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## Governance-arrangementen voor regionale hub ontwikkeling

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# **Governance-arrangementen voor regionale hub ontwikkeling: Resultaten van een casestudie in Groningen-Drenthe**

Governance arrangements for regional hub developments:  
key findings from a case study in Groningen and Drenthe, the Netherlands

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## **Bijdrage aan het Colloquium Vervoersplanologisch Speurwerk**

**13 en 14 oktober 2022, Utrecht**

### **Samenvatting**

Sinds 2018 hanteert het OV-bureau Groningen-Drenthe een beleid waarin hubs de schakels vormen tussen hoogwaardige OV-lijnen en vraagafhankelijk vervoer. In een regio die zich kenmerkt door lage bevolkingsdichtheden en waar het draagvlak van voorzieningen onder druk staat, zijn hubs de hoekstenen van een beleid dat poogt de bereikbaarheid en de leefbaarheid in stand te houden. Het clusteren van OV, vraagafhankelijk vervoer en voorzieningen op hubs vraagt om een innovatieve samenwerking tussen autoriteiten, vervoerders en andere stakeholders binnen de institutionele kaders op verschillende schaalniveaus. Hiermee wordt Groningen-Drenthe (inter)nationaal gezien als een succesvol voorbeeld van de regionale hubaanpak. In dit onderzoek proberen we inzicht te krijgen in de *governance* van Groningen-Drenthe en die van haar internationale tegenhangers om daaruit lessen te trekken voor de implementatie van hubs in verschillende ruimtelijke contexten, zowel in Nederland als internationaal. Het onderzoek bestond uit drie stappen. Eerst analyseerden we de beleidscontext van de hubaanpak op nationaal, regionaal en lokaal niveau. Vervolgens hebben we via interviews met vertegenwoordigers de belangrijkste kenmerken van de governance in kaart gebracht. Ten slotte vergeleken we Groningen-Drenthe met de internationale voorbeelden van Bremen, Vlaanderen en Zuidoost-Schotland door middel van een beleidsanalyse en interviews met lokale vertegenwoordigers. De resultaten laten zien dat een hybride tussen een *top-down* en *bottom-up* benadering nodig is om de ontwikkeling van een hub netwerk te realiseren. Regionale beleidskaders en financiering kunnen zo het implementatieproces op lokale schaal in de gewenste richting sturen, terwijl tegemoet wordt gekomen aan omgevings specifieke behoeften. Daarnaast is het stimuleren van kennisdelen over het succes en falen van hubs tussen lokale partijen van belang om goed onderbouwd nieuwe investeringen in het dienstenaanbod op hubs te rechtvaardigen.

## 1. Introduction

Cities and regions invest increasingly in mobility hubs to enable more sustainable, inclusive, and healthy mobility in urban and rural areas. Mobility hubs are considered to contribute to shared mobility and multimodal trips, to enabling lower carbon emissions, to reduced congestion and air pollution, to better accessibility, and to increased quality of life (European Commission, 2019; Conticelli et al., 2021; Storme et al., 2021).

In Northern Europe, hubs and shared mobility have received much attention over the last decade. A focal point for the topic has been the European-funded SHARE-North project, which has enabled the further development of shared mobility and mobility hubs across partner regions (European Commission, 2019). In the Netherlands, in national policy, mobility hubs are recognised as components of a robust and comprehensive mobility system for passenger and freight transport alike (IenM, 2011). Mobility hubs have become an important policy concept within the recently issued Dutch public transport vision (IenW, 2021). Mobility hubs link public transport and shared and/or private modes to facilitate door-to-door travel without using a private car. (Witte et al., 2021; IenW, 2021).

In the provinces of Groningen and Drenthe (in the North of the Netherlands), a network of multimodal hubs was initiated in 2018, including train stations, Park+Ride locations, bus stations and smaller hubs in the rural areas of the two provinces. These hubs are considered the most important transfer points in the region, connecting people with the rail and bus services in Groningen and Drenthe. According to the Provinces of Groningen and Drenthe (2017), hubs aim to enable everyone to travel to their desired destination and in their preferred mode.

Responsible authorities in Groningen and Drenthe face a dilemma concerning public transport (PT) provision. Network limitations and inefficient linear public transport systems in peripheral areas constrain the policy options to avoid car dependence and the growing social exclusion of public transport captives (see also Shergold & Parkhurst, 2012). As demand is generally limited and spatially dispersed, linear PT systems operate indirect routing, low frequencies, and limited stops because of cost-efficiency. However, this leads to traveller discomfort and, thus, again, little demand (Velaga et al., 2012). Introducing mobility hubs that link fixed transit (e.g., bus rapid transit) to feeder services (e.g., shared modes or demand-responsive transit) may improve service efficiency, alleviate liveability, and consolidate inclusive accessibility. However, as trunk-feeder complementarity in peripheral areas is not self-evident (Rongen, Lenferink and Arts, 2022), this requires innovative governance solutions stretching beyond existing institutional frameworks to balance the interests of (transport) authorities, transport operators, and local stakeholders with various perspectives.

In light of these challenges, this paper aims to understand the governance arrangements of the Groningen-Drenthe hub programme and its international counterparts to derive lessons for implementing mobility hubs in various spatial contexts both in the Netherlands and internationally. The Groningen-Drenthe hub network is a well-known operational hub network within the Netherlands. Bremen, Flanders and Southeast Scotland are partners in the SHARE-North EU-funded project, which is a catalyst for hub developments in Northern Europe. To address this, we formulated three research questions. (1) What is the policy context of the hub programme? To answer this question, we reviewed policy documents of responsible authorities on different spatial levels in the Netherlands. (2) What are the characteristics of the governance arrangements of the Groningen-Drenthe hub

programme? Interviews (see Appendix 1) with key representatives of the hub programme were carried out for this aim. (3) How do the Groningen-Drenthe hub governance arrangements compare to its international counterparts? We analysed policy documents and interviewed local representatives for three internationally recognised regional hub programmes in Bremen, Flanders, and Southeast Scotland (see also Kask et al., 2021a). Each section in this paper addresses a research question, ending with overall conclusions and recommendations relevant to hub developments in the Netherlands and abroad.

## **2. Policy context of hub developments in the Netherlands**

In the last decade, mobility hubs have gained increasing attention in the Dutch transport policy agenda. This section explores the policy context of hub developments in Groningen and Drenthe on a national, regional, and local level through reviewing policy documents.

### *2.1 Dutch national policy context*

In the Netherlands, intermodality is crucial in realising sustainability and good accessibility, facilitated through multimodal hubs. In the national policy context, hubs (or '*knooppunten*' in Dutch) have received attention for years as a component of a robust and comprehensive mobility system with potential for passenger transport and freight transport (IenM, 2011). Examples of national policies that are related to the concept of mobility hubs involve Park-and-Ride (e.g., Transferia), Transit-Oriented Development (e.g. Nieuwe Sleutelprojecten), and ancillary spatial policies (e.g., ABC-locatiebeleid) – see Rongen et al. (forthcoming).

In the Netherlands, 4% of all trips are intermodal, wherein the bike-train combination is the most common. Intermodality in the Dutch setting is considered a trip from A to B that includes a minimum of two different travel modes, including walking, if the walking distance is a minimum of 1km. Only 10% of intermodal trips involve a car, and these trips take place mainly between urban and rural areas (Hamersma & Haas, 2020).

The policy report 'Schets mobiliteit naar 2040' ('Mobility sketch towards 2040' in English) (IenW, 2019a) aims to offer direction for mobility policy in its broadest terms, from logistics to air travel and daily commute. Hubs are seen as places in the urban fringe assisting in meeting transport demand. Also, hubs are places that help keep cities liveable by contributing toward zero-emission city logistics. The policy programme 'Public Transport in 2040. Outlines of a vision for the future' (IenW, 2019b, p17) aims at "creating efficient and attractive multimodal interchange hubs both within and outside areas", including essential bus stops or neighbourhood-level transport interchanges. Public transport accessibility and inclusiveness for the disabled are considered crucial underlying elements of the hubs, including transport for people with special needs. The follow-up, specific policy document for public transport development (IenW, 2021) underlines that the strength of hubs lies in supporting the public transport network with other personal and shared modalities.

While mobility hubs have been discussed in national policy documents since 2012 (IenM, 2012), more specific implementation and development directions are only offered in the latest development agenda for public transport (IenW,2021). As a follow-up, more guidelines and specific funding requirements can be expected in the upcoming years.

## 2.2 Regional policy context

The lack of a conclusive national-level policy on hubs – or more specifically policy implementation – has led to development across the country in different forms and shapes. For instance, in Groningen and Drenthe, the two provinces are in the lead. While in Noord-Holland, Mobipunten is a collaboration between municipalities, and in other places, hubs are more urban, city and neighbourhood-level developments. Similarly, the definition of a hub differs. In Groningen and Drenthe, the focus is on public and on-demand transport, while in Noord-Holland, shared mobility stands central to hubs (see also Witte et al., 2021).

Groningen and Drenthe have integrated hubs into provincial policies since 2016. However, transport developments that partly led to the establishment of hubs were already on the policy agenda earlier. According to Witte et al. (2021), the hub network in Groningen and Drenthe has two primary goals: (1) improving cost efficiency and accessibility of public transport and (2) improving the travel experience and social cohesion.

In 2016, the provinces of Groningen and Drenthe established the basic public transport network as part of their provincial urban development plans. The network (see figure 1) consists of high-quality public transport lines (HOV), including trains, QLiners and Q-Links that provide frequent, quick, direct and reliable connections between important destinations. Additional bus lines connect rural areas to the HOV network (Provincie Drenthe, 2018; Provincie Groningen, 2016).

### Qliner, Q-link en trein Overzichtskaart 2021

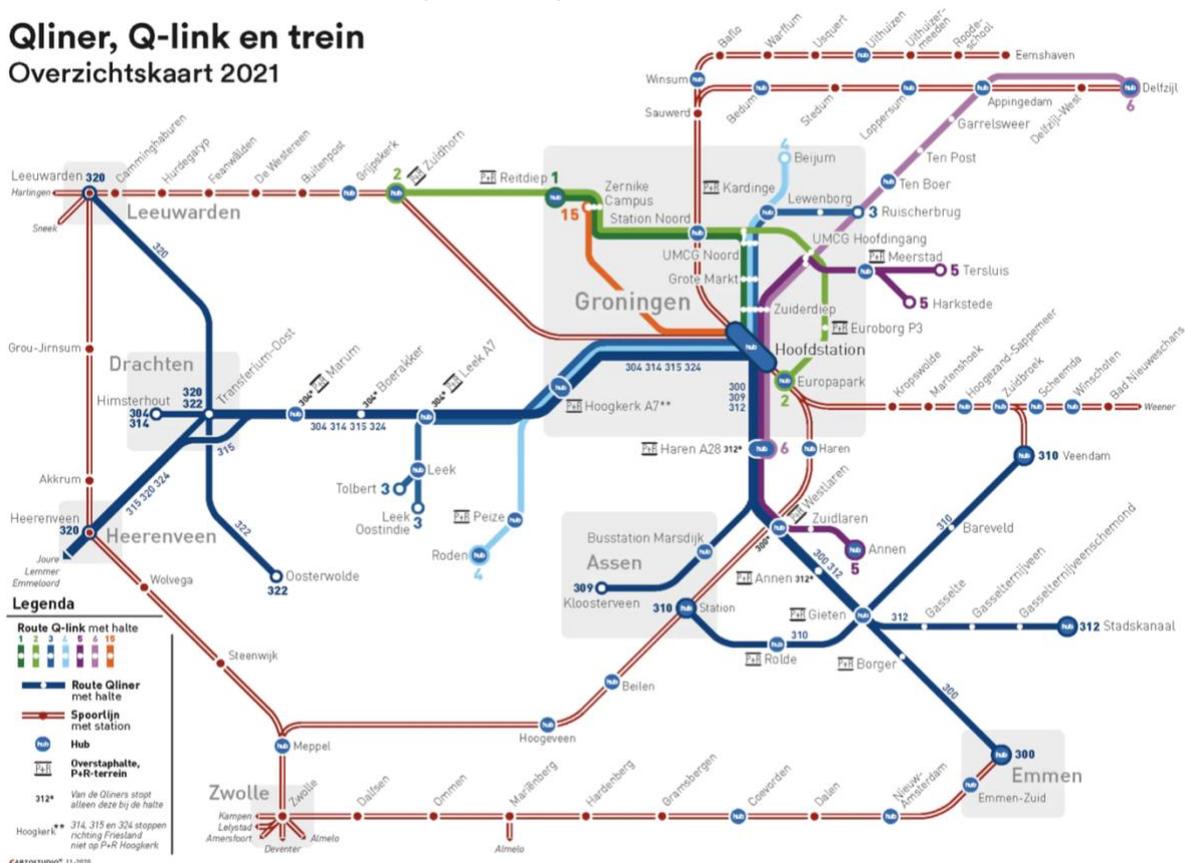


Figure 1: Overview of public transport connections and hub locations in Groningen and Drenthe (qbuzz.nl)

In addition to public transport, on-demand transport (Publiek Vervoer) provides flexible mobility for specific target groups in Groningen and Drenthe, such as the elderly, people with reduced mobility, and pupils. Moreover, the hub taxi is a service available for anyone

looking for door-to-door transport between their point of departure and a hub no further than 20km away (Provincie Drenthe, 2018; Publiek Vervoer, 2020).

Since 2016, hubs have been integrated with the spatial development plans of Groningen and Drenthe in close relation to the HOV system to address mobility and accessibility objectives. Additionally, hubs are considered in other strategies, such as Groningen's bus stop policy (De Jong, 2017) and cycling plan (Provincie Groningen, 2016). In the future, hubs will likely receive more attention increasingly in mobility-related subjects and spatial developments where the hub provides a location for a collection of services, including education, health care and retail (Provincie Groningen, 2016; Provincie Drenthe, 2018).

### *2.3 Local policy context*

In Groningen and Drenthe, hubs are well-integrated into the provincial plans, yet the effect on local spatial plans is not visible. The exception is the municipality of Groningen, which has plans to expand the hub network with neighbourhood and village hubs and sees the potential for hubs for cycling-related developments. In other municipalities, there is little evidence that hubs are incorporated into municipal mobility plans. The plans are often outdated or written before the establishment of the hub programme.

The municipality of Groningen has integrated hubs into its 2021 mobility vision (Gemeente Groningen, 2021). The vision explains that hubs contribute to intermodal travel and disincentivise car use in urban areas by enabling transfers between the private car and other transport modes in Groningen's fringe. Intermodal travel contributes to a space-efficient, clean and healthy transport system. The municipality of Groningen differentiates between three types of hubs: train stations (1), P+R (2) and neighbourhood and village hubs (3). The goal of the municipality is to develop their existing hubs further and create a road map for implementing neighbourhood and village hubs.

## **3. Current governance arrangements and issues in the hub programme**

This section provides insights into the governance arrangements of the hub programme in Groningen and Drenthe and is primarily based on interviews (see Appendix 1) with representatives or partners of the hub programme. See Kask et al. (2021a) for an in-depth description.

### *3.1 Governance of public transport in Groningen and Drenthe*

In the Netherlands, the need for reducing costs and improving efficiency led to the privatisation of public transport companies in 2000. Since then, public transport providers have been selected through procurement procedures. Generally, the development of public transport is also the responsibility of the transport provider. However, as governmental policies restrict these companies, they have little influence. Consequently, in Groningen and Drenthe, a decision was made whereby marketing and innovation would remain governmental tasks, and the OV Bureau Groningen Drenthe was established as an executive agency for bus transport within the two provinces (Stoker, 2017; interviews #3, #4). In addition to ensuring that the transport provider follows the contract accordingly, they are also responsible for improvements and innovation beyond the typical ten-year procurement contract.

The OV Bureau is the public transport authority for the provinces of Groningen and Drenthe and the city of Groningen. The three parties share a coherent bus transport system with the city of Groningen as the centre of gravity for transport flows (Stoker, 2017; interviews #3, #4 – see figure 3). Procurement for train transport is carried out collectively with the provinces of Friesland, Groningen and Niedersachsen (Germany), which share a train network.

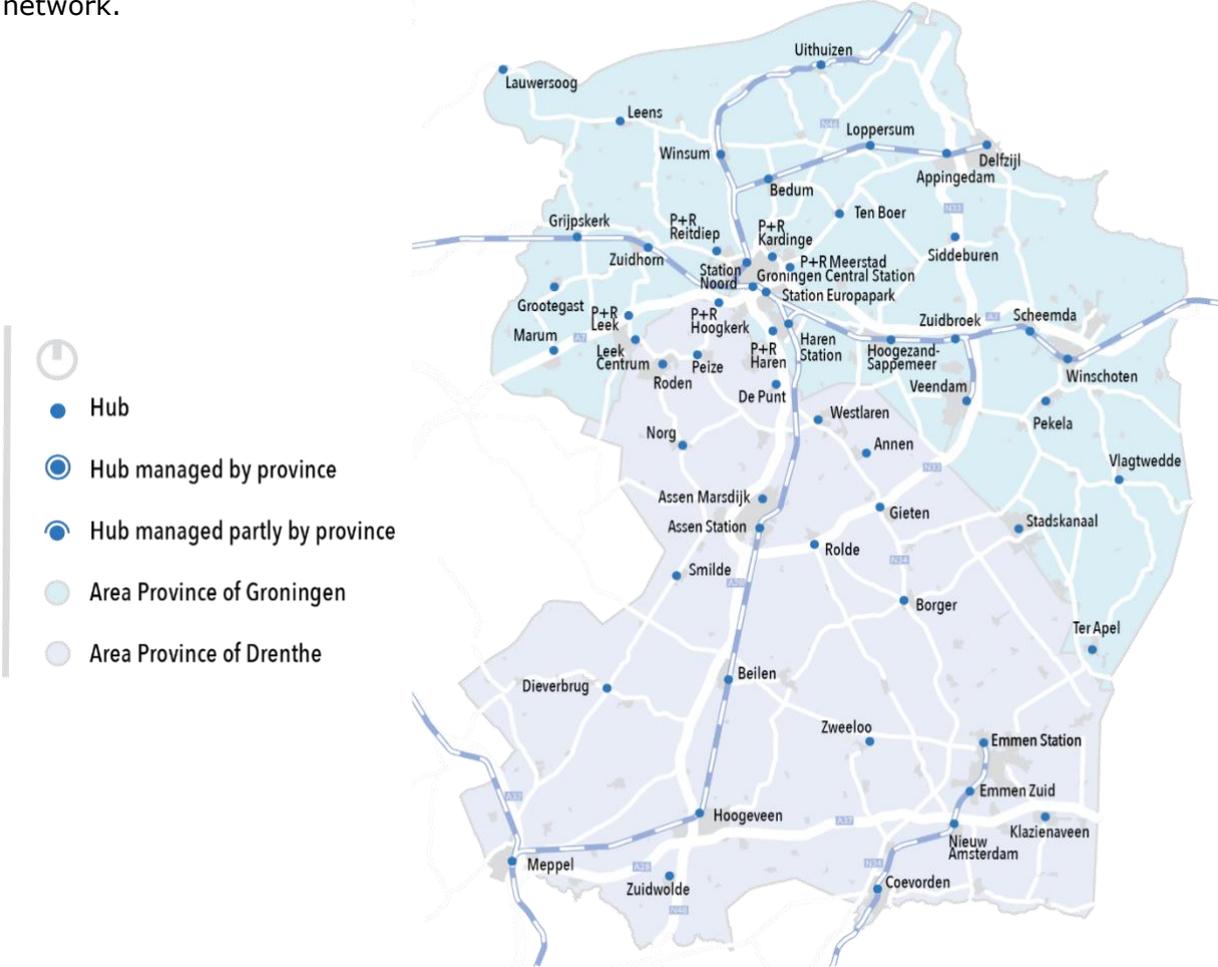


Figure 2: Hub network of Groningen and Drenthe

3.2 Stakeholders in the hub programme

Figure 3 represents the web of stakeholders for the hub programme (Kask et al., 2021a). In the centre of the figure, indicated with the hub sign, the main elements of a hub are depicted. Each hub in the network provides public transport, first and last mile transport (including target group transport) and facilities and services that make the hub a pleasant place to be.

Stakeholders directly involved in the hub programme through the hub core team are indicated with coloured boxes and blue lines that lead to the 'hub': province of Drenthe, province of Groningen, municipality of Groningen, the OV Bureau and Publiek Vervoer. These parties coordinate the general developments of the programme and meet with each other monthly. The thicker blue lines run from the two provinces as they are the primary decision-makers within the programme. The municipality of Groningen represents municipalities within the hub core team. Other municipalities are not involved with the overall coordination of the programme, yet each is the key decision-maker in their jurisdiction's hub(s).

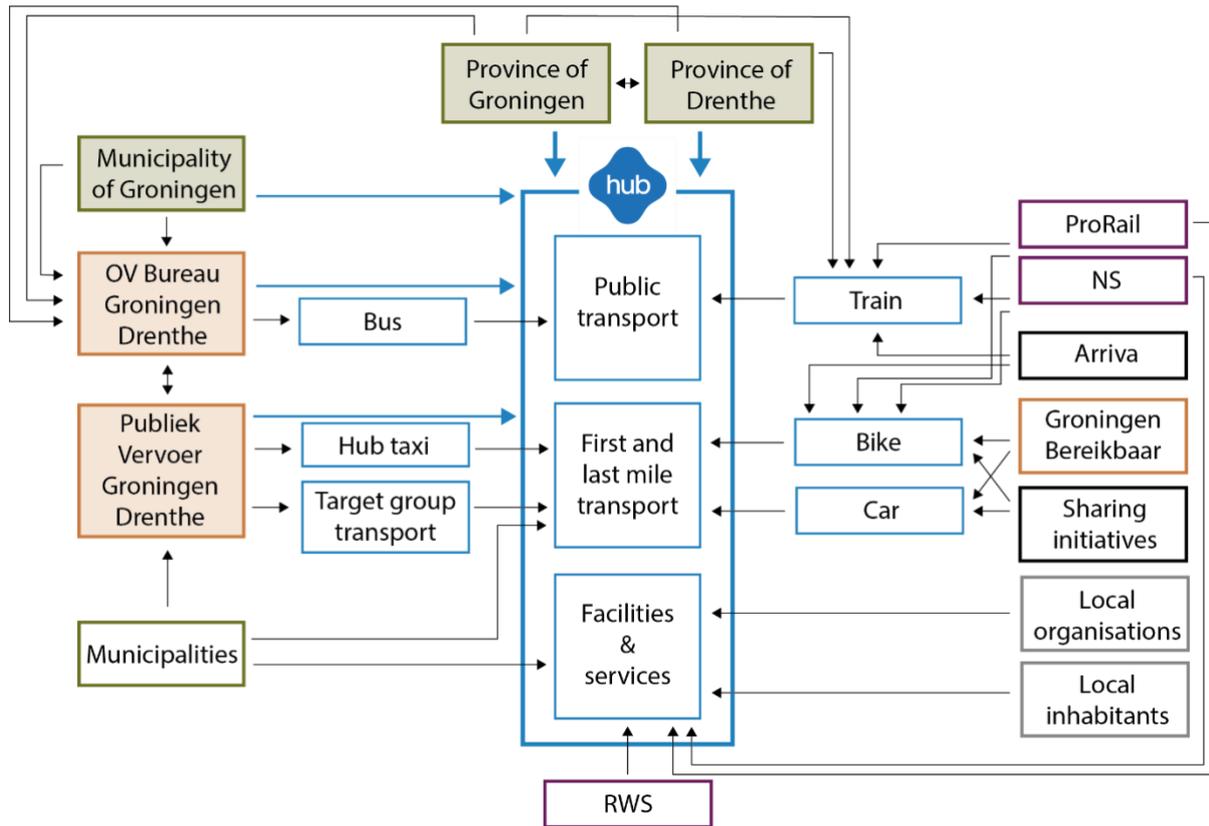


Figure 3: Key stakeholders and their relations in the hub programme of Groningen and Drenthe

Stakeholders indicated in orange are collaborations of the regional and/or local stakeholders. While the OV Bureau and Publiek Vervoer have a role in all hubs, Groningen Bereikbaar is only involved in P+R locations around the city of Groningen. Stakeholders indicated in purple – ProRail, NS and Rijkswaterstaat (RWS) are national-level asset managers and landowners. Next to their roles as train operator (NS) and rail provider (ProRail), these parties are owners of the train stations and have their own guidelines for developments at these stations – i.e. the larger hubs. Rijkswaterstaat (RWS) is involved with hubs where part of a hub is located along a national road. Stakeholders in black are commercial parties that are directly involved only in specific hub projects. Grey represents the players on a local level.

### 3.3 Practical issues in governing the hubs

The hub network in Groningen and Drenthe is a follow-up to consecutive developments in the interregional transport system rather than a result of predetermined policy goals for reduced car dependence or increased intermodal travel (Kask et al., 2021a). After establishing the high-quality public transport network, stretching the bus lines and collective management of target group transport among municipalities, hubs were seen as the logical place for comfortable multimodal transfers. After identifying the region's most important public transport stops and marking them with the 'hub' sign, an ad-hoc, organic, bottom-up approach was chosen to develop these hubs into comfortable places to transfer between mobility modes (Kask et al., 2021a).

In practice, many hubs in the hub network have not seen any further developments other than installing the hub sign, water tap and WiFi (see more in Hub evaluation booklet – Kask et al., 2021b). The hubs that have been developed are primarily hubs that lay on the grounds of the province (along a provincial road) or where the municipality has the financial and staff capacity to roll out new or improve old facilities (interviews #1, #2).

However, such an approach has led to various challenges that hinder developments at other hubs in the network:

- Municipalities lack financing to carry out hub developments – The road authority of the hub always needs to bring their financing to develop a hub. Even before the province can indicate their contribution, the municipality could make a project plan which is already costly and time-consuming. This may hinder developments from the start (interview #2).
- The political situation at a municipality prioritises other investments – Some municipalities may have other priorities than developing hubs. Even when civil servants within the municipality have the will to push developments, the organisation might have different priorities at the given time (interviews #1, #3).
- Resistance from other stakeholders – Sometimes, the goals of different parties do not align, and parties may be resistant to designating hub locations, for example, to enlarge a parking lot. In such situations, it may be better to leave the ideas for the moment and continue later (interview #3).
- Unclear expectations for hub developments – In some cases, municipalities may experience pressure to develop their hub further. However, many hubs, especially in urban areas, already offer travellers possibilities for intermodal trips and a comfortable stay. In these situations, it is sometimes unclear what extra developments could take place to add to the quality of the hub.

Land ownership proves to be a crucial challenge in hub developments that connects to all of the above (interviews #3, #4). Suppose municipalities or (other) asset and landowners (e.g. NS, ProRail, Rijkswaterstaat) lack resources or have other priorities. In that case, it may take a long time before a hub is developed into more than a bus stop with bicycle parking. The question is how this affects the overall quality of the hub network and if perhaps some crucial hubs in the network receive less attention than they might need.

Nevertheless, members of the hub programme team considered the 'learning-by-doing' approach a strong point of the policy (interview #1, #2, #3). While they may look up to other hub programmes that have developed strategies and guidelines, they are proud of their achievements because they already have a fully operational hub network.

The approach to "simply make it better" has worked well and has brought several hubs to a high level of comfort (Kask et al., 2021a). However, clearer guidelines may be helpful to continue developments at hubs throughout the network and get new municipalities on board with the developments. Especially as more resources (money, space, capacity) might be needed to achieve the 'next level'.

#### **4. Governance arrangements for hub developments in Northern Europe**

This section compares the Groningen-Drenthe hub governance arrangements to the internationally recognised regional hub programmes in Bremen, Flanders and Southeast

Scotland through policy documents and interviews with local representatives (see also Kask et al., 2021a).

### *Case studies: Bremen, Flanders and South-East Scotland*

The SHARE-North European project can be considered as an important catalyst for hub developments in Northern Europe. Through the international learning community and available budget, Bremen has expanded its hub network; Flanders has initiated hub developments and is set to open 1000 mobility hubs by 2025; Southeast of Scotland opened their first mobility hub in 2021.

#### *Bremen*

Bremen, a city-state in Germany, was one of the first cities in Europe that started developing shared mobility hubs as an initiative from the city/state authority. Recognisable and commonly branded car-sharing stations in the public realm (*mobil.punkt*) began popping up in the city in 2003. The hubs aim to reduce car ownership and increase safety while making car-sharing more accessible and visible in the public space (Interview #5).

As a city-state, the functions of a local and regional government in Bremen are combined into one institution, shortening the decision-making process compared to typical government structures (interview #5). Bremen's 2019 car-sharing regulations define the responsibilities of different stakeholders in the hub development process. The city-state is responsible for strategic coordination and proactively engages with district parliaments to promote and initiate hub developments. The location of the hub is selected in cooperation with the district. In addition, environmental service, fire brigade and trash collection services are important players in hub developments. These parties must navigate the narrow streets of Bremen with big trucks, which is often a challenge. During site selection, they are asked to identify areas where they have the most trouble so that with the implementation of the hub, the street can be redesigned accordingly. A tender competition is carried out to select the car provider for each hub. The selected provider receives the right to operate the service at the location for eight years.

The hub developments are not routine in Bremen as markets and user needs are constantly changing (interview #5). Each hub also requires a custom design based on neighbourhood needs. With the new addition of e-scooters and bike shares into Bremen's mobility landscape, *mobil.punkten* can also make space for such services at hubs to ensure better integration in public space.

#### *Flanders*

In Flanders, Belgium, a hub is a recognisable place where car and bike-sharing connect to public transport (interview #6, MOW, 2019). While the connectivity of these transport modes is not new in the region, the idea of marketing multimodal travel through the implementation of common branding was initiated in 2017, through inspiration from Bremen. The hubs aim to reduce car ownership by providing alternative, reliable shared transport modes in close proximity to homes and daily destinations (interview #6).

Implementing mobility hubs in Flanders was an initiative by NGOs Taxistop (no M pact) and the Flemish car-sharing organisation (interview #6). The NGOs started the promotion of hubs, and thanks to widespread support, they were able to bring hub developments to the

attention of the Flemish government, which has committed to creating thousand mobility hubs in Flanders. Today, the role of the NGOs has shifted since local authorities and consultancies have taken over the central role in hub developments. The NGOs are now having the role of a network platform for knowledge exchange and promoting a creative approach to hub developments (interview #6).

In the official mobility hubs policy (MOW, 2019), the Flemish government, transport regions and municipalities are highlighted as key players in hub developments. The regional government created the framework and subsidy programme and set criteria for evaluation and monitoring. Transport regions have the lead in developments on interregional and regional levels, while municipalities do the same on local and neighbourhood levels. The process of developing hubs is also articulated in the policy document, based on a bottom-up approach where anyone could initiate the project and find suitable partners. The further process is to be planned using the guidelines provided.

### *South-East Scotland*

In South-East Scotland, the first mobility hub, locally called journey hubs, was opened in 2021. The concept of mobility hubs was introduced in the region through the SHARE-north European project with SEStran – the regional transport partnership of Southeast Scotland – as one of the delivery partners of the project (interview #7). Inspired by Bremen, Flanders and Bergen, SEStran saw the potential for mobility hubs for their region for enhanced connectivity and encouraging and facilitating more sustainable travel in the region (SEStran, 2020; interview #7).

With the Mobility Hub Strategic Study, SEStran identified locations for pilot hub projects in each of their eight local authorities (SEStran, 2020; interview #7). East Lothian Council was chosen as the first mobility hub to be realised, partly financed by the SHARE-north project through SEStran. The idea is that hub pilots will show evidence-based benefits, ultimately leading towards broader support for mobility hubs, inclusion in, e.g. the SEStran Regional Transport Strategy, and the roll-out of more hubs across South-East Scotland (interview #7).

As a strategic partnership, SEStran has no land ownership in the region. This means that the roll-out of hubs depends mainly on the motivation and resources of the local authorities who own the land (interview #7). They implement hubs and take responsibility for maintenance of the hub, a so-called 'hub operator' as mentioned in the strategic study. SEStran supports them in this task through knowledge sharing, providing ideas and identifying funding streams. Branding is another topic where local buy-in matters. SEStran decided not to focus on specific branding or signage for the hubs in their strategic study. Instead, they left it open to encourage co-design with the local authority partners. East Lothian council, for example, has designed their branding for hubs with the 'journey hubs' and has their communication campaign. The concept will be used through the council, but other councils in the region are free to come up with something different as long as the underlying concept remains the same.

## **5. Discussion: Lessons learned from Northern Europe governance**

Each case study presented a different stakeholder as the initiator of hub developments. In Bremen, the initiative comes from the city-state, which aims not only to decrease car

ownership but also sees the potential for improving safety and street accessibility through the design of hubs. In Flanders, the two NGOs introduced the concept in the region and brought the benefits of hubs to the attention of the regional government. In Southeast Scotland, hubs were introduced through a transport partnership. Being a city-state, Bremen can realise mobility hubs quicker thanks to short lines between the local and regional levels. However, In Flanders and Southeast Scotland, the initiating parties needed first support from the local and/or regional governments to start the actual implementation of hubs. While local governments determine the land use in their jurisdiction, regional governments can support hub developments through various funding schemes.

Both Bremen and Flanders operate a learning-by-doing approach for the development of hubs, while in Southeast Scotland, an evidence-based approach is common in transport-related developments. Evidence acts as an incentive for different government levels to invest in such projects but can also lead to more collaboration between the hub developer and market parties, such as transport providers or real-estate developers. In Groningen and Drenthe, the hub network and associated developments were also realised through a learning-by-doing approach. However, moving further to the next phase of development, a more combined approach involving more evidence-based developments could help further developments across the network of hubs. On the one hand, evidence could help secure funding for developments from the national government. On the other hand, evidence could also act as a tool to convince smaller municipalities to prioritise hub developments in their budgets.

The findings indicate that hub developments demand a combined governance approach, including bottom-up and top-down management. In Flanders, the regional government had committed to realising and financing hubs. However, the roll-out of hub developments was considered a bottom-up approach where the initiative could come from various local stakeholders. In Southeast Scotland, collaboration with the local councils proved to be critical because they own the land and can introduce hub developments through local laws for new developments. Moreover, while in Bremen, the local government was in the lead, and collaboration with the district governments was also considered essential. Groningen and Drenthe's approach to hub development could be considered top-down as the provinces lead the programme. The OV Bureau is considered a success factor in the hub programme here. The standard branding was also decided beforehand for all hubs. Bottom-up developments can be seen more by municipalities with the resources for their hub, while municipalities that do not prioritise hub developments lag behind.

Therefore, we see that a combined governance approach could be the best fit for the successful development of hubs throughout a hub network. In provinces such as Groningen and Drenthe, top-down, the provinces could support further integration of hubs in regional and local policies, which would mean that municipalities would have to prioritise hub developments in their budgets to reach a certain level of quality at their hubs. Depending on the respective municipality and the hub's importance within the network, provinces could support the municipalities that are in more need of financing and implementation.

Reversely, independent hub development may be necessary for municipalities and could be achieved through co-design, for example, by carrying out a campaign for the hubs that fit better with the identity of a municipality. For example, in Groningen and Drenthe, the overarching hub branding could be implemented in more ways than using the limited selection of elements available.

## **6. Conclusions and recommendations for regional hub governance**

The governance arrangements of the hub programme in Groningen and Drenthe can be described in a few keywords: ad-hoc, organic, and enhancing bottom-up developments with a learning-by-doing approach. Imitating the spatial network nature of the hubs, a network governance system is evident, which encompasses the collaboration between various parties operating and governing across the spatial realm of the provinces of Groningen and Drenthe. The developments so far can be considered successful since there has been developed a vast network of hubs wherein many of the hubs have received some attention and development since 2017. This is acknowledged externally as the Groningen Drenthe hub development has been used as an example for preparing and implementing the recent national hub policies (IenW, 2021). However, it could be argued that many of the low-hanging fruit opportunities by now have been seized or are on the radar. A more comprehensive approach seems to be needed to continue and realise a further expansion of the network and an inclusive and well-accessible hub network.

The lessons learned from the respective case studies on the governance arrangements are relevant for further developments in Groningen and Drenthe but also offer relevant insights for the initiation or further (inter)national development of mobility hub networks. However, local, context-specific adaptations must be considered.

First, while leading from a regional level, collaboration with national and local stakeholders seems necessary to ensure fair hub development across the network. For instance, in Groningen and Drenthe, the OV Bureau alone could only invest in bus transport, while the provinces invest in water taps and seating facilities. Additional services would require support and financing from local municipalities, asset owners (roads and railroads such as ProRail, NS, Rijkswaterstaat in the Netherlands), local organisations (library, health care, other providers of services) and businesses.

Second, developing guidelines and a subsidy programme for developing different types of hubs could be considered for further development and implementation. In this way, municipalities can have a clearer idea of what is expected from them concerning hub developments and know beforehand how much financing they can expect. The clear guidelines and financial support are illustrated well in the hub programme in Flanders. With the newest roadmap for public transport development, hubs in the Netherlands may receive financing for further developments. However, using financial aid in an already established hub network such as Groningen and Drenthe remains subject to future study. Within the SMiLES research programme, a preliminary hub evaluation tool was developed (see Kask et al., 2021c), which can support monitoring for further development of the programme and its implementation but can also act as a basis for setting up guidelines.

Third, showcasing the benefits of the developments and pilot projects at hubs that have already been implemented could be useful. For instance, in Scotland, it is important to provide evidence of the socio-economic benefits of transport developments before their implementation. With the funding through SHARE-North, the first hub will be implemented, yet its important purpose is also to demonstrate the effectiveness of hubs. While the Groningen and Drenthe hub programme has a successful image in the Netherlands, it has little evidence of how the hub network benefits urban and rural mobility. Providing such evidence could not only demonstrate the benefits of hubs to the municipalities in Groningen and Drenthe but also elsewhere across the country. Moreover, it could also attract more investments into hubs from commercial parties, thereby creating more momentum.

Finally, it could be said that a combination of a top-down and bottom-up approach could help best to realise hub developments throughout a network of hubs. Guidance and financing from a regional level can help steer the process in the desired direction. In contrast, on a local level, the hub could be further designed to cater to specific needs and showcase the characteristics of municipalities and neighbourhoods.

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## Appendix 1: List of interviews

#	Organisation	Position
1	Reis via hub	Hub advisor
2	Province of Groningen	Project manager mobility
3	Province of Drenthe	Project manager traffic and transport
4	OV Bureau Groningen Drenthe	Manager network development
5	City of Bremen / Ministry of Climate Protection, the Environment, Mobility, Urban and Housing Development	Sustainable mobility project manager
6	NGO Taxistop / NGO Mobihub	Taxistop – project director; Mobihub – founder and board member
7	SEStran (Southeast of Scotland Transport Partnership)	Project officer sustainable mobility