and investors. Most answers of these respondents are similar to the answers of the respondents from the same sector. Nevertheless, I presume that this similarity is less present in the sector end-user. Within this sector, the market consultation interviews a retailer, a housing cooperation and an engineering company with offices on PTNs. These interviews result in greater differences within the sector. I expect parties in this group lay further apart in terms of organisations than the parties in the other groups. For instance, the retailer formulates constraints solely applicable on retailers. In this way, some constraints within the 'end-user group' are only relevant for specific parties. To overcome this, appendix A

elaborates on the constraints with specific explanation about the type of respondent for whom this constraint is applicable.

Because all parties interviewed are positive towards TOD, the constraints found in the research have the same value. Therefore, they could be placed next to one and another and could be analysed together. Nevertheless, because of the positive attitude of the selected organisations (not a random sample), perhaps the research shows fewer constraints than if the market consultation would include parties with negative attitude towards TOD (random sample). Moreover, for the same reason, perhaps the research shows less severe constraints. The user of the result should be aware of this. Finally, Grontmij may affect the results as well, as most of the organisations used in the market consultation are relations of Grontmij.

Reflection interpretation of the results

The market consultation uses a sample of eleven respondents. The size of the respondents group will straighten out most irregularities according to expectations. Nevertheless, if, within one category, the results show fewer constraints, these results can be explained in multiple ways. Below a list shows different interpretations.

- The respondents experience fewer constraints in this category
- The respondents has fewer interest in this category
- Unknown: The respondents are not up to date with the constraints in this category
- The respondents experience constraints in this category, but do not mention these because the effects are very small or inevitable.
- The respondents experience constraints in this category, but do not mention these because the respondents cause these effects (partly).
- The respondents experience constraints in this category, but do not mention these because the respondents have (strategic) objectives not to mention the constraints.

In addition, face-to-face interviews may influence the research results as real life interviewing can influence the respondent in his or her answering. Moreover, questioning for new interviews uses knowledge from former interviews. Therefore, interviews done in the beginning are slightly different from interviews done in the last round. During interpretation of the data I try to even these irregularities (questions not asked in all interviews) out. However, in some cases these irregularities are interesting for the analysis. In such cases a respondent, who had not

answered a certain question, receives a follow up questionnaire per e-mail. In this way, the research uses all relevant data, as all respondents answer the same question.

Finally, the constraints are very time-bound as the opinion of the market is volatile and strongly dependent on the economic situation. This limits the timespan for the use of the findings. In ten years time, some of the results might become less relevant. Moreover, TOD concern long-term projects which decreases the use potential of the findings as well. Therefore, it might be necessary to update data during projects.

Reflection on validation

To validate the results, the interview respondents receive an email with the research results. Furthermore, during interviews the interviewee asks the respondents if the given answers are applicable for the organisation only, or if the entire sector would mention this constraint as well. The interviewee makes an appeal to the knowledge of the respondent about the sector.

Furthermore, I expect the results from this study in Leiden are representative for other municipalities. Nevertheless, future studies should use more municipalities to verify this statement.

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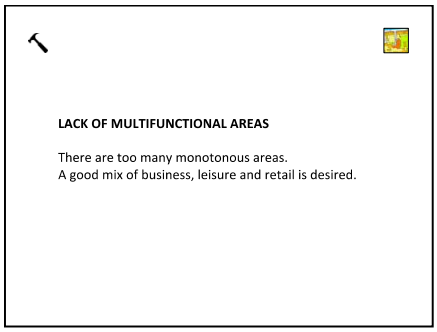
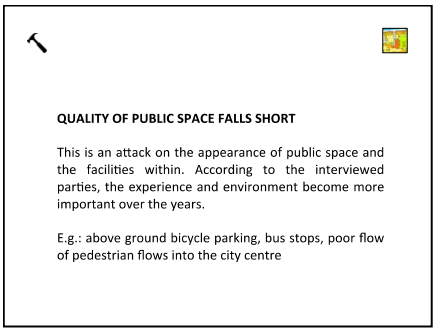
Terminology

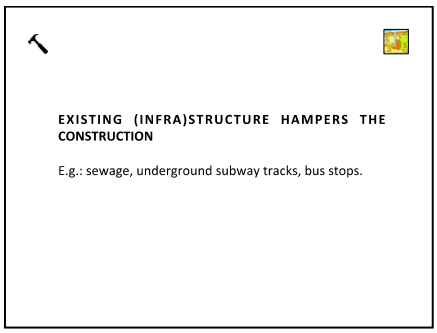
BAO	Decision Public Procurement Rules (Besluit Aanbestedingsregels Overheidsopdrachten)
BIRK	Budget investment spatial quality (Budget Investeringen Ruimtelijke Kwaliteit)
GDV	Large scale retail facilities (grootschalige detailhandels voorzieningen)
Grontmij	Grontmij, established in 1915, is a leading European company in the Consulting and Engineering industry. Grontmij has expertise in the fields of energy, highways, roads, light rail, sustainable buildings and water (www.grontmij.nl).
GSP	Large key projects (Grote Sleutel Projecten)
HOV	High quality public transport (Hoogwaardig Openbaar vervoer)
HSL	High Speed Line (Hoge snelheidslijn)
KSP	Small renovations projects (Kleine Stations Projecten)
Market	Investors, developers and potential users (private parties)
Market consultation	The means to claim better and more targeted information from market parties for the proposed project
MER	Environmental effect report (Milieu Effect Rapportage)
Node value	Value of TOD related to transit and mobility (knoopwaarde)
NS	Dutch railway company (Nederlandse Spoorwegen)
NSP	National key projects (Nationale Sleutel Projecten)
PDV	Peripheral retail facilities (perifere detailhandels voorzieningen)
Place value	Value of TOD related to atmosphere and programme around the station (plaatswaarde)
PTN	Public transport node (Public transport node) Public transport interchanges that function as a central HUB in the urban arrears in the Netherlands. Predominately these are larger railway stations in city centres combined with other types of public transport stops like busses and trams and surrounded by plots of potential integrated area development
PVE	Project requirements (Programma Van Eisen)
TOD	Transit Oriented Development (Een ontwikkeling afgestemd op het network aan (OV) infrastructuur)

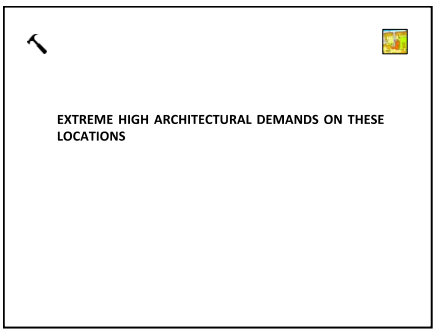
Appendices

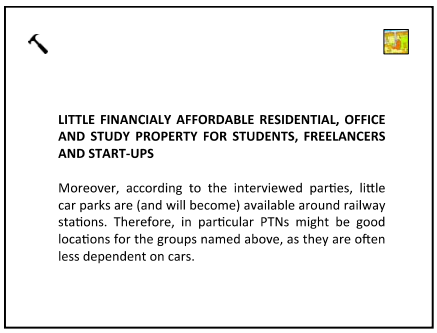
Appendix A - Constraints found in market consultation

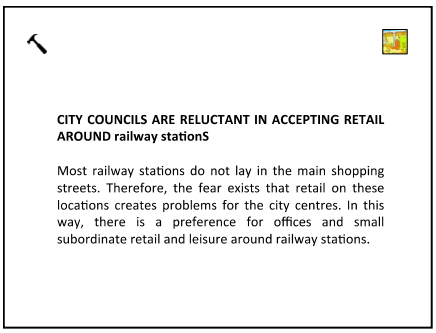












CHOICE URBAN PROGRAM IS LIMITED DUE TO REQUIRED LAND REVENUE

For instance the land revenue has to bear the large investments such as relocation of roads and large railway station alteration. Therefore, locations are mainly suitable for offices.

CHOICE URBAN PROGRAM IS LIMITED DUE TO NOISE AROUND STATIONS

LACK OF ACCESSIBILITY BY CAR

In particular, for offices. This is perceived less important for retail and residential property.

LACK OF CAR PARKING FACILITIES

Low park norms date back from the ABC-policy (see appendix F). At the same time the occupancy of offices has gone up. More car parks around railway stations are desired, to make these areas more attractive for offices in particular.

Example from the market interviews: As parking facilities around railway stations are insufficient, many offices are located along the high ways. Therefore, these employees have now no choice as to come by car.

THE CONTRACTOR HAS NO SPACE

This drives up the costs

FINANCING HAS BECOME DIFFICULT

According to the interviewed parties the financial crisis makes it difficult to find investors and parties need to have more private equity to secure future cash flows.

HIGH LAND VALUES

Hard to find a bank willing to finance.

DIFFICULT TO FINANCE YOUR OWN PROJECT BEFORE OCCUPATION OF THE GROUND

Developers find it hard to make these long-term investments, which are known in PTN developments.

SHRINKAGE ON THE CURRENT OFFICE MARKET

Therefore, too much choice in alternative (vacant) property. Little motivation to choose more expensive locations, like PTNs.

TAXATIONS CHANGE ALL THE TIME

E.g.: property and transfer tax. The parties interviewed want more continuity.

PROJECT BECOMES A NUMBER

Banks have to clear their balance and have to meet EU guidelines. Therefore, the quality and type of project is less looked at. Instead, a trade-off is made about investing in stones at all.

INVESTORS PREFER TO BUY LOSE TO COMPLETION

Therefore, property developers have to take more risks for a longer period.

'GLASS ROOF'

Public transport nodes are expansive locations. Therefore, these investments must repay themselves in the selling prices. Nevertheless, in the Netherlands there is a 'glass roof' (glazen plafond) of 200.- euro rent a m2.

The office park near the railway station of Amsterdam Zuid, known as 'de Zuis-As', is an exception on this rule

THE CHICKEN AND THE EGG STORY

The tenants wants to start paying rent if the property is finished. The developer can only start construction when he has an investor. The investor is willing to invest when there are tenants.

Meanwhile the city council wants to see commitment, but nobody can give that.

THE LAND USE PLANS ARE TOO TIGHT (BESTEMMINGS; PLANNEN)

In this way, it is not possible to respond flexible to the demand of the market.

LARGE SPATIAL PLANNING PROBLEMS (RUIMTELIJKE ORDENING)

Lack of proactive, fast and flexible processing of (non-standard) permits and applications of land use plan changes.

Applications takes months and procedural errors are the direct malefactors of the amount of objections the developer receives. Therefore, many developers hire their own spatial planning lawyer. (70% of the cases)

LARGE SPATIAL PLANNING PROBLEMS (RUIMTELIJKE ORDENING)

If you develop for a customer (potential buyer) you have a very specific question and product that you ask for at the city council. Therefore, there are many requests for land use plan changes. Because spatial planning procedures are quite lengthy, demand driven development is hampered.

INCREASINGLY STRINGENT SAFETY REQUIREMENTS

Specifically around railway stations these requirements are very high. Moreover, insuring against it has become impossible and governments pull back.

THE GOVERNMENT ACCEPTS TOO MUCH ON TOO MANY LOCATIONS

The risk for the developer to start developing in these locations is too great as market shifts to another location are lurking. Government shows little long-term commitment.

POLICIES CHANGE EVERY FOUR YEARS

Governments switch every four years. With these changes the policies change. Governments show little long-term commitment on development of PTNs.

EVERY FOUR YEARS DEVELOPMENT IN CITY CENTERS IS HELD HOSTAGE FOR FOUR MONTHS

When governments change, the applications for projects delay for three to four months. As, there is no guidance from above, no decisions are taken on heavy files.

THE MARKET IS NOT BIG ENOUGH FOR AN OFFICE PARK IN EVERY TOWN

On regional level, municipalities compete for settlement of organisations and facilities instead of cooperating and coordinating urban program regionally. Parties mention that there is deliberation (For public property there is deliberation, but not for commercial property.)

E.g.: results in vacancy of office buildings

TOO MANY OBJECTION PROCEDURES

Developers experience the Netherlands has many objection procedures compared with other European countries. According the parties interviews you can make objections about everything in the Netherlands. Hence, objectors shoot blindly.

Example from Germany:
Less objection procedures because people have to define very specific what the objection is about. That inhibits the flow of objections.

PRORAIL AND NS HAVE LESS INTEREST IN DEVELOPMENTS BEYOND THE BORDERS OF THE STATION

Therefore, difficult to find someone within the organisation who wants to be involved. But you do need these parties for many approvals.

E.g.: If there is a tunnel to be built; if temporarily a road has to be re-routed

NOT ALL PARTIES COME CLEAN AT THE BEGINNING OF THE PROJECT

Therefore, cooperaBon may be compromised in a later stage. Terms and condiBons should be clear.

LACK OF MULTIFUNCTIONAL AREAS

There are too many monotonous areas.
A good mix of business, leisure and retail is desired.

E.g.: Important for retail as mulBfuncBonal areas a>ract high quality traffic flows

TOO LONG THE CONSTRUCTION SITE IS IN FRONT OF YOUR DOOR

Railway (re)developments and real estate development in high dense city centres are oMen long#erm projects and take many years.

For retailers, a construcBon site is an a>ack on the appearance of the retail property and its surrounding.

QUALITY OF PUBLIC SPACE IS SHORT

This is an a>ack on the appearance of public space and the faciliBes within. According to the interviewed parBes, the experience and environment become more important over the years.

E.g.: above ground bicycle parking, bus stops, poor flow of pedestrian flows into the city centre

LACK OF INSIGHT IN FUTURE NEIGHBOURS

Especially for commercial property this is important. The surrounding funcBons have direct effect on the traffic flow passing the building.

PASSENGER TERMINALS IN THE STATION HAMPER NATURAL TRAFFIC FLOW

- Retail and gastronomy in the staBon loose customers
- OMen the railway staBon funcBons as a link between two sites of the city. The terminals break this link if people have to check# in and out every Bme they pass the staBon.

LITTLE FINANCIALY AFFORDABLE RESIDENTIAL, OFFICE AND STUDY PROPERTY FOR STUDENTS, FREELANCERS AND START;UPS

Moreover, according to the interviewed parties, little car parks are (and will become) available around railway stations. Therefore, in particular PTNs might be good locations for the groups named above, as they are often less dependent on cars.

LACK OF ACCESSIBILITY BY CAR

In particular, for offices. This is perceived less important for retail and residential property.

LACK OF CAR PARKING FACILITIES

Low park norms date back from the ABC-policy (see appendix F). At the same time the occupancy of offices has gone up. More car parks around railway stations are desired, to make these areas more attractive for offices in particular.

Example from the market interviews: As parking facilities around railway stations are insufficient, many offices are located along the high ways. Therefore, these employees have now no choice as to come by car.

LACK OF INSIGHT IN FUTURE PASSENGER FLOWS

In the station and around the entire station area.

RETAIL IS LOCATED ON UNFAVOURABLE PLOTS

Passenger traffic flows should be thought of more when assigning plots to retail in and around stations.

THE RENT IS TOO HIGH IN THE STATION HALL COMPARED TO THE QUALITY GIVEN

E.g.: The user / operator is asked to show commitment for 10 or 15 years by signing the contract with NS. While NS, on the other hand, cannot give security about the appearance and routing in the station over time (passenger flows e.g.).

LONG-TERM PROJECTS WHILE WE HAVE SHORT-TERM GOALS

Impossible to commit for the long-term. Business may be very different in time.

WAGE DIFFERENCE BETWEEN RAILWAY AND RETAIL STAFF

Shops in and around the station want to comply with the opening hours of the station. Therefore, the retailer pays salary in the extra early and late opening hours of the station. This might be inconvenient as railway and retail staff have different wages.

SHRINKAGE ON THE CURRENT OFFICE MARKET

Therefore, too much choice in alternative (vacant) property. Little motivation to choose more expensive locations, like PTNs.

POLICIES CHANGE EVERY FOUR YEARS

Governments switch every four years. With these changes the policies change. Governments show little long-term commitment on development of PTNs.

THE GOVERNMENT ACCEPTS TOO MUCH ON TOO MANY LOCATIONS

The risk for the developer to start developing in these locations is too great as market shifts to another location are lurking. Government shows little long-term commitment.

THE MARKET IS NOT BIG ENOUGH FOR AN OFFICE PARK IN EVERY TOWN

On regional level, municipalities compete for settlement of organisations and facilities instead of cooperating and coordinating urban program regionally. Parties mention that there is deliberation (For public property there is deliberation, but not for commercial property.)

E.g.: results in vacancy of office buildings

NOT ALL PARTIES COME CLEAN AT THE BEGINNING OF THE PROJECT

Therefore, cooperation may be compromised in a later stage. Terms and conditions should be clear.

RETAILER HAS NO CHOICE WHAT CITY HE IS ASSIGNED TO

When cooperating with NS, retailers may not decide in what city they will be located.

RETAILER HAS NO CHOICE WHERE IN THE STATION HE IS ASSIGNED A SPOT

When cooperating with NS, retailers may not decide where in the station they are assigned a spot. Important for passenger traffic flows.

RETAILER THINKS IT NOT TRANSPARENT HOW OTHER RETAILERS ARE CHOSEN

For example, sometimes retail facilities are assigned to a PTN to attract other retail facilities. According to the parties interviewed, this does not function as booster at all in many cases. Hence, the retailer is less interested in those locations.

E.g.: The Hague CS example

EXTREME HIGH ARCHITECTURAL DEMANDS ON THESE LOCATIONS

Investors prefer flexible floor plans with timeless architectural features and planning to gain maximum return from the property. Preferably large floor fields (1000 m2 VVO)

Flexible floor plans are desired to meet the conditions for multi-tenant properties. This decreases the risks of vacancy in the building. When there is only one tenant renting the entire property for a short period there is a large risk for long vacancy of the building if the tenant leaves. This is taken away when different tenants rent modules in the building that have contracts with preferred different expiration dates.

LACK OF MULTIFUNCTIONAL AREAS

Investors want to reduce the risk of vacancy of their property. When a market segment is getting smaller, the risk of the entire area to run down is taken away when different functions and sectors are present.

Nevertheless, the retail and leisure functions should be subordinate to the office functions. There is little trust in dedicated shopping locations near railway stations.

COMPARED TO THE OFFICE SECTOR, PTNs ARE LESS INTERESTING FOR RESIDENTIAL AND RETAIL PROPERTY

According to the interviewed these sectors benefit less from public transport accessibility. In particular, PTNs are interesting locations for office spaces in particular.

LACK OF ACCESSIBILITY BY CAR

In particular, for offices. This is perceived less important for retail and residential property.

The conservative and service sectors remain interested in car usage. While, the creative sector and the young start-ups find public transport good alternative.

LACK OF CAR PARKING FACILITIES

Low park norms date back from the ABC-policy (see appendix F). At the same time the occupancy of offices has gone up. More car parks around railway stations are desired, to make these areas more attractive for offices in particular.

Example from the market interviews: As parking facilities around railway stations are insufficient, many offices are located along the high ways. Therefore, these employees have now no choice as to come by car.

QUALITY OF PUBLIC SPACE FALLS SHORT

This is an attack on the appearance of public space and the facilities within. According to the interviewed parties, the experience and environment become more important over the years.

E.g.: above ground bicycle parking, bus stops, poor flow of pedestrian flows into the city centre

TOO LARGE PROJECTS AND NO DEMAND IN THE MARKET

E.g.: Project First Rotterdam: city council accepts 100.000 m2 extra outside the land use plan. The investors interviewed expect there is no market for this extra m2.

LITTLE INTEREST IN INVESTING IN PROPERTIES WITHOUT TENANTS

Change of vacancy is much greater than 10 years ago. Only interest in property that is occupied (min 70% of the property must be leased)

DEPENDENT%OF%PENSION%FUNDS%

Pension' funds' decide' what' they' want' to' invest' in.' The' residenBal' and' retail' sector' has' grown' over' the' years.' Many' pension' funds' invest' in' residenBal' property' in' parBcular.' Nevertheless,' this' property' type' is' less' available' around' staBons.' And' regulaBons' restrict' developments' of' residenBal' property' near' rail' way' staBons.''

PRICES%ARE%HIGH%AROUND%PUBLIC%TRANSPORT%NODES%

Not' favourable' for' supply' and' demand' of' residenBal' property.'

THE%BUSINESS%CASE%IS%LEADING%

The' investors' work' with' return' requirements.' WOZ# value,' water' charges,' other' public' charges' are' taken' into' account' in' our' acquisiBon.' Nevertheless,' these' charges'do'not'differ'a'lot'in'different'regions.'

THE%LAND%USE%PLANS%ARE%TOO%RIGHT%(BESTEMMINGS; PLANNEN)%

In' this' way,' it' is' not' possible' to' respond' flexible' to' the' demand'of'the'customer.'

Opposite,' if' you' invest' in' exisBng' property,' a' Bght' land' use' plan' is' desirable.' Since,' you' would' like' to' have' security'about'the'future'plans'of'the'area'around'you.''

GOVERNMENT%MAKES%MONEY%WITH%LAND%VALUES%

City'councils'have'a'double'role:'they'make'money'with' WOZ#values' en' with' projects' (leges' and' land' values).' Therefore,' there' remains' an' incenBve' to' be' part' of' a' development.'

They' offer' (office)' property' with' large' discounts' to' organisaBons.'Whereby,'vacancy'is'being'created.''

THE%GOVERNMENT%ACCEPTS%TOO%MUCH%ON%TOO% MANY%LOCATIONS%

Scarcity'is'desired'for'investors.

NOT%ALL%PARTIES%COME%CLEAN%AT%THE%BEGINNING%OF% THE%PROJECT%

Therefore, cooperation may be compromised in a later stage. Terms and conditions should be clear.

THE%MARKET%IS%NOT%BIG%ENOUGH%FOR%AN%OFFICE% PARK%IN%EVERY%TOWN%

On regional level, municipalities compete for settlement of organisations and facilities instead of cooperating and coordinating urban program regionally. Parties mention that there is deliberation (For public property there is deliberation, but not for commercial property.)

E.g.: results in vacancy of office buildings

In other EU-countries only two or three large cities with offices. In the Netherlands in every town!

Appendix B - List of fail factors

- The institutional context in the Netherlands is unfavourable. In a way, that TOD is virtually impossible. So, for example the regional governance in the Netherlands is to a great extend fragmented. While, the financing of construction and exploitation of public transport is strongly centralised. This is a difficult combination (van der Bijl, 2013).
- The Netherlands is a car-driving country. There is no real public transport culture. There are hardly any coherent regional networks. RandstadRail and RandstadSpoor are exeptions (van der Bijl, 2013).
- Recent economic research has shown that companies and households do not prefer station locations. This is due to the abundance of demand in stations and the overall good accessibility in the Randstad (Tan, 2013).
- Spatial development near nodes is for many municipalities unattractive. Because, on the edges of town, many municipalities have land positions (Straatemeier et al., 2011).
- The incentive for municipalities is little. Benefits of TOD in the form of better exploitation and the fact there is no need to invest in more infrastructure are attractive for the region as a whole. Nevertheless, the council experiences little of these benefits (Straatemeier et al., 2011).
- Around many nodes sound contours hinder development possibilities (Straatemeier et al., 2011).
- There are several functions and facilities that, in cooperation with the public space and the transfer functions, determine how the node functions. For the development of the node the interdependence is important. One party does not determine this (Straatemeier et al., 2011).
- Because the interests are fragmented over different parties (governments, transfer companies, land owners), TOD has not one clear problem owner. It appears, that due to the abundance of parties, no director is present who is able to represent all ambitions and to link local and regional interests (Straatemeier et al., 2011).
- Regional coordination about spatial programming of nodes is lacking. Therefore, scarcity of development locations is not created (Straatemeier et al., 2011).
- The fragmentation of sectors leads to shredding and complexity of law and policy. Which withholds market parties to cooperate in TOD (Tan, 2013).
- An important risk, on which none of the parties have much impact, is the economy. During a period of five to ten years, the office and residential market could change significantly. Therefore, the external risk is very important. Because, parties are able to influence each other's investments (Canoy et al., 2001).
- Private parties have a relative high policy risk. This reveals itself among others, in the fact that real estate developments do not only depend on agreements between project stakeholders, but they also depend on government decisions on regional level (Canoy et al., 2001).
- The largest constraint is not the lack of knowledge, but the lack of political urgency, will and decisiveness to implement. Research about institutional barriers show the complexity of law and regulation and the lack of a strong culture and image of public transport lead to a negative spiral (Tan, 2013).
- There is too little guidance on the level of regional level. Instead, nationally mobility is steered (financially) and on local level urban planning is organised (Rutten, 2010).
- A common language is missing. Per region a different evaluation and method is used that results in a wide range of criteria and own policy cycles. Traffic specialists and urban planners speak different languages (Rutten, 2010).
- Too little attention for the coherence between space and mobility. Interviews show research and policy are directed from mobility or space. The synarchie is missing. Interviews with government bodies show there is too little practical usable scientific research (Rutten, 2010).
- Around stations many organisations are located: financial sector, government bodies, insurance companies. These organisations have become the large shrinking sectors during the crisis (Peek, 2014).
- The rent around stations is high. Therefore, the bottom of the market will not focus on these areas soon (Peek, 2014).

- Because of the location in the urban network and the existing constructions, the projects are complex by definition (Sturm-Reijnders, 2010).
- Because of the fragmentation and stacking of functions and services, these projects have a high-risk profile (Sturm-Reijnders, 2010).
- In inner city areas, parties have to work with diverse owners, users and future owners and users (Sturm-Reijnders, 2010).
- If the cooperating parties have to acquire the existing real estate and grounds, this may require large pre-investments (www.destadsregio.nl).
- During the lengthy preparation time, which is characteristic, the area might fall back towards an unliveable area (After all, parties will postpone investments in anticipation of realisation.) (Sturm-Reijnders, 2010).
- Achieving cooperation is not easy in inner city projects. Therefore, it is time consuming (Peek, 2006).
- During redevelopment economic and political situations might change. Change of political power (Liong, 2010).
- During redevelopment, the position and goals of parties might change. (parties sometimes leave the cooperation. The will lack behind (Peek, 2006).
- It is about an intervention in existing urban networks that should remain in operation during construction (Peek, 2006).
- The stacking and demands between inter-acting parties results in a plan with sky high ambitions. This might not match the expectations of other relevant parties (Peek, 2006).
- Long-term developments cause long periods of large insecurity. Therefore, private parties find it difficult to estimate potential market value (e.g. the land value of the real estate) (Liong, 2010).
- Market parties do not want to finance the entire project due to the additional complexity (in particular caused by the size of the project) (Liong, 2010).
- The scope and magnitude of the area (Peek, 2006).
- Public-private partnerships run difficult, as infrastructural works for a large part of the project. Infrastructural works, in contrast to real estate developments, for a great extend belong to the public domain (Peek, 2006).
- The decision-making gets a fragmented character and becomes impossible to contol centrally (Peek, 2006).
- The continues changing inner city area (Liong, 2010).
- The diversity of property functions (Liong, 2010).
- The presence and the interest of many parties involved (Peek, 2006).
- A multi-sectoral legal financial framework for the integration of public transport and urban planning is lacking (www.destadsregio.nl)
- Little, to no active support of the government (www.destadsregio.nl)
- Transaction costs are too high (www.destadsregio.nl)
- Lack of experience and continuity (www.destadsregio.nl)
- Lack of political commitment (www.destadsregio.nl)
- Too early in the plan, the desired end results are established. Breda is a good example. Everything had been established in the design. Nevertheless, the market did not move. Offices have not been rented. Governments should have adaptive plans. Plans, where development of the station is secured, but where space is left open to develop based on market demand (Peek, 2014).
- The government does not offer security. This keeps the market from participating (Peek, 2014).
- The government is not a reliable partner. Every four years they have a new composition. Therefore, it becomes difficult for the market to invest (Peek, 2014).
- There is no trigger, which makes sure that investing in a node becomes a collective goal. This is so because, there is no owner of the node and no flow of funds directed towards the whole (Schrijnen, 2014).
- Most municipalities are aware of the importance of the station in the area. But the importance in the network is not looked at (Schrijnen, 2014).
- If nobody knows where to go and no good examples are available, then investing becomes hard. Since, the investor is not sure what he is investing in (Tan, 2014).
- Complexity of law and regulation. Departments of space and mobility are separated in all government levels. While, synergy of these two departments is needed (Tan, 2014).

- Insurances and noise regulation, which hamper development (Tan, 2014).
- TOD is not a well know phenomenon. People do not see the benefit of public transport as large parts of the population (especially in the north) travel by car (Tan, 2014).
- On regional level, vision is missing. Stedenbaan and city region Arnhem Nijmegen have made an attempt (Bertolini, 2014).
- To develop TOD's you have to make decisions with different parties on levels wherefore we do not have governance in the Netherlands. The municipalities are too small and the provinces too big. South Holland is an exception (Tan, 2014).
- It is unclear what an actual public transport node is. One chooses the concept of the 'compact city'. That is not exactly the same as TOD (Tan, 2014).
- The market chooses the 'route of little resistance'. This means many parties develop in the meadows. Little insecurities and risks. No complex cooperation e.g. Moreover, the market focuses on the guidelines of the government and plays by these rules. If the government does not define these rules, the market will not develop (Tan, 2014).
- Political constraints as: NIMBY (not in my back yard) opposition to infill (Rutten, 2010).
- Congestion conundrum: the fact that nodal development around a transit station increases spot congestion, prompting some jurisdiction to downzone (Rutten, 2010).
- The logistical dilemma of accommodating multi-modal access needs. Which, often result in station road design and parking layouts that detract from the quality of walking (Rutten, 2010).
- Lack of control. The current control of the government is too noncommittal. Therefore, the emphasis on the objectives is too restricted. On regional level, administrative ambition and power is lacking. An important precondition is the creation of scarcity. The feasibility of complex urban development around stations is enlarged if less complex developments in rural areas are restricted too large extends (Rutten, 2010).
- Financial interest. It is time to make us of the existing networks, cities and facilities. Nevertheless, governments have interest in developing in the 'old way'. These established financial interest form a large barrier (Rutten, 2010).

Appendix C - Interview questions for the market consultation

Vraag 1: **Ziet u voordelen/belang in ontwikkelen rondom stationslocaties?**

Vraag 2: **Zet uw organisatie actief in op ov-knooppunten?**
Zo ja, hoe uit zich dat in de praktijk?

Zoals gezegd zou ik graag met u spreken over de afwegingen die gemaakt worden om voor stationslocaties te kiezen. Hierbij kunt u denken aan een viertal deelgebieden:

- Inrichting en Programma
- Financiën
- Wet- en regelgeving
- Samenwerking

Vraag 3: **Wat zijn binnen elk thema de belangrijkste afweging waarom wel/of niet voor ov-knooppuntontwikkeling wordt gekozen?**

Vraag 4: **Wat zijn de grootste belemmeringen binnen de door u geformuleerde belemmeringen?**

Vraag 5: **Hoe kunnen enkele van de door u geformuleerde belemmeringen verzacht of in het geheel weggenomen worden?**

Appendix D – Definition of Transit Oriented Development

	Source	Definition
A	**BESTNET** (Rutten, 2010)	High-quality public transport network where road and rail are better cross-linked: public transport stops in the network become multi-modal nodes. A threefold strategy is needed: - Optimize the use of existing (public) transport network. - Establishment of a mobility programme for all stops, so that the connecting with different transport means is optimal. - Development of an urbanisation strategy at the level of the complete network. This allows the stops and their surroundings to be developed in a way that they complement each other rather than compete.
B	**Knooppuntontwikkeling in een nieuw perspectief** (Koster & Tan, 2012)	The core of the story involves the integration of mobility and in that way achieve associated economic, sustainable and agglomeration benefits. It should lead to urban vitality, economic opportunity and social security. Saving sparse landscape and outdoor areas. As people live, work and play in a corridor of nodes, then the tendency to reduce car use increases too.
C	**Transit Oriented Development in the United States** (Transit Cooperative Research Program, 2004)	TOD is a promising tool for curbing sprawl, reducing traffic congestion and expanding housing choices. Promoting smart growth, injecting vitality into declining inner-city settings and expanding lifestyle choices. Focus of locating new construction and redevelopment in and around transit nodes. Channelling public investments into struggling inner-city settings and creating more walkable, mixed-use neighbourhoods with good transit connectivity.
D	**The New Transit Town** (Dittmar & Ohland, 2004)	TOD is regional planning, city revitalisation, suburban renewal and walkable neighbourhoods combined. The original direction of TOD was limited; it focused on light-rail to the exclusion of other transit types. Now the nodes have matured to include bus rapid transit, DMU (self-propelled light rail), express bus, streetcars, commuter trains and heavy-rail systems.
E	**Reasons for living in a transit-oriented development** (Lund, 2006)	A moderate to high-density residential development that also includes employment and shopping opportunities and is located within easy walking distance of a major transit stop. In this way we encourage transit use, increasing housing opportunities, promote walking and bicycling and facilitate neighbourhood revitalisation.
F	**Transit-oriented development: making it happen** (Curtis, Renne, & Bertolini, 2009, p. 3)	Support transit use and connect existing and planned concentrations of development to increase accessibility, enhance sustainable development and quality of urban life. By concentrating urban development around stations.
G	**Metropolitan Atlanta Rapid Transit Authority** (Transit Cooperative Research Program, 2004) Atlanta: Aspen: Baltimore:	 • Broad concept that includes and development that benefits from its proximity to a transit Facilities and that generates significant transit ridership. • Land development pattern that provides a high level of mobility and accessibility by supporting travel by walking, bicycling and public transit. • A relatively high-density place with a mixture of residential, employment, shopping and civic use located within an easy walk of a bus or rail transit centre. The development design gives preference to the pedestrian and bicyclist.

	Charlotte: New Jersey: Chicago: Orlando: Salt Lake City: San Francisco: Washington D.C.:	• High-quality urban environment that are carefully planned and designed to attract and retain ridership. Typically, TODs provide for a pedestrian-friendly environment. • An environment around a transit stop or station that supports pedestrian and transit use, created by providing a mix of land-uses in a safe, clean, vibrant and active place. • Development influenced by and oriented to transit services, that takes advantages of a market created by transit patrons. • A sustainable, economically viable, liveable community with a balanced transportation system where walking, biking and transit are valued as the automobile. • Projects that enhance transit use, improve the quality of service provided to Authority riders, or generate revenue for the purpose of supporting public transit. • Moderate- to higher-density development, located within easy walk of a major transit stop, generally with a mix of residential, employment and shopping opportunities designed for pedestrians without excluding the automobile. TOD can be new construction or redevelopment of one or more buildings whose design and orientation facilitate transit use. • Projects near transit stop which incorporate the following smart-growth principles: reduce automobile dependence; encourage high shares of pedestrian and bicycle assess trips to transit; help to foster safe station environments; enhance physical connections to transit stations from surrounding areas; and provide a vibrant mix of land-use activities.
H	**The next American metropolis** (Calthorpe, 1993)	• TOD is a public transport and spatial planning concept, whereby infrastructure and spatial planning are integrated. Within the theory of TOD, the public transport system is seen as the backbone and driving force of urban development. TOD can be summarized as a regional network of living environments centred around stations of high-quality public transport, characterised by higher building densities, mixed use and human scale • "...a need for a cross-cutting approach to development that can do more than help diversify our transportation systems. It needs to offer a new range of development patterns for households, businesses, towns and cities..."
I	**Transit-Focused Development: A Progress Report** (Porter, 1998)	• "...support transit use and connect existing and planned concentrations of development..."
J	**Landscape and urban planning** (Shafer et al., 2000)	• "...increased accessibility, sustainability and quality of urban life..."

Appendix E - Arrival and implementation of TOD in the Netherlands

Early 19th century – early urbanisation around transit

Over the course of the 19th century urban development took already place around rail infrastructure. In the beginning of the 19th century cities could increase by an vast pace in size thanks to the invention of rail-based urban public transport (van der Woud, 2006). It was especially the first new (horses and steam) tramways that contributed to urban development and later expanded into large, often regional networks operated by electric trams like the extensive network of 'Blue Trams' in the Randstad (van der Bijl, 2013). When cities like Paris reached a metropolitan size, the metropolitan railways were introduced, a form of transit that since that time is referred to as 'metro' (van der Bijl, 2013). A good example of development around transit is the regional tram that was built in Amsterdam by the Private Electric Railway Company (ESM, Private Electrische Spoorweg Maatschappij) to Zandvoort. From 1904 on, the ESM, who had purchased grounds along the lines, developes these grounds for housing. These developments are early examples of tailoring traffic and transport on the developments of sites. In Europe and America, urbanisation developes in similar ways in the early 19th century (van der Bijl, 2013).

50s till 70s – existing (rail) infrastructure barely leading to urban development

In the fifties the car is gaining importance and the share of public tranport in mobility decreases (van der Bijl, 2013). According to van der Bijl, this development takes place throughout Europe. For example, countries such as France and Spain dismantle almost all tram systems. Another clear example of the disconnection of urban development and public transport and even of all transport in general, is the unlucky relationship between the Second Policy Document on Spatial Planning (Tweede Verstedelijkingsnota) in 1966 and the National Road Planning (Rijkswegenplan) in 1968 (van der Bijl, 2013). The main principle in the Policy Document on Spatial Planning explains the connection and de-concentration along the edges of urbanised western Dutch cities by means of corridors that connect these cities. This principle conflicts with the design of the highway network from the National Road Planning of two years later (van der Bijl, 2004). As, for instance, main road '3' (Rijksweg 3) runs directly from Amsterdam to Rotterdam through the socalled 'Green Heart' (green zone in the Randstad, Het Groene Hard). Moreover, this main road is perpendicular to the planned urban development areas of the Second Policy Document on Spatial Planning (van der Bijl, 2013).

Despite the above, the rail-based transit never completely gets out of the picture in the Netherlands. A small reversal occurs in the early 70s when the train gains importance again

(van der Bijl, 2013). Under the banner of 'Spoorslag 70', NS modernises its timetable and new suburbs are equipped with so-called suburban train stops, which for the first time in years create a link between development and transit (van der Bijl, 2013). For the same reason the three remaining tram networks (Amsterdam, The Hague and Rotterdam) are extended into several new neighbourhoods (Tan et al., 2013).

70s - Growth Core Policy

In 1974 the Third Policy Document on Spatial Planning (Derde Nota Ruimtelijke Ordening) mentions the Dutch Growth Core Policy (Groeikernenbeleid). In the period 1960-1985, this policy attempt to lead the advancing suburbanisation in the right direction, especially in the Randstad. The Growth Core Policy pays much attention to the accessibility by means of public transport of sites designated as growth cores (Tan et al., 2013).

1980 – policy reversal

From 1980 on, it became clear that the development of Growth Cores had negative effects too. In large cities urban facilities came under pressure because of the departure of high- and middle-incomes groups. The Growth Core approach also ignored demographic development in cities: more singles and elderly, fewer families with children. The employment growth in the Growth Core had grown insufficiently, causing commuter flows to the central cities. Hence, a need for a more intensive use of space in the central cities stimulated the Compact City concept (De compacte stad). The migration to Growth Cores was then restricted. This policy reversal is described in the Structure Sketch for urban Areas (Structuurschets voor stedelijke gebieden) in 1983 (van der Bijl, 2013). From the fourth Policy Document on Spatial Planning (Vierde Nota Ruimtelijke Ordening) in 1988 on, the Growth Core Policy is phased out. Urban nodes replace the Growth Cores.

The end of the 80s – the Compact City and the ABC Policy

With the fourth Policy Document on Spatial Planning in the 80s, the focus of the National Policy Document (Rijksnota) shifts to the Compact City principle (De Compacte stad) (van der Bijl, 2013). For the first time, this leads to steared control of location development near public transport hubs. In that period the ABC-policy is established, where prime locations (A-sites) refer to areas around station nodes (Tan et al., 2013). The ABC-policy appoints three types of sites: 'A sites' are central station locations; 'B sites' are multi-modal accessible stations on the city borders and 'C sites' are industrial sites that were hardly accessible by public transport. The aim of this policy was to develop more facilities and functions in the areas that were best accessible by public transport (Gerretsen et al., 2013).

Nevertheless, the policy did not become successful because development along motorways (C-sites) increased in a vast paste (Tan et al., 2013). The fourth Policy Document 'Extra' further explores the vision of the Compact City. In addition to the designation of Vinex districts near the city centre, a number of National Key Projects (NSPs, Nationale Sleutel Projecten) are undertaken (Gerretsen et al., 2013). NSPs were crucial transformation projects of railway stations in the cities undertaken to strengthen the competitive position of (medium) large cities in Europe (www.ns.nl).

In December 1997 the Council of Ministers designated five NSPs: Zuidas Amsterdam, Rotterdam Central Station, The Hague Central Station, Utrecht Central Station and Arnhem Central Station. In March 1998, the motion of member Verburgt was accepted. Hence Breda Central Station is accepted on the list of NSPs as well. To organize the six projects adequately, a project organisation and process architect are established (VROM , 2003).

90s – HOV and Red Contours

In these days, the involvement of the government in urban development as public-private partnership is new. The Policy Document on Urban Space (Nota Ruimte) decentralises the control in the spatial planning. Hence, urban and spatial planning issues, such as housing, mobility and spatial planning, become the responsibility of the provinces and regions. This development leads to the introduction of new forms of High Quality Public Transport (HOV, Hoogwaardig Openbaarvervoer) on regional scale. Examples are: the City Region Rail in the city region of Arnhem Nijmegen; the Randstadrail in the South Wing and the high quality bus connection of the Zuidtangent in North Holland. In addition, many provinces used the Red Contours (Rode Contouren), in their planning policy. The policy imposes strict requirements on development outside these contours (Gerretsen et al., 2013, Liong, 2010).

From 2000 on, TOD becomes an important topic in Dutch urban practice (van der Bijl, 2013). An example is the development of the Stedenbaan, which stimulates the use of the existing railway stations along the western Randstad. Nevertheless, realisation of the TOD concept has proved difficult so far (van der Bijl, 2013, Tan et al., 2013).

Appendix F - Questions expert interviews

	GERT-JOOST PEEK	JOOST SCHRIJNEN	WENDY TAN	LUCA BERTOLINI	**COLLECTIVE FINDINGS**
Waarom is knoop-puntont-wikkeling belangrijk?	Het belang van Knooppuntontwikkeling is dat dit de plekken zijn waar het meest geprofiteerd kan worden van gedane investeringen. Deze investeringen zitten hem met name in de aanleg van infrastructuur (OV en bereikbaarheid per auto). Dus als je iets gaat doen met deze locaties benut je de investeringen uit het verleden en dat past heel erg goed bij deze tijd. En als je naar ruimtelijke en economische ontwikkelingen kijkt (als de Randstad toch steeds maar gaat lijken op een echte metropool) kan je op deze locaties de stap maken naar hogere verdichtingen..	Belang is dat de netwerksamenleving daarmee wordt gedient. Daarmee wordt bedoeld dat orientatie van de burger zich richt op gebruik van voorzieningen all over de place waarbij tijd een belangrijker element is dan afstand en waarbij bereikbaarheid zich verder strekt tot dat wat je binnen 1 a 2 uur kunt bereiken als het het over een daily urban systen hebt. De optimalisering van de integratie van de verschillende modaliteiten. Het creeeren van een beter bereikbare netwerk van functies en dat stijgt uit boven dagelijkse van A naar B gaan.	We hebben zo veel publiek geld geinvesteerd (via de belastingbetaler) in infrastructuur. Waarom laten we dan nog steeds ruimtelijke ontwikkeling gebeuren buiten bereik van infrastructuur? We benutten de infra nu dus niet optimaal waardoor de model split in Nederland vooral op de auto gericht blijft ipv op openbaarvervoer. TOD kan aan dit aspect positief bijdragen.	1) Bereikbaarheid in de zin dat het ontwikkelingen zijn die betekenen dat belangrijke bestemmingen op de beste bereikbare plekken vallen. (Robuust-bereikbaar: dus plekken die multimodaal bereikbaar zijn.) Als straks nog meer de trek naar de stad wordt vergroot wordt dit belangrijker want de auto heeft ruimte nodig en dat heb je in steden niet. 2) Duurzaamheid: als een locatie ook bereikbaar is zonder auto ben je minder kwetsbaar en afhankelijk van eindige bronnen. Maar op dit moment staan klimaat, energie en afhankelijkheid van eindige bronnen nog niet zo hoog op de agenda in Nederland. Bereikbaarheid staat hoger op de agenda.	**Betere bereikbaarheid van voorzieningen in de netwerk-samenleving** **Duurzaamheid in zin van onafhankelijkheid van eindige bronnen** **Duurzaamheid in de zin van benutten van gedane investeringen**

	GERT-JOOST PEEK	JOOST SCHRIJNEN	WENDY TAN	LUCA BERTOLINI	COLLECTIVE FINDINGS
Is knooppunt-ontwikkeling van de grond gekomen in Nederland?	Knooppunt ontwikkeling is van de grond gekomen. Zeker als je het hebt over de Randstad en zeker als je het hebt over het lokale niveau, dus de stations. In de Randstad is knooppunt-ontwikkeling onmisbaar geworden voor het ruimtelijk functioneren.	Knooppuntontwikkeling wordt nu op plaatsniveau geexperimenteerd en dat gaat best goed. Maar over belang en positie van een station in een gemeente denken veel mensen toch weinig over na. Het op netwerkschaal defineren en geprogameren gaat nog erg langzaam. Maar dat is nu wel steeds meer aan het veranderen.	In Nederland leeft knooppuntontwikkeling nog niet. Niemand weet precies wat knooppuntontwikkeling is dus er is nooit expliciet met dit doel ontwikkeld. Ruimtelijke activiteiten die ontstaan rondom stations zijn eerder toeval dan resultaten van een knooppuntenstrategie. Mensen zeggen vaak: Utrecht Hoogcatharijne wow! Wat een mooi project! Echter is ook dit geen goed voorbeeld van wat knooppuntontwikkeling kan zijn. Er is een winkelcentrum boven Utrecht Central Station maar relatie met centrum ontbreekt totaal.	In Nederland hebben we genoeg voorbeelden van individueel succesvolle knooppunten. Maar weinig van netwerken van knooppunten en regio's en metropolen die rondom knooppunten zijn georganiseerd. Terwijl daar met namen de winst valt te halen. Het gaat om de interactie die in een netwerk mogelijk is. In Nederland wordt dit nog niet goed begrepen. Lokaal komt het wel van de grond maar op netwerkniveau niet. Er zijn wel twee voorbeelden van netwerkstrategieën zoals stedenbaan en stadsregio Arnhem Nijmegen. Nu probeert ook regio Amsterdam die kant op te gaan. In alle gevallen is implementatie de grootste uitdaging.	**Er zijn veel voorbeelden van (grote) stations-projecten in Nederland. Echter worden deze niet ontwikkeld vanuit de visie van knooppunt-ontwikkeling. En dus is in mindere mate sprake van het van de grond komen van knooppunt-ontwikkleing op alle vier de kaders.**

Appendix G - Setup workshop Leiden

Leiden 2014-06-11

Aanwezig:

Ingeborg de Jong	Directie stad Leiden
Robert Bergenhenegouwen	Gebiedsmanager Leiden
Letty de Jong	

Intro

1. Doel van onderzoek uitleggen

Toetsen theorie

1. Introduceer jezelf
2. Hoe ziet de ideale stations(omgeving) eruit
3. Wat maakt Leiden Central Station bijzonder

4. Vraag: Is er een strategie op TOD?
5. Vraag: Hebben jullie inzicht in de belemmeringen van de markt om op stationslocaties te willen ontwikkelen of investeren op dit moment?

(Tabel laten zien zonder belemmeringen er in)

6. Test: Welke belemmeringen wist je al
7. Test: Welke belemmeringen wist je nog niet
8. Test: Welke belemmeringen kan je wat mee
9. Test: Welke belemmeringen kan je niks mee

10. Vraag: Wat zijn voor de gemeente de grootste risico's in deze belemmeringen? Welke belemmeringen zijn het belangrijkst
11. Vraag: Wat zijn belangrijke marktpartijen?
12. Welke belemmeringen kan je het eenvoudigst verwijderen/oplossen?
13. Vraag: Welke belemmeringen ervaren jullie zelf die hier nog niet vermeld staan.

Wie wanneer en hoe

14. Vraag: Wie heeft het meeste aan deze kennis?
15. Vraag: Wanneer?

16. Vraag: Hoe?
17. Vraag: Aanvulling aan informatie die nuttig zou zijn? Of aanvulling model?
18. Vraag: Zijn er al andere project applicaties of risico tools waar dit op in kan haken? Hoe werken die tools?

User interface

1. Vraag: Aan welke zaken zou de user interface moeten voldoen?

Mitigation

19. 3 showstoppers laten zien. Brainstorm wat ze hier mee kunnen en of dit belangrijk is.
20. Hoe kunnen we de markt enthousiasmeren om in te zetten op ov-knooppunten?
21. Moeten we de markt enthousiasmeren om in te zetten op ov-knooppunten?
22. Kijken naar aantal oplossingen vanuit de markt zelf

Appendix H - Identification options for market parties

Peek structures all actors present in TOD according to their role: investing or regulating. Moreover, Peek structures the actors also according to their function: private or public. Within this division the actors defined by Peek are shown in below (Peek, 2006).

middelen	belang	
	publiek	*privaat*
investeringen	shareholders – overheden • Burgemeester & Wethouders (grondbedrijf, stadsontwikkeling, verkeer en vervoer) • ProRail (nieuwbouw, onderhoud) • Ministerie van VROM • Ministerie van V&W (RWS) • Ministerie van BiZa • Commissie Europese Unie	shareholders – bedrijven, belangenorganisaties, burgers • beleggers • projectontwikkelaars • NS (Reizigers, Vastgoed, Stations) • financiers • bouwondernemingen • woningbouwcorporaties • makelaars • ontwerpers en adviseurs • toekomstige exploitanten/huurders
toestemming	stakeholders – overheden • gemeenteraad • Gedeputeerde Staten • Tweede Kamer • Europees Parlement • ProRail (spoorveiligheid, capaciteitstoedeling) • Ministerie van BiZa • Commissie Europese Unie	stakeholders – bedrijven, belangenorganisaties, burgers • grondeigenaren • huidige exploitanten/huurders • omwonenden • reizigers/overige individuele gebruikers • lokale openbaarvervoerondernemingen • Kamer van Koophandel • belangenorganisaties in Locov (Rover, Fietsersbond, ANWB, Consumentenbond, Chronisch Zieken- en Gehandicaptenraad, Ouderenbond CSO) • Milieudefensie

Table 7 Market parties (Peek, 2006, p. 30)

Van der Krabben at al (2013), in his study on behalf of city region Arnhem-Nijmegen mentions four groups to categorise actors in TOD: transport operators, developers, constructors and funders. Within this structure, the operators of real estate are not taken into account.

Wolting (2008), on the other hand defines actors based on the distinction between shareholders and stakeholders (2008). Shareholders are parties directly involved, usually financial or by powers/authorities that are necessary to realise an area development. Stakeholders are usually not directly involved in the project but they do have an interest in the area development. Stakeholders may include local residents or interest groups. According to Wolting, stakeholders

are no partners in area development, however stakeholders are often important in the process of creating the necessary support. According to Wolting within the group of shareholders, roughly two parties can be distinguished: public and private parties. This method is similar to the method of Peek in the sense that there is a clear dichotomy in public and private parties. Peek however goes one step further by dividing the group in an investing group and a consenting group.

Fisher (2004) based his complete analysis of relevant actors in the railway sector on the 'Fast Arrangement Mapping methodology'. This methodology was developed to map the influence of the actors in a station development. The influence of stakeholders is based on the sources they bring. Examples of sources are: money, information, knowledge and trust. The actors are grouped into four categories:

- Steering actors are mainly political actors, local authorities, regional authorities, ministries;
- Building actors bring the physical changes in the environment, such as contractors. Also, investors and developers are part of this category;
- Managing actors mandate the installation of physical changes to the rail infrastructure. Since January the 1st, 2003 the manager of the rail network is called ProRail. NS Stations is responsible for the operation and management of the stations (www.ns.nl);
- Transport operators are the organisations that use the infrastructure.

Appendix I – Lessons learned from foreign experience

During interviews, experts discussed that to encourage TOD in the Netherlands a lot can be learned from foreign experience. Like Bertolini (2014), who indicated that some foreign projects have a distinct network approach and provide good information. However, Tan (2014) emphasizes that it is not possible to copy these developments blindly because cultures and processes in these countries are very different. Nevertheless, an attempt has been made to analyse foreign best practices. For this study the following best practices have been selected: Portland, Vancouver, Copenhagen and Perth. According to Bertolini (2014) these projects are less architectural expressive, but they have a much more distinct network approach. Therefore, we could learn a lot from these approaches.

Perth: Enter into conversation

In Perth, during one year, the 'Dialogue with the City' was held. A public consultation, which first, seemed unnecessary for a regional planning vision. Nevertheless, distributing and sharing information and ideas, built public support. Therefore, the new concepts of TOD were not imposed upon the people. Moreover, difficult (financial) decisions were accepted because of public support (Tan et al., 2013, Newman, 2009).

Vancouver: Take chances

In Vancouver, the Olympic games and the World Expo took care of the continuation of major infrastructure investment and contributed to the public understanding of nuisance, while the planning for the Expo-line and the Canada-line had been planned long before these events. The window of opportunity to push trough was used (Tan et al., 2013, Bula, 2014, Canada Mortgage and Housing Corporation , 2006).

Copenhagen: Maintain a vision

In Copenhagen, nearly 70 years the region held on to its vision. Which, enabled compact urban development along public transport, with preservation of green areas. Although, a shared vision provides binding ideas, it is also important to set up concrete rules together. Moreover, demonstrable commitment should be asked from each other (Tan et al., 2013, Knowes, 2012).

Portland: Enhance public support

Portland was able to pass through s a lot of innovations in laws and financial regulations, through the support of social opinion. The aim of the Portland approach was to let the public and the politicians embrace TOD, despite the dominance of the car in Portland. This was

realised by explaining the message as clear as possible. The discussion was about the protection of nature. Where, TOD was presented as a means to reach this goal (Tan et al., 2013).

Conclusion - lessons learned

The importance of public involvement for the success of TOD is explained above in the examples of foreign TOD. By entering the debate; sharing information; and exploiting opportunities, public support can arise. Therefore, there seems to be a lot of potential to integrate more public participation in planning processes, which may help develop a consistent vision or strategic planning goal for integrated land-use-transportation planning in Dutch city-regions.

"A major barrier to TOD implementation in the Netherlands is the lack of public participation in planning processes. Compared to the US and Canada, where public participation techniques are taught at planning school, Dutch planners themselves noted that they are not trained in these techniques beyond simple consultation on a final plan (as Dutch planning law requires) (Thomas, 2014, p. 5)."

Appendix J - Economic context importance TOD

Due to the financial crisis, the resources to invest in large-scale spatial development and infrastructure are nowadays limited (Ram, et al., 2013, van Joolingen et al., 2009). The government needs to cut back sharply. In addition larger Dutch construction projects stand still. Banks are defensive and developers do not feel at ease (Ministry of Infrastrucure and Environment, 2014, Urhahn Urban Design, 2010, Sturm-Reijnders, 2010, van der Ven, 2011).

De Zeeuw (2012) explains that the current economic contexts emphasizes that we need to move towards a demand-driven development. The demand for new housing, retail and offices has collapsed. The financial reach of the developers, contractors and investors is considerably shortened and corporations go back to their core business. Therefore, according De Zeeuw, urban development process should be carefully looked at. It should be demand-driven, cheaper, more flexible and faster. Otherwise, urban renewal could completely run into a brick wall.

Moreover, demographic trends lead to a changing housing need and market demand. Worldwide, an on-going urbanisation process is noticeable. Also in the Netherlands, this urbanisation trend is still going on: in 1993, 43% of the Dutch population lived in the Dutch countryside. In 2030, over 70% of the Dutch population will live in the cities (Ministry of Infrastructure and Environment, 2014).

Therefore, it is wise to focus on a strategy that tackles various issues simultaneously and concentrates and uses optimally the available assets for investment. A TOD strategy offers these possibilities:

- By more intensively usage of the existing network
- By better linking the different transport modalities
- By integrating urbanisation and destinations and activities of people.

Appendix K - Categorisation of constraints relevant for the market consultation

This section studies several categorisations found in literature in order to obtain insight into relevant categorisation methods.

Categorisations found in literature

To get an idea of the potential constraints of market parties, the list of Tazelaar (2011) is interesting. This list provides a subdivision where **technical, financial, economic, organisational, environmental and legal** aspects are taken into account.

- Technical preconditions (e.g. the best available techniques, systems and organization models);
- financial-economic preconditions (e.g. risk identification and allocation, bankability, possibility to insure the project, alternatives for financing, investment forms, exploitation conditions);
- organizational preconditions (e.g. project organisation, control from the administrations concerned, project plan and timing, required external expertise);
- environmental and building preconditions (e.g. spatial planning and urbanisation, architectural aspects, environmental issues);
- legal preconditions (e.g. basis of competence, public projects, budget, cooperation and contracts, personnel).

Verhaeghe (2013) gives a fourfold division of project perspectives: **technical, financial, economic** and **social** aspects. A disadvantage of this fourfold division is the lack of any category that is concerned with the process. The fail factors from appendix B show many constraints formulated by the participants in the market consultation are concerned with the process and/or communication. Nevertheless, the fourfold division of Verhaeghe does give relevant insight about social/environmental, economic, financial and design conditions that market actors might demand.

Peek (2006) distinguishes four forms of added value. This list of values could help forming a categorisation of constraints and preconditions. Therefore, they are taken into account in this research. Firstly, there is the **substantive value** of an environmental friendly solution to improve the use of space, high quality and contribution to the image of the location. Second, there is **financial value** expressed in a better price/quality ratio. Thirdly, there is **process-based value** consisting of learning effects for those involved and for example, the breaking of

administrative deadlocks. Fourthly, there is **external value**: coordination with other projects and opportunities for future cooperation with the relevant stakeholders (Peek, 2006). An advantage of this list is that process-related constraints and preconditions are taken into consideration.

Jan van 't Verlaat (2007) uses a triangle to visualise the relevant indicators in projects. The three vertices of the triangle ensure that the three types of quality guarantee the full content within an area development. Initially the focus is on the **spatial quality**: relates to proper processing of spatial structures, such as green structures, node concepts, the use of large-scale spatial elements such as a river, high-rise zoning, open spaces, water structures, eg. Secondly, van ´t Verlaat appoints **functional quality**: is expressed in a functional profiling of the city /region on the basis of market structure. This then leads to priorities for certain groups. Functional quality is also related to social and socio-cultural aspects, such as fighting social disadvantage, safety, education, e.g. Lastly, **financial quality**/feasibility is mentioned in the study by van ´t Verlaat: covers finance, deployment of human capacities.

The RISMAN-method, although being a method used for risk assessment, also helps defining categories. Following RISMAN, a project is considered from the following points: **political/administrative, financial/economic, legal/regulatory, technical/organisational, geographic/spatial** and **social** (van Well-Stam et al., 2003).

In the article 'Knooppunten hebben geen probleemeigenaren', Straatenmeijer et al. analyse chances for TOD. In the analysis, they have been trying to get a grip on the complexity by looking at TOD from four perspectives: **mobility and accessibility, space and urban planning, economics and real estate, management and instruments**. According to Meijer et al. good insight into the potential of a particular node is only realised if you confront these several aspects together (Straatemeier et al., 2011).

In the article 'Complexiteit en samenwerking in Utrecht' attention is paid to the complexity of station development. According to Teismann (2005) this complexity results in lack of willingness of private parties to invest in these projects. Bruil continues on this proposition by saying that in itself the complexity can be divided into four areas: **content, process, context** and **control**. Content: the redevelopment involves an existing urban area with different types of functions. Process: in the existing urban area there are several owners and users with different interests and ideas about the future nature of the area. Context: station locations are both

gateways as meeting places, where different parties have different interests and intentions for the area to be matched. Control: the decision-making processes, the various interests should be aligned and united.