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Location Choices for (National) Police Organisations

Four Case Studies: The Netherlands Police, The Federal Police of Belgium, The Norwegian Police Service, and The Federal Criminal Police of Germany (BKA)

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LOCATION CHOICES FOR (NATIONAL) POLICE ORGANISATIONS

**Four Case Studies: The Netherlands Police, The Federal Police of Belgium,
The Norwegian Police Service, and The Federal Criminal Police of Germany (BKA)**

FINAL REPORT

February 2025

Department of Management in the Built Environment

Faculty of Architecture and the Built Environment

Delft University of Technology, The Netherlands

Colophon

This report “Location Choices for (National) Police Organisations” comprises a study of four (national) police organisations.

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Preface

The Netherlands Police is one of the largest real estate users and owners in the Netherlands, and runs a very comprehensive accommodation programme. Their accommodation is an important and highly visible resource for the police and the general public. The police aims to increasingly use their accommodation as an ‘enabler’ of its organisational objectives. The mission of the Police is ‘Unchanged, the police is “vigilant and subservient” to the values of the rule of law. The Police fulfils this mission by protecting, limiting or empowering depending on the situation, both solicited and unsolicited’.

Given the objectives and size of the real estate portfolio of the Netherlands police and given the social impact, size and visibility of the organisation, the police continuously wants to develop as a leading commissioner. In 2021, the Netherlands Police and the chair Public Real Estate of the department Management in the Built Environment of the faculty of Architecture and the Built Environment started a 6 year research cooperation. As part of this collaboration, a long term research project has started with the aim to better use their accommodation as an ‘enabler’ for the organisation (development). The main project focuses on preference-based decision making for (parts) of the real estate portfolio. In this project, decision making is transparent, gives insights in the effects of potential real estate strategies and in all values (quantitative & qualitative) have been made measurable.

Next to that, short-term research projects are conducted. The first study focused on campus development for a specific police unit. This second study focuses on the location choices of (national) police organisations. We are pleased to present the results and are grateful for the cooperation of the police organisations in Norway, Germany and Belgium.

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Table of contents

1. Introduction	6
1.1. Overview and objectives	6
1.2. Research design	7
2. Location choices of (national) police organisations: state of the art	11
2.1. Current police locations and its challenges	12
2.2. Developments that influence the future demand for location choices	13
2.3. Optimisation and methodologies for location choice	14
2.4. Realisation	16
3. Location choices of (national) police organisations: case studies	21
3.1. The Netherlands	22
3.2. The Federal Police of Beligum	32
3.3. The Norwegian Police Services (NPS)	40
3.4. The Federal Criminal Police Office of Germany (BKA)	52
3.5. The United Kingdom (MPS/Met-London)	62
3.6. The United Arab Emirated (Dubai Police Force)	66
4. Cross-case analysis	72
4.1. The current situation	72
4.2. The internal and external developments	74
4.3. The nextus between the future real estate plans and the internal/external developments	76
5. Conclusions	81
References	82

1. Introduction

The Netherlands Police envisions a future-proof, sustainable, affordable, and feasible real estate portfolio. The portfolio future location strategies will be impacted by emerging trends like hybrid working, sustainability program, and digitisation. Insights gained from the experimentation with Working from Home (WFH) during the COVID-19 pandemic have provided valuable perspectives on striking the right balance between remote work, on-site operations, and other flexible work arrangements. The Netherlands Police is developing their hybrid work approach (policy and implementation) bottom-up, in collaboration with their 14 police units.

The Netherlands Police has developed a sustainability roadmap designed to achieve their 2030 targets. This roadmap features a transportation strategy closely connected to hybrid working and workplace location choices. Within this transportation roadmap, three distinct categories have been identified: commuting, work-related travel (business trips), and non-operational transportation. Two solutions have been chosen to make work transport more sustainable: (1) emphasising public transportation and/or (2) using electric cars.

At the same time, the Netherlands Police is transforming into an information-processing organisation. This shift will alter the composition of the workforce, with an increasing emphasis on information analysts. The question is: “What will this development look like?” For instance, will the number of vehicles on the road remain unchanged at 14,000 a decade from now, as it was in 2022? Alternatively, could this number decrease, potentially dropping to 8,000 vehicles? Trends such as hybrid working, sustainability, and digitisation directly influence both the existing accommodations and potential future location choices of the police. Do these trends support the tendency of the Netherlands Police to move out of the city? The Netherlands Police is interested if other (national) police organisations are facing the same developments in their organisation and how these influence their location choices.

This study focuses on non-operational police personnel which is called the “grey” police in the Netherlands, opposite to the operational so-called “blue” police in the Netherlands. This subset of grey police staff is integral to entities such as the Police Services Center, internal units within police divisions, and the Police Academy [1]. These forces engage in operational management services such as IT, finance, communications and human resources, leaving officers from the Regional Units free to spend more time on frontline operations [1]. In the limited scientific literature that is available, the police staff have been largely absent, apart from various references made to them as “other actors” in the “extended police family” within the context of plural policing [2]. This reinforces the need for this study.

1.1. Overview and objectives

The aim of the study is to obtain inspiration for police organisations by means of a comparative study with regard to recent and future developments and their consequences for location choices. By doing so countries can inspire and learn from each other.

The main research question is:

Where are (national) police organisations currently based, what plans do they have for their future accommodation and how will (internal/external) developments influence their location choices in the next 15-20 years?

The sub-questions are as follows:

Sub-question 1. In which locations are police organisations currently accommodated?

Sub-questions 2 and 3. To what extent are police organisations confronted with external and internal developments and how do these influence the work of the police that (may) have consequences for the location choices?

Sub-question 4. What future accommodation plans do police organisations have, especially regarding the location choices?

These questions are based on the first three steps of the DAS framework (see Figure 1). This is a framework indicating the steps that can be followed in order to design an accommodation strategy.

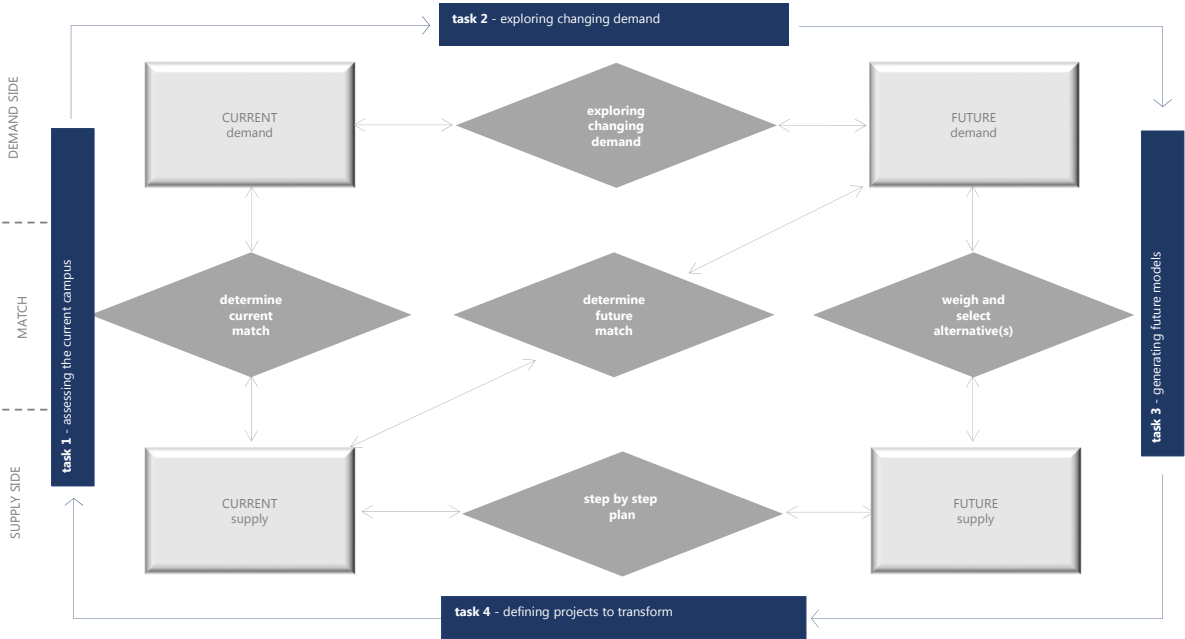


Figure 1. DAS Framework: Four steps to design a strategy (Den Heijer [3] based on De Jonge et al. [4]), which have been used as the structure for the research.

1.2. Research design

This research includes a combination of several research methods, including literature review, desk research, and interviews. Before diving into the research stages, it should be noted that as this research deals with semi-structured interviews, it has been made sure that the research respected and followed the data privacy principles as defined by European regulations [5]. The compliance of this research with this normative has been checked and confirmed by the Human Research Ethics Committee (HREC) of the TU Delft. The data management plan of this research has been verified and approved by the data steward of the Faculty Architecture and Built Environment of the TU Delft.

Data acquisition: literature review, desk research, and interview

The initial stage of the study involved a comprehensive literature review and desk research. The literature review focused on exploring scientific studies that address the location choices of police organisations, particularly examining relevant theories, frameworks, and imperatives. Complementing the literature review, desk research investigated the documents of cases and available public reports to gain insights into the location decisions of (national) police organisations. This approach enabled a detailed understanding of existing knowledge on location selection within police organisations. Next to this, semi-structured interviews, following the DAS framework, were conducted with real estate policy advisors from selected police organisations.

Selection criteria of cases

In selecting the cases, culturally comparable countries to the Netherlands - Germany, Belgium, Norway, and the United Kingdom - were chosen to examine location choice practices in a similar sociocultural context. Additionally, United Arab Emirates (Dubai), was included due to its prominent role as a global leader in innovative intelligence-driven policing. For the Netherlands, Germany, Belgium and the Norway desk research and interviews were performed, while the United Kingdom and the United Arab Emirates (Dubai) were desk research only. The selected countries provide a basis for analysing how differing technological advancements, organisational visions, and structural configurations influence police location choices. This selection aims to offer comprehensive insights into the ways in which technology, organisational vision, and personnel structure interact to shape location decisions in police organisations.

Data analysis

The interview data were transcribed and analysed using the ATLAS.ti software, employing both inductive and deductive coding approaches. Codes derived from literature informed part of the analysis (“imperatives”), while additional codes emerged from interview responses (“developments”). It should be noted that the tasks of the DAS framework were used to categorise the collected data from the desk research and interviews (“current demand”, “current supply”, “exploring changing demand”, and “generating future strategies”).

Following an initial data analysis, several additional questions surfaced, prompting a second round of interviews and, in some cases, email follow-ups with representatives from specific countries to clarify and expand upon findings. This iterative interview process allowed for a more nuanced understanding of the developments influencing police location choices.

Figure 2 shows the position of the sub questions in the DAS framework.

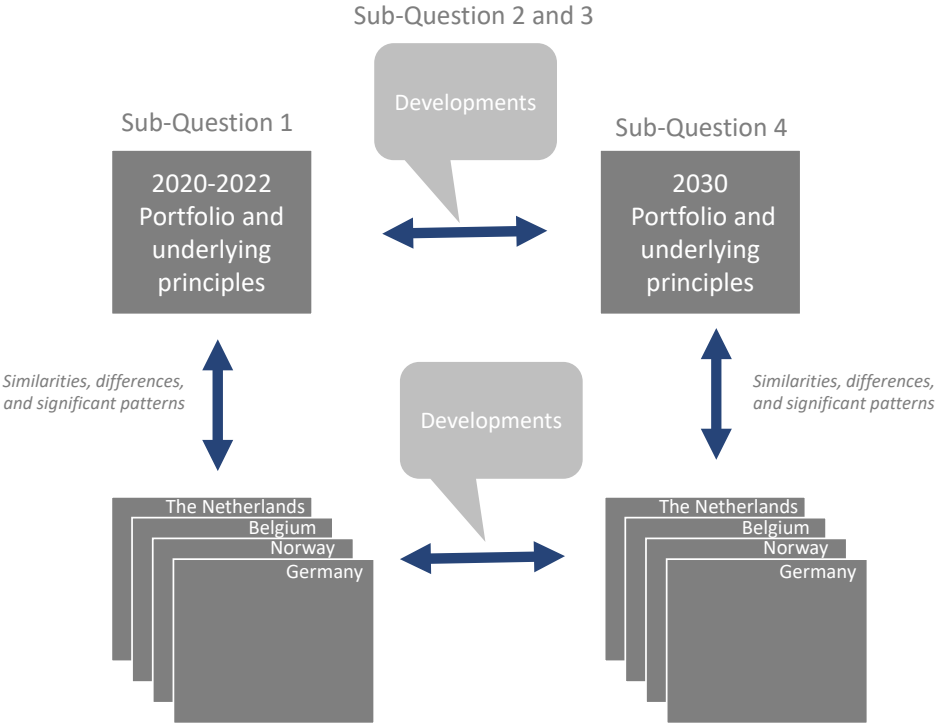


Figure 2. Position of the sub-questions in the DAS framework.

Reporting the research outcomes

The gathered data has been organised and reported in structured sections within this document. Literature-based insights are included in section 2, and the findings from the interviews and desk research are presented on a country-by-country basis in section 3. A cross-case analysis, comparing findings from the different countries, is conducted to identify similarities and differences in police location decisions, and is reported in section 4. This structured reporting and analysis enables a coherent presentation of both individual case data and overarching trends across the countries examined.

Sharing research findings via webinar

To facilitate knowledge sharing with the participating police organisations, a webinar is organised to present the research findings. This interactive platform will not only disseminate the results but also encourage dialogue with stakeholders, providing an opportunity to discuss and refine insights based on participant feedback.

2. Location choices of (national) police organisations: state of the art

To understand location choices of the (national) police organisations a literature search was done at the start of this research project. The search resulted in a total of thirty-three studies that seemed relevant to the scope of the research and based on abstract, title analysis and availability, a total of seven papers were relevant. This section answers the four research questions. With exception of study 1, all papers focuses on location optimisation with respect to the blue police. However, the general methodologies can be of essence to the grey police.

Overview of studies

Study 1: The first study of interest “Staffing the force: police staff in England and Wales’ experiences of working through COVID-19 lockdown” compares the working practices of the police staff in the United Kingdom, prior to and during the 2020 March-July COVID-19 virus lockdown, via a qualitative survey [2].

Study 2: The study “Facilities Layout and Location Analysis based on Police Location in Dekalb, IL”, conducted on task of the Dekalb Police Department, investigates how the existing police departments of Dekalb can be relocated in order to optimise distances between facilities and areas of highly concentrated crime [6].

Study 3: Similarly, the 2015 study “Optimisation of Police Facility Deployment in the Greater London Area” seeks to evaluate the current spatial distribution of police stations in the Greater London Area in the UK and optimise the facilities with respect to areas of highly concentrated crime [7].

Study 4: The paper “Recommendations of location for facilities using domination set theory” deals with optimizing the location for a “desired” facility in order to reduce transport costs and to provide equitable service to customers throughout the city [8].

Study 5: “A commuting-based refinement of the contiguity matrix” discusses the refinement of the commonly used contiguity matrix, which exploits information on commuting flows between locations [9].

Study 6: The study “Police Briefing Stations- a location problem” aims to develop a reliable technique in order to assist the Oklahoma City Police Department in selecting locations for 2 police briefing stations, to supplement the existing headquarters [10].

Study 7: “Spatial data visualization as a tool for analytical support of policework” is a case study which recognizes the necessity of adjusting the layouts of urban public security agencies, claiming that due to historical reasons, the layout of many urban security agencies remain somewhat arbitrary in the case of China [11].

These papers tackle this issue of optimisation of police facilities from a range of perspectives, methodologies and contain a variety of views regarding future insights—which will be explored in following sections.

It is important to note that in more than half of the studies the police organisations did not have a direct involvement (Figure 3), but that the police organisations were the client in Zhang et al. [6] and Aly et al. [10].

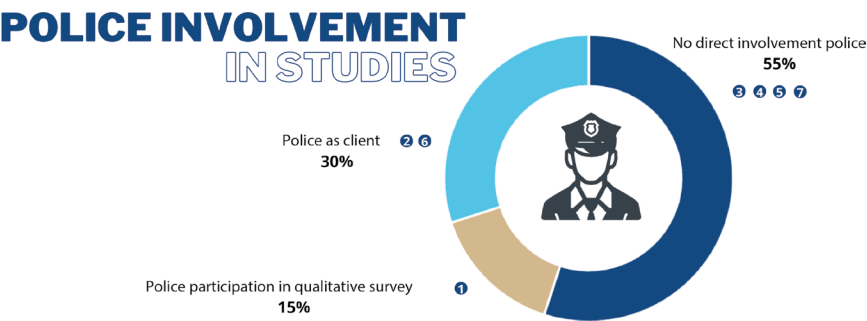


Figure 3. Involvement of the police organisations in the studies.

2.1. Current police locations and its challenges

Several studies (e.g., [2], [7], [11]) have visualised the current locations in which the police organisations are accommodated. As shown in Figure 4, Cheung et al. visualise the Greater London area by depicting the current supply of police offices (starts) [7]. The researchers in these studies consistently conclude that the spatial distribution of police facilities is not optimised, as they are often situated arbitrarily rather than in proximity to areas of concentrated crime or points of interest in the city¹ (see Figure 4). This results in a lower coverage area and significant overlap in service areas. Furthermore, Fleming et al. conducted a survey resulting into percentage of police staff working from home prior to and during lockdown [2]. These authors suggest to adopt flexible working models to replace physical offices, particularly in light of the COVID-19 pandemic. The findings from the above papers highlight the need for systematic optimisation procedures to improve the spatial coverage of police facilities.

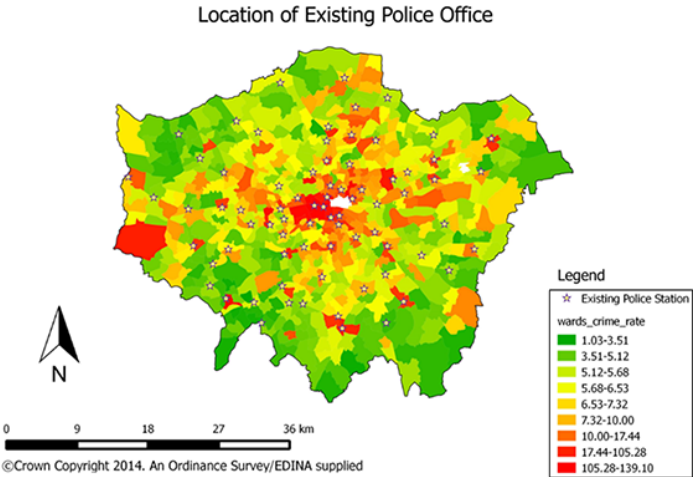


Figure 4. Distribution of crime and police stations in the Greater London Area, UK [7].

¹ A Point of Interest (POI) is "Any place or feature that is of potential interest to visitors. For example, a point of interest may be a business, a government building such as a post office, a landmark such as the Eiffel Tower, or a natural feature such as a lake or a trailhead" (ESRI GIS dictionary).

In this section, sub-questions 2 and 3 are discussed:

To what extent are police organisations confronted with external and internal developments and how do these influence the work of the police that (may) have consequences for the location choices?

2.2. Developments that influence the future demand for location choices

The reviewed papers revealed several factors influencing the location choices of police organisations. In this section, these factors are referred to as "imperatives", since the literature review included all significant aspects affecting location choice, not just "developments". However, in the country-specific sections that follow (section 3), these factors are referred to as "internal and external developments" (the same as the term used in the sub-questions).

This section will thus dive into a discussion of imperatives that may yield consequences for the location choices of the police organisations.

2.2.1. Commute, congestion and transportation costs

An optimised police location must meet predefined objectives and constraints. These objectives often include minimising commute costs, maximising spatial connectivity, or a combination of both, according to the reviewed studies ([2], [6], [7], [8], [9], [10], [11]). These studies tend to focus on three types of commutes: between different police facilities, between police facilities and crime scenes, and between points of interest (POI) within a city and police facilities.

Optimising commute between different police facilities

Reducing the commute between different police facilities is of essence, since any significant decrease in time spent or distance travelled between shift changes will help in improving response times of the services [10]. For instance, the study "Police briefing stations- a location problem" seeks to reduce the commute between police facilities and reducing overall times for shift changes per district in the state of Oklahoma [10]. In this study, districts are intended to equalise workloads by considering requests for services per square mile during different points during the day [10]. This imperative to reduce response times in between shifts reinforces the need for additional briefing stations to increase spatial coverage.

Commute between police facility and crime scenes

Another critical imperative involves reducing the commute between police stations and crime scenes, keeping in mind safety and security. Two of the seven studies presented respond to a rising crime rate by relocating their existing departments [7], [11]. Additionally, given a limited number of facilities, it becomes a critical challenge to effectively deploy available resources whilst maintaining safety [7], [11]. It is of note that the two studies concerning this idea discuss the blue police, however the methodologies and optimisation techniques are of essence also for grey.

Commute between points of interest (POI) and police facility

Another imperative is to minimize distances between points of interest (POI) within a city and police facilities in order to provide equitable service for all. This is explored in the paper "Recommendations of location for facilities using domination set theory", which deals with optimizing the location for a "desired" facility in order to reduce transport costs. It does so by mapping points of interest (POIs) as nodes and then evaluates the spatial connectivity between said nodes [8].

2.2.2. Financial constraints

To cope with limited budgets and feasibility constraints, efficient resource deployment is crucial. This involves minimising distances to potential crime spots and maximising police facility provision [7], and optimising resource distribution during instances such as city hiring freezes [10].

2.2.3. Physical constraints

Physical constraints are vital to consider during police facility reconfiguration and reconstruction, since making changes becomes challenging after construction due to fiscal and time limitations [2], [8]. One study suggests addressing these constraints by implementing flexible work solutions, such as remote work options, to reduce the impact of these limitations [2].

2.2.4. Diverse influencing factors

Other factors include addressing large-scale disruptions such as terrorist attacks, equipment breakdowns, or nationwide lockdowns. For instance, in the publication “Staffing the police: police staff in England and Wales’ experiences working through COVID-19 lockdown”, the nationwide pandemic lockdown became the imperative influencing police facility location decisions. If neglected, such disruptions have the potential to increase overall service costs, lead to loss in market share, and cause customer dissatisfaction, as clients may need to seek services from alternate locations [2].

The discussed imperatives per study are summarised in the Table 1. It can be observed that “optimising commute, congestions, and transportation costs” is among the most mentioned imperatives within the reviewed publications.

FUTURE DEMAND	STUDY 1	STUDY 2	STUDY 3	STUDY 4	STUDY 5	STUDY 6	STUDY 7
Optimising commute, congestion & transportation costs	✓	✓	✓	✓	✓	✓	✓
Fiscal constraints			✓	✓		✓	
Physical constraints	✓			✓			
Diverse influencing factors	✓		✓	✓			

Table 1. The studies and the imperatives/influential factors on the location choice by police organisations [2], [6], [7], [8], [9], [10], [11].

2.3. Optimisation and methodologies for location choice

Many of the studies discuss systematic optimisation methods in order to minimize distances between facilities/demand points, whilst maximising spatial coverage in the city. These include the Domination Set Algorithm [8] (see Figure 5); the Minimum and Maximum Distance models [7] (see Figure 6), Heuristic Algorithm [10] (see Figure 7) and finally the Minimum facility, maximum coverage and minimum impetus models [11] (see Figure 8). A detail description of the inner workings of each of these models can be found in the papers.

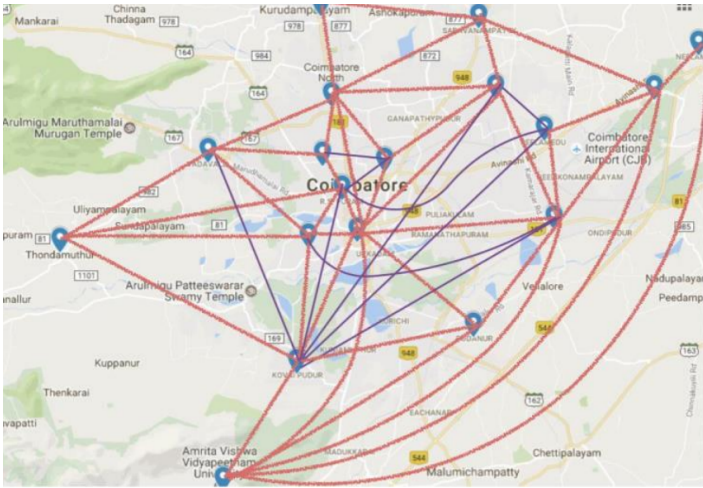


Figure 5. Domination Set Algorithm allows in the generation of a graph [8].

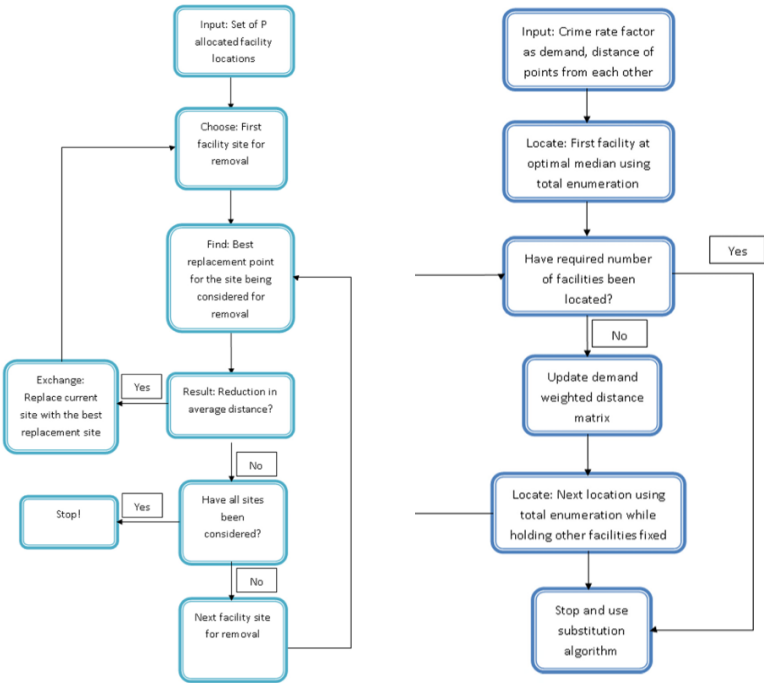


Figure 6. Myopic algorithm (left) and substitution algorithm (right) used for solving [7].

Among the reviewed publications, one study opts for a bottom-up approach by means of a qualitative survey. The qualitative survey conducted as part of the study “Staffing the force: police staff in England and Wales’ experiences of working through a COVID-19 lockdown”, identified changes in internal organisation, new patterns of working, views and attitudes of the police staff working through the first lockdown period- between March 2020 to June 2020 [2].

P3. Minimize $t = \sum_{i=1}^M \min_{j \in \theta(X)} q_i$

Subject to: $\sum_{j=1}^N X_j \leq K$

$X_j \in \{0,1\} \quad , j = 1, \dots, N;$

$X_1 = 1$

where $\theta(X) = \{j; X_j = 1\}$ and is nonempty.

Figure 7. Objective function for solving facility location problem [10].

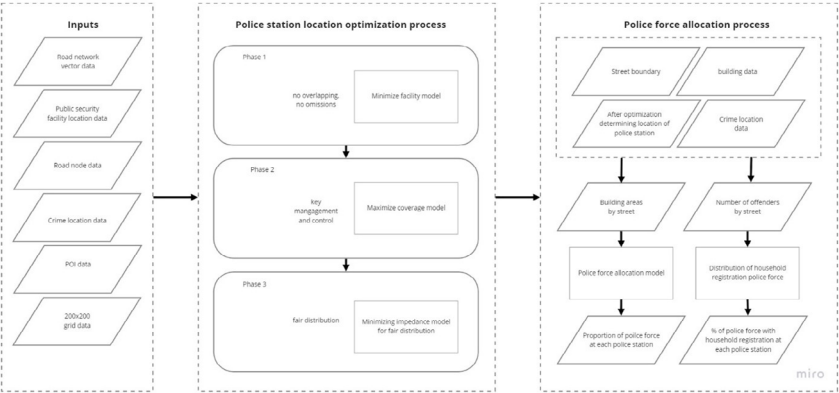


Figure 8. Inputs, police station location optimisation process and consequent police force allocation process concerning the Minimum facility, maximum coverage and minimum impetus models (translated from Sun et al. [11])

2.4. Realisation

Notably, the deployment patterns of urban facilities, including much of the real estate portfolio of the police, are generally not optimised; this is in reference to the fact that these facilities are placed arbitrarily without the application of systematic optimisation procedures [7]. In the recent decade, aspects such as population growth, economic developments as well as unforeseen challenges like the COVID-19 pandemic reinforce the need for optimised structures. This calls for the need to explore alternative ways to effectively utilize and manage the existing real estate portfolio of the police. Table 2 summarises the imperatives relevant to each study—specifically, the aspects that stand out from the optimization procedures and includes an evaluation of the feasibility and transferability of these results.

Summarising findings from the literature study

One of the main findings from the literature was the imperatives influential on the location choice (see Figure 9).

Table 2. The studies about the imperatives influential on the location choice by police organisations [2], [6]-[11].

Selected Studies	Imperatives	Results	Evaluation
Study 1 [2]	- Physical constraints (work-from-home restrictions) posed during the COVID-19 pandemic.	Police staff showed a strong preference for sustaining initiatives such as remote and flexible work options, digital communication channels, transparent public reporting, remote incident management protocols, multi-agency telephone conferencing, and online training opportunities for law enforcement in the era of information technology, even after the resolution of the COVID-19 situation.	33,500 members who hold police staff roles in England and Wales, which is 46% of the total complement of support personnel engaged in the study, which is why the results can be concluded as reliable and can be transferred.
Study 2 [6]	- Optimising commute between crime scenes and police facilities by selecting locations for a new police facility	The two optimisation models opted for by this study suggests a range of potential locations where the future police station could be placed.	Since this study is conducted independent of police involvement, it is difficult to evaluate how realistic the solution is to implement. Additionally, this solution assumes that the new location will work entirely independent of its previous office, which is a limitation of this study.
Study 3 [7]	- Aims to reduce criminality of police stations over potential crime spots in the Greater London Area - Optimising commute between crime scenes and police facilities	The results reveal the potential for improving urban security with limited resources through the optimised deployment of policing resources. The employed systematic optimisation algorithm helps in increasing overall coverage percentage of police stations from the existing 91.99% to a nearly perfect 99.82%.	Since this study is conducted independent of police involvement, it is difficult to evaluate how realistic the solution is to implement, for instance, moving office buildings in closer proximity to areas of highly concentrated crime.
Study 4 [8]	- Optimising commute between crime scenes and police facilities - Financial constraints - Diverse influencing factors	The optimisation algorithm aided in identifying a range of all possible locations for the police facilities optimised to provide the shortest links between points of interests (POI) and police facilities.	As this study provides a range of optimal solutions for the location problem, there is a greater scope of flexibility for the client to choose the most economical and practically feasible solution. However, since this study is conducted independent of police involvement, it is difficult to evaluate how realistic the proposed solution is to implement.
Study 5 [9]	- Optimising commute	The optimisation algorithm rests on the idea to assign weights according to the degree of substitutability of locations as places of residence.	Since this study is conducted independent of police involvement, it is difficult to evaluate how realistic the solution is to implement.
Study 6 [10]	- Optimising commute between crime scenes and police facilities - Seeks to construct two additional briefing stations in the city responding to police resource constraints	Results from optimisation algorithm suggests sites along the interstates and bypass as optimal for relocation since and reduced current transit time by 33%. The results established zones of interest and benchmark solutions against which new site combinations can be compared.	Although actual site selection was done by the police department in coordination with the City Council of Oklahoma, the author's work served as a quantitative basis for decision-making. Therefore, the algorithm and optimisation methodology used in this report remains of interest.
Study 7 [11]	- Avoid overlapping/omission of key police services and optimise distribution of police resources in the city	Via systematic optimisation, the mathematical model opted in this study enabled in an increased spatial coverage of high-demand points, key, and general areas by 7.25%, 300%, and 12.01% respectively. The degree of overlap between police area were decreased by 172% whilst response time decreased by 667 seconds.	Since this study is conducted independent of police involvement, it is difficult to evaluate how realistic the solution is to implement. It is not conclusive from the images provided (post-optimisation) what an estimated cost of relocation may be, and a reflexWion on the feasibility of solution is negated in the study.

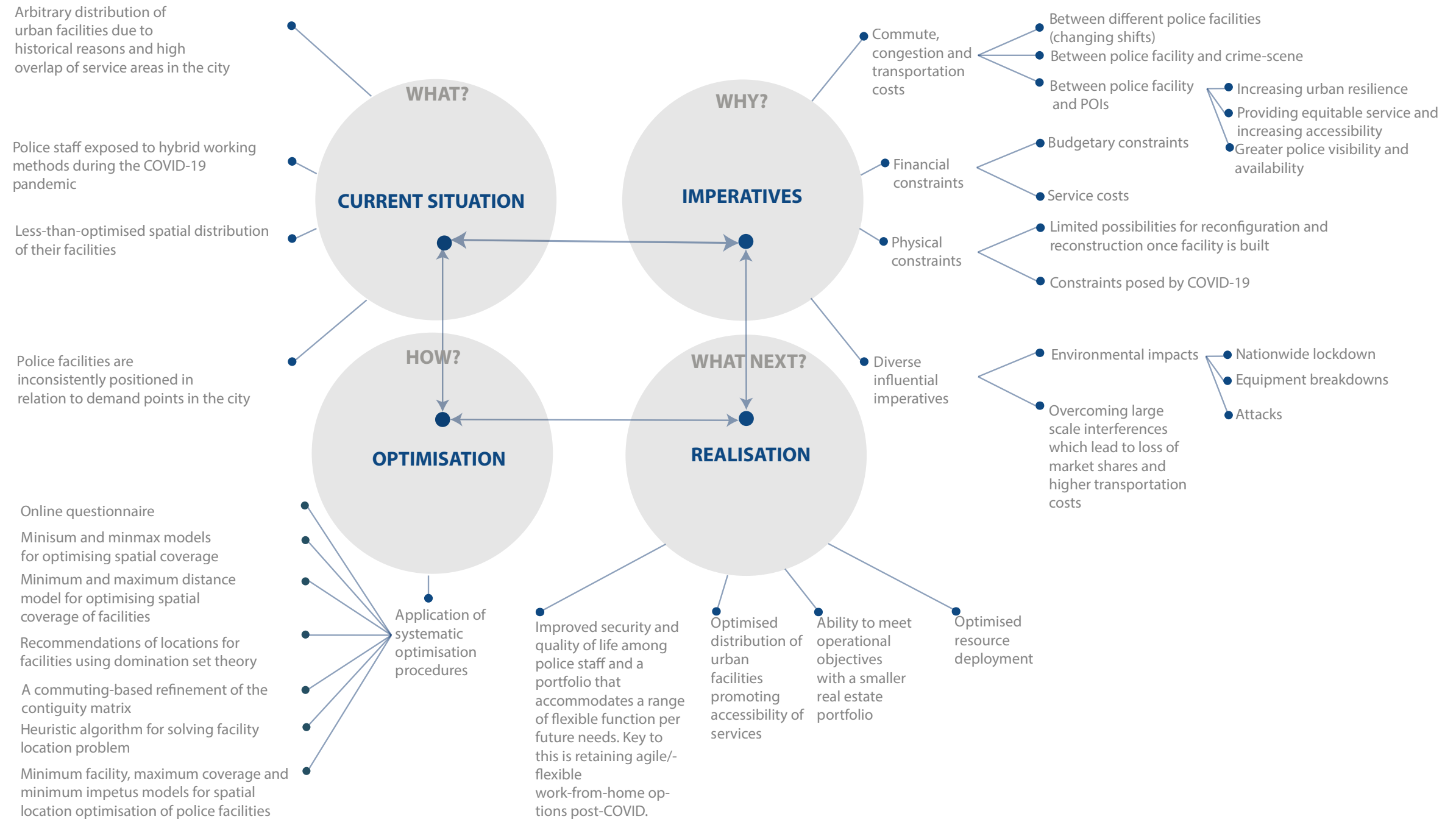


Figure 9. Mind-map: summarising the key findings from the literature study [2], [6]-[11].

3. Location choices of (national) police organisations: case studies

Overview of selected organisations

- 3.1. The National Police of the Netherlands
- 3.2. The Federal Police of Belgium
- 3.3. The Norwegian Police Services (NPS)
- 3.4. The Federal Criminal Police Office of Germany (BKA)
- 3.5. The United Kingdom (MPS/Met- Greater London Area)
- 3.6. The United Arab Emirate (Dubai Police Force)

3.1 The Netherlands

Firstly, an insight into the current situation is provided, addressing sub-question 1. Secondly, we explore the changing demand by identifying the developments that influence the location choices of the police in the Netherlands. These developments, which may be internal or external, address sub-questions 2 and 3. Lastly, the future plans of the police in the Netherlands are described, answering sub-question 4.

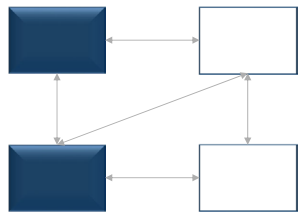
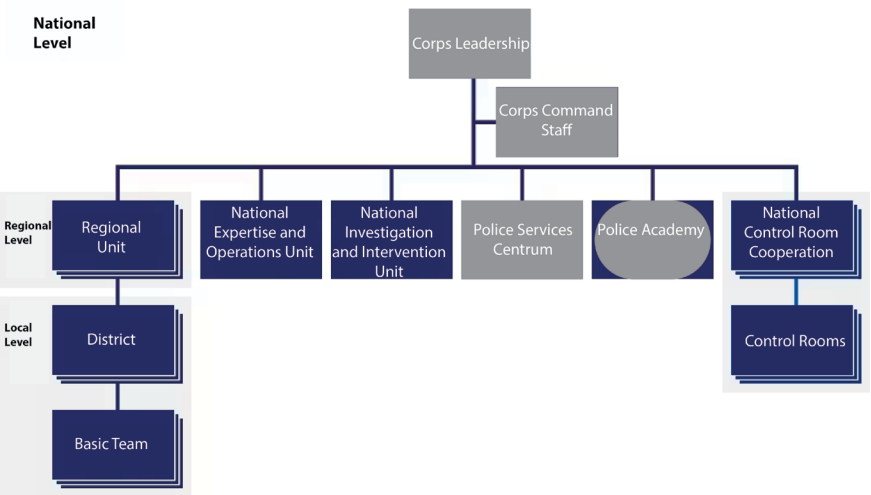
3.1.1 Assessing the current situation

Following the DAS framework (as discussed in section 1), the current demand of the organisation for its real estate is first examined, along with an overview of the organisation and its values. Next, the current supply is discussed, providing insight into the real estate portfolio of the police in the Netherlands.

Current demand: the organisation and its values

Netherlands Police is organised nationally. This has been the case since January 1, 2013, when the 26 police forces were merged into one national police. The main structure of the police operates on three closely cooperating levels: national, regional, and local. The corps leadership, supported by the Corps Command Staff, oversees operations at the national level. This includes the National Unit, which is responsible for cross-regional and specialised police tasks, and the Police Services Center, which consolidates all business operations components. The Police Academy is the educational institution that trains individuals to acquire executive police powers. Starting January 1, 2020, the National Control Room Collaboration, an independent entity within the police force, oversees the management of control rooms for all emergency services. The remaining ten units function at the regional level, with districts operating locally. These districts comprise basic teams, the district criminal investigation department, and a flex team [12].

The Netherlands police have 62,329 police employees: 50,939 operational police (blue) and 11,390 non-operational employees (grey) who support police work [13]. The grey police amounts to 15% of the total employees. Figure 10 shows the organisational structure of the Netherlands police.



DAS framework

Sub-question 1: In which locations are police organisations currently accommodated?

The core values of the police are evident in their working motto, “Vigilant and subservient” : courageous, reliable, connected, and honest [12]. The mission, vision, and identity characteristics are as follows [12]:

- To inspire confidence through the way in which it achieves results.
- To act alert and decisive in every situation.
- To provide committed and decisive assistance, de-escalating and using force where necessary.
- To work intensively with citizens and partners based on involvement, information sharing, and reciprocity.
- To learn, innovate, and trust its professionals.
- To be one force: from neighbourhood to world. Locally anchored and (inter) nationally connected.

The police are focused on providing assistance, ensuring safety, administering justice, and enhancing social peace in the living environment of citizens, from young to old. The police do this in a dynamic world characterized by unpredictable external developments [14].

Current supply: the real estate portfolio

At the end of 2023, the police managed 813 buildings with a total gross floor area of around 1.9 million m2. The police organisation’s real estate portfolio is the largest public real estate portfolio in the Netherlands [15]. Most of the buildings are owned by the police [16], [17]. The police real estate portfolio is diverse and ranges from police stations, police posts, and offices to training complexes, educational locations, cell complexes, horse stables, and more. The portfolio constantly changes due to new construction, acquisition, renovation, and disposal of buildings. For example, in 2023, the obsolete police station in Velp (Gelderland) was demolished and replaced by a completely new and sustainable station.

Besides public-access police stations, there are various types of police posts. Larger police posts are strategically located in areas where extra support is needed or in hotspots with higher crime rates. Smaller police posts are designed to facilitate local contact and are typically used by local police officers. These posts are often situated in or near municipal buildings, such as town halls or libraries. The Netherlands police also have offices for specialised departments, including criminal investigation, ICT, FM, and HRM. Additionally, the police can set up temporary, flexible locations, such as pop-up stations in schools or at events, to maintain a presence as needed [18].

In general, police locations have been shifting to the edges of cities due to several reasons; for instance, because of having more space for parking. However, the Interviewees find this a nonstrategic way of location choice, “The police are shifting very much to the edges of cities, while you have to ask yourself, do we always want to be on those edges of cities or do we want to be part of the city [increased visibility of the police in cities]? So you often see those considerations that must be made in discussion and conversation” (NL#2)¹.

The grey police are currently located, in most cases, in the historic city centres (e.g., in Rotterdam, Utrecht, Amsterdam, etc.), as stated by the interviewee (NL#2). Figure 11 shows the overview of the police accommodation portfolio per unit.

¹ In this report, the abbreviation of each country has been to refer to the interviewees. For example, “NL#2” means the second interviewee in the Netherlands.

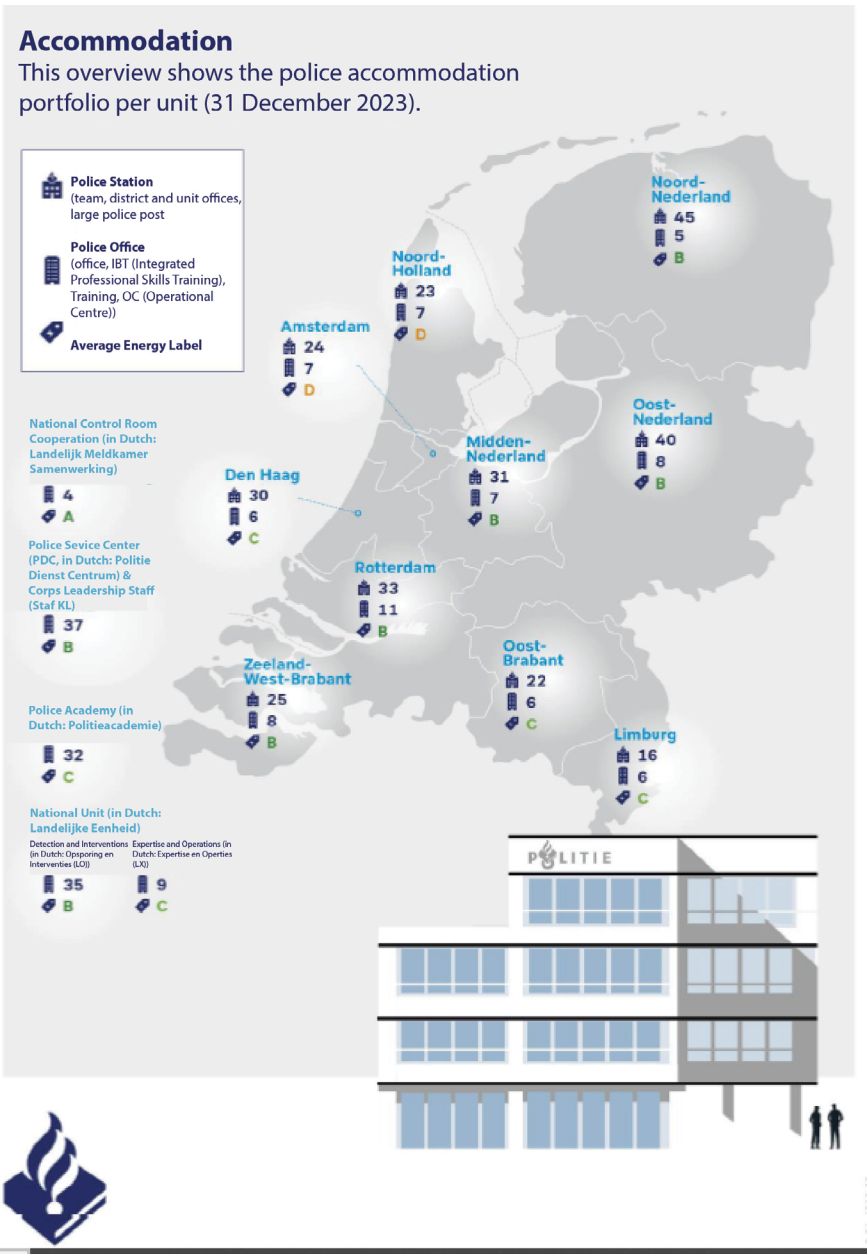
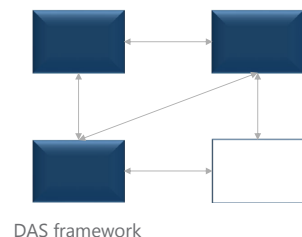


Figure 11. Overview of the police accommodation portfolio (translated and adapted from [17]).

Over the years, the grey police have been accommodated in a fragmented way in the Netherlands as a result of their 2013 accommodation policy, which did not include a systematic vision on location choice (NL#1, [15]). In some cases, there are some employees that need an office building to do their work (this can be both blue and grey employees), and there are employees that need other types of real estate buildings (e.g., police stations, training locations, cell complexes, etc.) (NL#1). Sometimes, employees with these different types of real estate needs are put together in one building that has to accommodate all these different real estate types. This mix of employees with different types of real estate needs in a building can cause difficulties if the employees



DAS framework

Sub-questions 2 and 3: To what extent are police organisations confronted with external and internal developments and how do these influence the work of the police that (may) have consequences for the location choices?

need to be close to the highways for their action-oriented activities and also difficulties from a real estate point of view (future proof flexibility, real estate cost, etc.) (NL#1 and NL#2).

3.1.2. Exploring changing demand

External and internal developments influence the future demand of the organisation.

External developments

Political aspects resulting in a diverse range of changes

Globalisation, migration, growing inequality, and declining security fuel fragmentation in the Netherlands [14]. These define new roles for the police in this country. House shortage leads to high debts, frustration, and protests. Prices rise faster than wages. Inflation rises, and purchasing power decreases [14]. The police need to be prepared to deal with these challenges (NL#2).

COVID-19 pandemic

The COVID-19 pandemic has had an impact on society and, therefore, on the police. Currently, partly due to the COVID-19 crisis and the nitrogen policy, a division has arisen in society, and polarization is increasing. Citizens face each other on various fronts, both in public spaces and digitally [14]. COVID-19 accelerated work-from-home options in general in the Netherlands and especially at the police, where it was not that common practice yet.

New areas of crime

Security issues have become more technological, international, and complex in nature. Fluid networks and new forms of criminal organisation lead to instant crime ([14]; NL#2). This highlights the need for new departments or changes in the organisational structure of the Netherlands police, which might impact the location choice.

Digitalisation

Digitalisation changes the nature of police work [14]. Due to all these developments, the accommodation needs of the police are also changing [14].

Difficulty with requesting adjustments to the regional plans

The location choices for the National Police of the Netherlands are complicated by strict regional planning regulations. These regulations dictate land use and zoning, often limiting available sites for police facilities. Adjusting regional plans requires extensive coordination with local and provincial authorities, which can be a lengthy process. This complexity can hinder the police's ability to secure optimal locations for their infrastructure, as they must navigate various sustainability, security, and accessibility criteria mandated by the government (NL#3)¹.

Internal developments

New ways of working

The police organisation is becoming increasingly complex, and the internal need for more cooperation between different teams, also blue and grey, is visible. This causes certain shifts in location choice that are taking place to help teams work better together (NL#1). The needs of the police organisation triggered them to consider larger locations, which mostly can only be found outside of the city, but as highlighted by the interviewee, "If we move to the outside of the city, then there comes the identity issue of who are we as the police and where do we want to be? [...] Is this a smart move?". The collaborations do not need to occur at the office or in-person meetings, as stated by the interviewee. Moreover, there is the possibility for hybrid working, "it is not needed to be always at the

¹ It should be noted that NL#3 was not an interviewee but a reviewer of the initial draft of the report in the Netherlands.

office”, as stated by the interviewee (NL#2).

Environmental-sustainability aspects

Environmental sustainability is critical in the location choices within the police (NL#2). The Netherlands government has set goals to achieve CO2 neutrality [19]. The police organisation also internally has set targets to achieve this. For the accommodation, (inter)national goals and policy agreements are met, with the footprint in raw materials and CO2 being greatly reduced. “For new locations we prefer buildings that are (also) easily accessible by public transport. However, this is not applicable for all the new locations. There are locations where car accessibility is better suitable to meet the work processes of the teams that are accommodated in that building”, according to the real estate advisor (NL#2). However, there are financial limitations in conducting all the required actions to achieve CO2 neutrality (NL#1).

In addition to sustainability aspects at building level, the police organisation focuses on mobility aspects as well (NL#2). The Netherlands police aim for a 60% reduction in transport-related CO2 emissions in 2030 compared to 2018. This applies to both emissions from transport for police operational activities and emissions from residential work and business trips.

The retirement of the police employees and difficulties in recruiting new employees

The location choice can be influenced by the internal development within the police, which is the retirement of the police employees. This will change the workforce in the coming years [14]. Therefore, the police need to recruit new staff (NL#2). The interviewee doubted whether the goal to reduce transport-related CO2 emissions in 2030 would be viable because, according to the interviewee, “The culture within the police organisation is already car-oriented, and the labour market is not easy. People do not work for the police if they cannot get there by car”.

Organisational structure change

The changes in the organisational structure of the national unit influence the choice of location. Here, it is difficult to differentiate between the grey and blue police because the changes specifically affect the special police, which often operate outside of an office environment. “Centralisation” occurs at the national level teams and sometimes within the regional teams. To elaborate on this, before, each unit had its special police, and now, due to the centralisation, it is under debate. There has been a change process within the police since 2013 from a decentralised form of the police to a centralised form [20]. The interviewee also highlighted this: “The police used to be a unified organisation, but it lost this unity over time. Now, it is somehow regaining it. This is our wish as well”, as stated by one of the interviewees (NL#1).

Cultural change within the organisation

While the current culture within the police organisation is to use cars to commute to work, a cultural change is already underway. This change is influencing location choices. According to an interviewee, “If you ask a police employee, ‘What do you not like about this location?’ in most cases, you hear about the parking issues”; however, a change is in process, according to the interviewee (NL#1).

Financial constraints

The influence of financial constraints on location choice within Netherlands Police mainly includes the increasing price of real estate, specifically the ones within the city centres as well as land cost. Thus, the available budget might limit the capacity of the police to have new locations within the central areas of cities (NL#2).

Identity and image of the organisation

While some internal developments push the police organisation out of the cities, the identity, and image of the police push in toward the inside of the cities. Identity is also in line with the organisation’s values, which focus on highlighting the role of the police within societies (NL#2).

Regarding the developments influencing the location choice, it should be mentioned that some developments are both internal and external (e.g., environmental sustainability).

Figure 12 illustrates the internal and external developments that have influenced the location choice of the Netherlands police.

As visible in Figure 12, the interviewees and documents highlighted two internal developments that were more emphasised than the others: “environmental sustainability”, “new ways of working”, “identity and image of the organisation”, and “financial constraints” (coloured in blue in Figure 12). A notable point that should be emphasised is that environmental sustainability is not an independent development, but it has a nexus with cultural change and the issue of recruitment of new colleagues; many current employees are becoming retired, and the police should hire new employees; however, it is not easy to hire new employees as most people prefer to come to work by their cars. Thus, it might hinder the application of sustainability aspects within the police. Moreover, analysing the data from the desk research and interviews led to the understanding that there is a nexus between the “new way of working” with “political

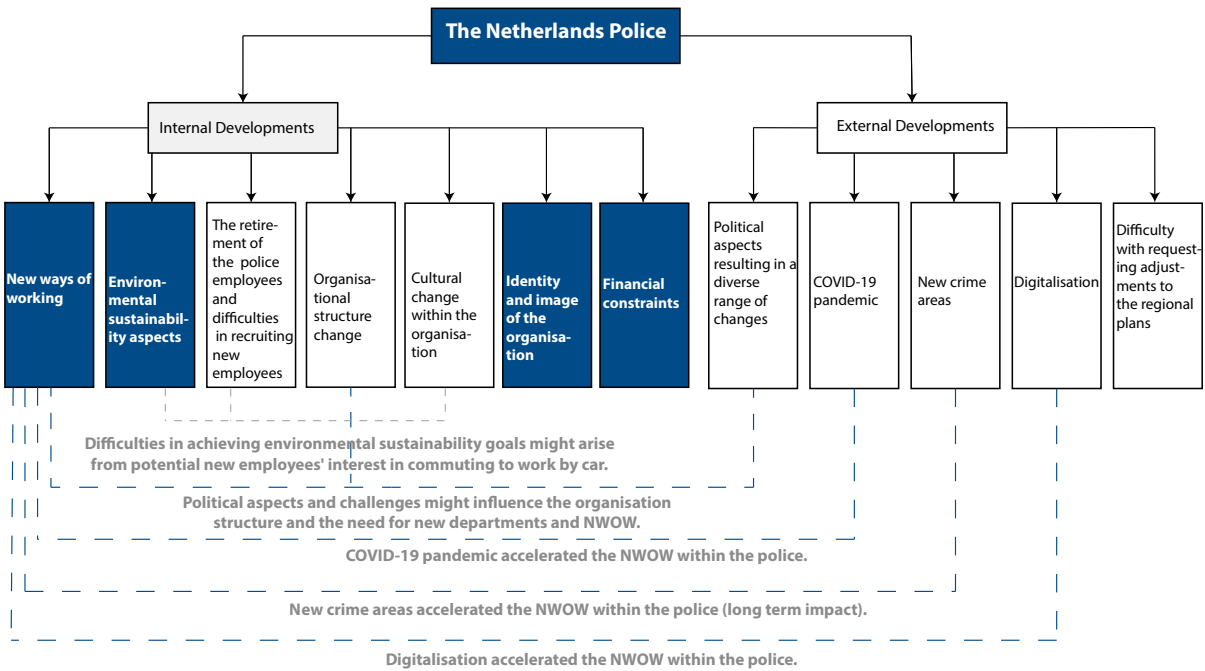


Figure 12. The internal and external developments within the Netherlands police and their nexus with each other; the grey dashed lines show the internal nexus between the different developments, and the blue dashed lines show the nexus between internal and external developments.

aspects” (e.g., migration), “COVID-19 pandemic”, “new crime areas”, and “digitalisation”. All these external changes impact the necessity of different organisational structure in the Netherlands police and this might affect the location choice. Even if not immediately, impacting location choice is a process that can take around ten years, as stated by one of the policymakers of the Netherlands police.

3.1.3. Generating future strategies (models)

The Netherlands police is focused on the centralisation and concentration of real estate. The principle leading this centralisation is a functional analysis of teams and their need to work together (Personal communication with Real Estate Advisor 1, Netherlands Police). The Netherlands police organisation works on distinguishing between action-oriented and non-action-oriented functions. In the target portfolio document, three types of offices have been mentioned [15]: “general office”, “action office”, and “specific office”. The general office could be located near public transportation, the action office needs fast access and parking spaces, and the location of the specific offices depends on the tasks of the team that is to be accommodated (NL#2; [15]).

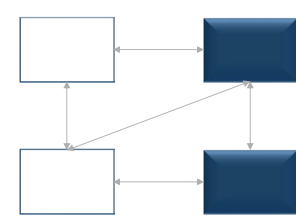
The Accommodation Sector and FM (Facility Management) directorate are working on a future-proof, sustainable, feasible, and affordable accommodation portfolio that optimally supports the development of the police force. An important part of this is a clear and future-proof accommodation vision and the consequent implementation. A proper balance between long-term ambition and short-term feasibility is a crucial focus [14], [15].

In recent years, the police building portfolio has undergone major developments based on the principles of the Strategic Accommodation Plan 2013-2025 (SHP). The SHP has been developed as a task-setting framework for the realization of an appropriate accommodation portfolio to support the operations of the police. The ambition of the corps in terms of accommodation was to achieve a compact portfolio that contributes to several goals [14], [15]:

- An efficient and effective execution of the operational processes of the police organisation.
- Planned police savings resulting from the new organisational setup.
- Alignment of accommodation strategy and location choice with the new service delivery concept.
- Administrative cooperation with the authorities and chain partners.

While the SHP’s goals are not new, the approach to achieving them is new. In order to be able to make annual adjustments, the long-term resources and the need to be agile have been recalibrated [15]. Next to the real estate vision, the police organisation has formulated a document, “target portfolio and a real estate strategy”. While this document does not include all the buildings, in general, it focuses on making the accommodation future-proof from three angles to create (public) real estate value [15]:

- From the user’s perspective: being able to respond to future organisational developments so that the accommodation remains functional and, therefore, contributes to the organisation’s operational deployment.
- From the owner’s perspective: ensuring that the building stock can remain in use in the longer term beyond the police’s own usage horizon at acceptable risks, costs, and returns. The future value of the organisation’s buildings is partly determined by the possibilities for using the buildings, which are owned by third parties.
- From the society’s perspective: focusing on (public) value preservation, such as



DAS framework

Sub-question 4: What future accommodation plans do police organisations have, especially regarding the location choices?

spatial quality and sustainability, with care for the environment and wise expenditure of taxpayers’ money.

Future scenarios

While the future model for police real estate is concentration and centralisation of the real estate, they formulated four different scenarios for the police accommodation influenced by the socioeconomic conditions of the country [14]. The most comparable one to the current situation is the trend scenario.

Trend Scenario

In the trend scenario, the national police will grow to approximately 76,200 full-time equivalents (FTEs). Its financial resources will be comparable to now. There will be more emphasis on people and less on facilities/equipment. The labour market remains tight, but the Netherlands police are able to attract the right specialists. Under these favourable conditions, the police organisation will remain broadly oriented regarding incident handling, enforcement, and investigation and strongly anchored locally. Intelligent Technologies (IT) will play a major role in improving, simplifying, and making police work more effective within the basic team.

The police collaborate on the theme of safety with (private) partners and citizens as well as with various healthcare partners. Investigation generally will move from decentralised to centralised towards more control, management, and uniformity. Some of the activities will be organized supra-regionally instead of per unit due to the changing environment and technology. The police will become a national network organisation. This scenario will have the following impact on their accommodation and location choices [15]:

- Shrinkage in the office segment due to concentration and optimisation in use.
- Local anchoring of basic teams.
- Specials optimised for use across unit boundaries.
- Accommodation deployed at shared transport hubs.

Other scenarios include “Scenario B- Cross-unit investigative police,” “Scenario C- Compact enforcement-oriented local police,” and “Scenario D- Compact specialised national police.” While these scenarios share the goal of centralisation and concentration, they differ in several ways. For example, as mentioned above, the trend scenario may lead to a reduction in office space, optimising the specials section for use across units, and accommodation to be deployed at shared transport hubs. The influence of Scenario B on location choice is similar to the trend scenario, except that basic teams will be smaller, and team offices will act as police hubs. Scenario C will have similar effects on location choice but will emphasise using accommodations of chain partners. The possible effects of Scenario D on location choice include police working from large campus locations. Moreover, team offices and police posts will disappear, and there will be no head offices, with only five office locations remaining in the country. However, in this scenario, the police will retain several office functions at the regional and national levels. Similar to previous scenarios, the special sections will be organised nationally across the units and will emphasise using the buildings of chain partners.

Summary of the real estate of Netherlands Police

The main conclusions are depicted in the DAS Frame in Figure 13.

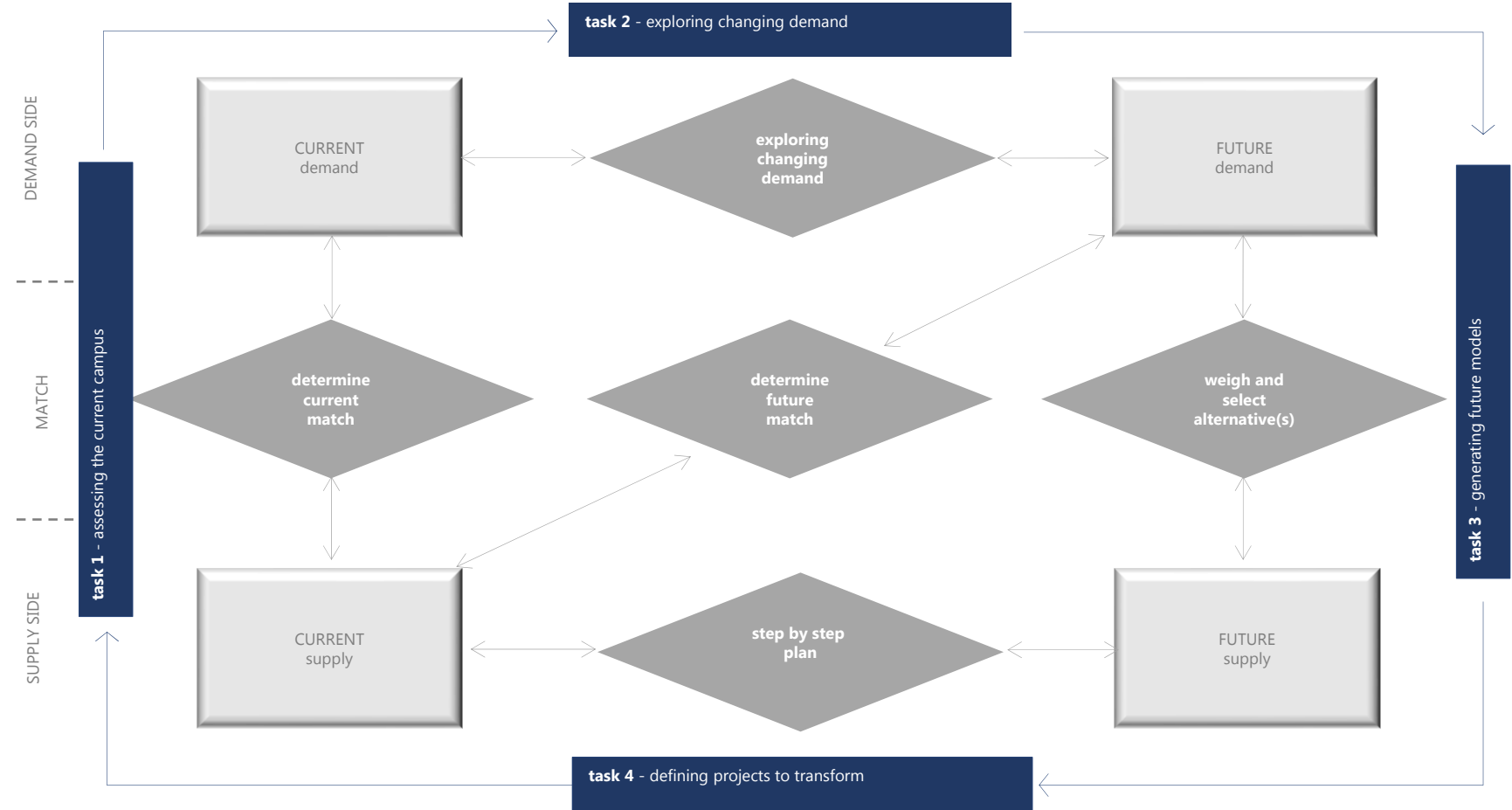
Number of employees:
 62329 employees (50939 operational police and 11390 non-operational police).

- Values:**
- To inspire confidence through the way in which it achieves results.
 - To act alert and decisive in every situation.
 - To provide committed and decisive assistance, to de-escalate and use force where necessary.
 - To work intensively with citizens and partners based on involvement, information sharing and reciprocity.
 - To learn, innovate, and trust its professionals.
 - To be one force: from neighbourhood to world. Locally anchored and (inter)nationally connected.

Information about the portfolio:

- 813 buildings with a total gross floor area of around 1.9 million m2.

- External developments:**
- COVID-19 pandemic.
 - Governmental request for more rationalization.
 - Difficulty with requesting adjustments to the regional plans.
- Internal developments:**
- Financial constraints.
 - Operational challenges.
 - Accessibility for the current and future employees.



Future models/Scenarios:
 Four scenarios based on the socioeconomic conditions of the country:

- Scenario A: Trend scenario.
- Scenario B: Cross-unit investigative police.
- Scenario C: Compact enforcement-oriented local police.
- Scenario D: Compact specialised national police.

Concentration and centralisation is a common plan (at the national or unit level) based on functional analysis (what the employees do and where they need to be located).

Figure 13. Summary of the real estate of Netherlands Police following the DAS framework (Den Heijer [3], based on De Jonge et al. [4], Arkesteijn [21]). This information is based on interviews and desk research.

3.2 The Federal Police of Belgium

Firstly, an insight into the current situation is provided, addressing sub-question 1. Secondly, the changing demand is explored by determining which developments influence the location choices of the police in Belgium. These developments can be internal or external and address sub-questions 2 and 3. Lastly, the future plans of the police in Belgium are described, answering sub-question 4.

3.2.1 Assessing the current situation

Following the DAS framework (as discussed in section 1), the current demand of the organisation for its real estate is first examined, along with an overview of the organisation and its values. After that, the current supply is discussed, providing insight into the portfolio of the police in Belgium.

Current demand: the organisation and its values

Each of the police corps in Belgium comprises an operational cadre of policemen and an administrative and logistical cadre of civilian personnel (CAllog) [22]. The Federal Police comprises 13,965 personnel, of whom 10,658 work as part of the operational cadre (Ops) and 3,307 as civilian personnel as of December 31, 2021 [22]. The civilian personnel are comparable to grey police staff, as confirmed by the interviewee (BE#1). Figure 14 illustrates the organogram of the Federal Police of Belgium [23]. Around 1200 employees work in Brussels as the logistic and administrative cadre (BE#1¹). It should be noted that most CAllogs work within the DGR department (orange part in Figure 14); however, there are also a few CAllogs in other departments. The Federal Police of Belgium emphasises the values: integrity, respect, open-mindedness, flexibility, a service-oriented attitude, and pride. They actively work to foster a workplace characterised by solidarity and unity in diversity, ensuring that employees feel respected and recognised for their professional commitment [24].

Current supply: the real estate portfolio

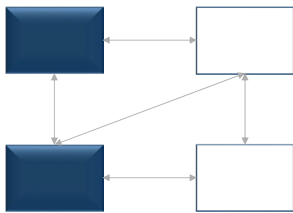
The Federal Police of Belgium owns over 140 buildings across the country, according to the data on their website, which is based on information from the 2018 annual report [25]. These buildings include logistics centres, local offices, vehicle workshops, and other facilities, as detailed by the interviewee. Service centres are present in nearly every province of Belgium (BE#1). Figure 15 illustrates the properties owned by the various bodies of the Federal Police of Belgium.

There are standard offices for the operational cadre (Ops) and distinct setups for Ops and CAllog (administrative or logistical staff). For example, the road police usually work on highways and in vehicles, resulting in a relatively small number of people in the office. In general, the Ops, civilian personnel, and CAllog are jointly accommodated in the same buildings. The differences between the buildings of the Belgian police are mainly in the interior design and furniture of offices. The function of operational staff members will determine the implementation of desks (BE#1):

- a) Operational with management function: standard office, one desk per operational member
- b) Operational team leader: one desk per three operational members
- c) Operational field personnel: from one desk per three to one for 20 in function of the field activities and the administration required for the function.

The same applies to CAllog staff, where there is generally one desk per 0.75 full-time

1* In this report, the abbreviation of each country has been to refer to the interviewees. For example, "BE#1" means the first interviewee in Belgium (Federal Police).



DAS framework

Sub-question 1: In which locations are police organisations currently accommodated?

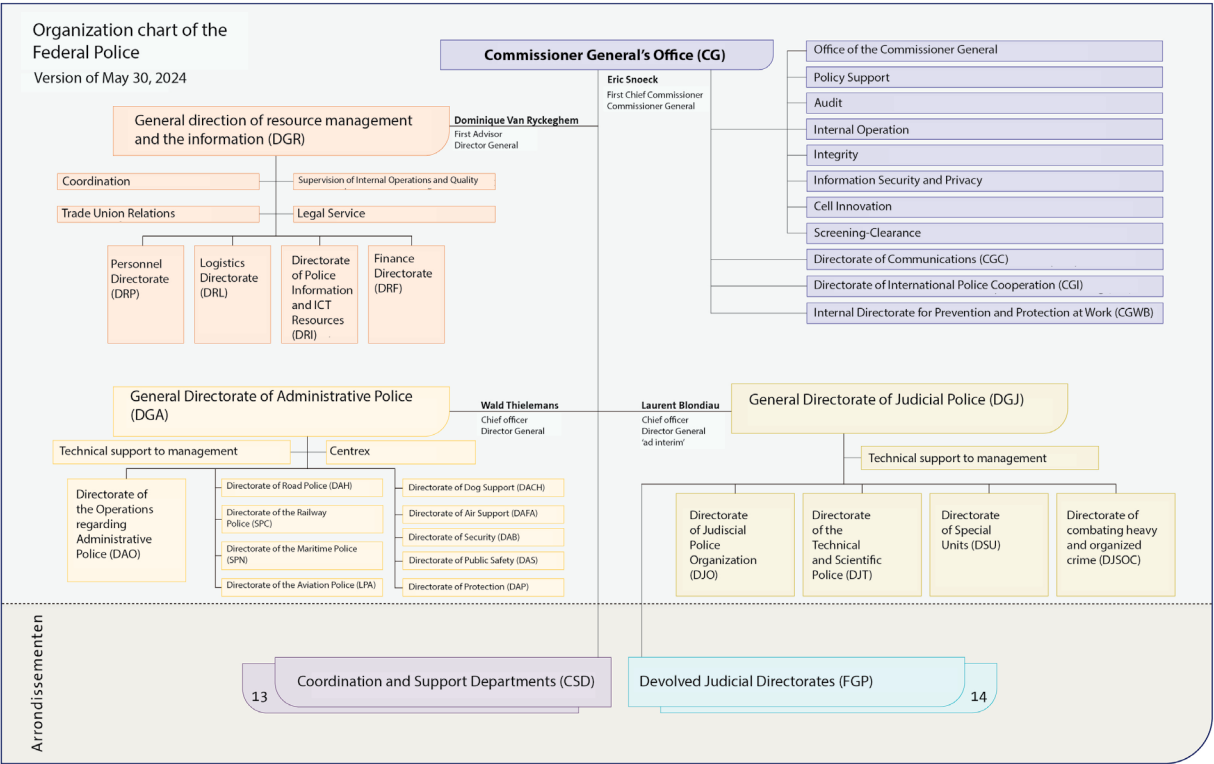
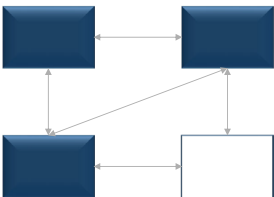


Figure 14. Organogram of the Federal Police of Belgium. Translated and adapted from [23].



DAS framework

Sub-questions 2 and 3: To what extent are police organisations confronted with external and internal developments and how do these influence the work of the police that (may) have consequences for the location choices?

equivalent (FTE). This means there are approximately 58 to 68 desks for every 100 employees, a practice referred to as a "hybrid working." This approach is based on a qualitative analysis of the activities performed by the employees. Some employees are required to be in the office and cannot work remotely, making the analysis of their roles essential, which aligns with the NWOW-ABW principle (New Way of Working, activity-based working). As such, the norms function as starting point and the analysis of roles and activities form the basis of a particular project so that it fits the circumstances. Regarding the age of the building, the interviewee noted that "5% of our buildings were built after 2000 [...]. We also have buildings which go back to 1830" (BE#1).

3.2.2 Exploring changing demand

In this section, the external and internal developments influencing the location choice have been explained.

External developments

The external developments include the COVID-19 pandemic, governmental requests for more rationalization, efficiency, and centralisation, and difficulty with requesting adjustments to the regional plans.

COVID-19 pandemic

The COVID-19 pandemic significantly impacted the location choices of the Federal Police. To continue operations while adhering to social distancing, they implemented new



Figure 15. Properties owned by the various bodies of the Federal Police of Belgium. Translated and adapted from the Federal Police report [25]

procedures and invested in ICT, including teleworking equipment and licenses, laptops for remote access, headsets, video-conferencing tools, and multi-factor authentication [26]. In April 2020, the Federal and Local Police introduced the “temporary digital counter” for citizens to report and lodge complaints online, reducing physical contact [27].

Governmental request for more rationalisation

“The federal government is demanding more and more rationalization,” according to the interviewee. As a result, the police are increasingly centralising activities within provinces. In the master plan (see section 3.2.3, future plans), the police have been working to reduce the number of locations from 145 in 2012 to 101 by 2035. The federal government might set further goals for rationalization between 2035 and 2060 (BE#1). This objective is a significant reduction in the number of buildings, but concerns about its impact on recruitment and operational efficiency persist. Proposed New Ways of Working (NWOW) norms have been proposed by the logistics board but without Ops involvement, and consensus has yet to be reached (BE#1).

Difficulty with requesting adjustments to the regional plans

For location choice, sometimes it is needed to have the approval of related authorities, “We have to request adjustments to the regional plans for this area at the regional, provincial, or municipal levels,” according to the interviewee. This requirement might impact the location choice (BE#1).

Internal developments

The internal developments include the financial constraints, operational challenges, and

accessibility for the current and future employees.

Financial constraints

The organisation faces significant underfunding, outdated infrastructure, and rising costs due to indexation and crises. The master plan’s cost has risen to over one billion euros. Despite the federal government’s request for more rationalisation (external development), it is not providing adequate funding for the projects, creating a contradiction between goals and resources. “We are not the only institution in Belgium facing this issue. The justice system, with 600 buildings nationwide, also struggles with aging infrastructure, which should be renovated,” according to the interviewee (BE#1). Budget constraints and the fact that the organisation could only work with the capacity that is already allocated in the budget and the lack of approval for future capacity make strategic planning more difficult. This impacts infrastructure development and the ability to adapt to organisational changes (BE#1).

Operational challenges

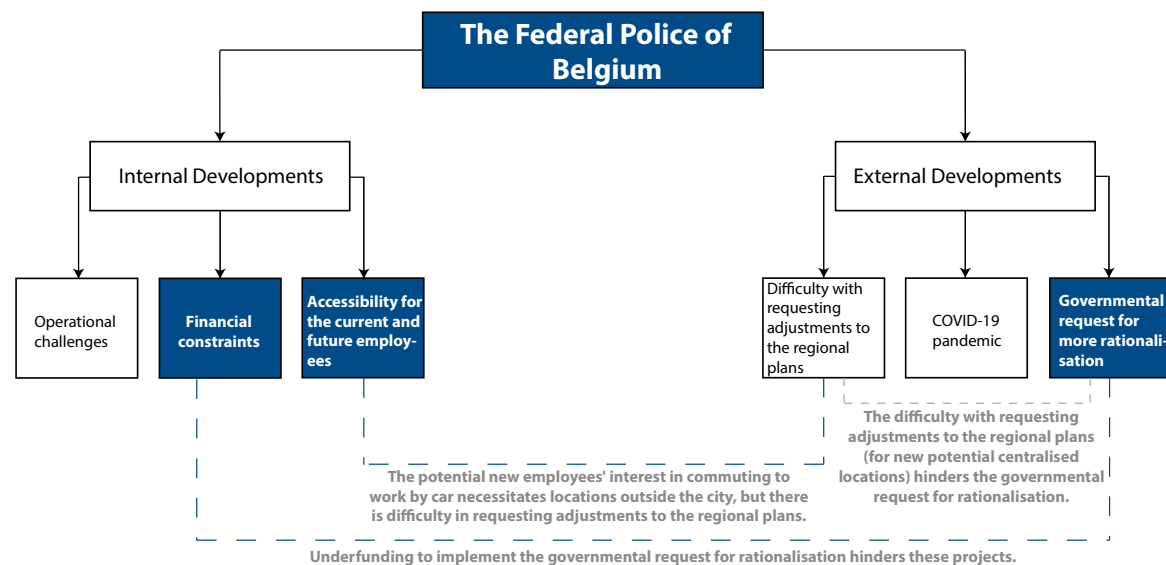
Changes in the police organisation, such as reforms and capacity transfers, complicate the implementation of infrastructure projects and might influence the location choice. “In 2008, a project was conceptualized for around 2300 people, with a gross floor area of more than 100,000 m². However, in 2013, reforms led to capacity transfer from central judicial directorates to regional or provincial judicial directorates, necessitating changes to the design of the building” (BE#1).

Accessibility for the current and future employees

Accessibility for current and future employees is a crucial consideration in the location choices. “If we are in an urban environment, proximity to the station ensures accessibility. It should be mentioned that some operational functions require the personnel to start their shift outside of the regular office hours (no trains or very limited connections), which means that parking on our sites is essential”, noted the interviewee. Parking challenges in city centres prompt a preference for locations with ample parking outside urban areas. Conversely, inefficient public transport outside cities in Belgium complicates accessibility and reduces interest in working for the police (BE#1).

Figure 16 illustrates the internal and external developments that have influenced the location choice of the police in Belgium.

From the interviews and desk research, it emerged that one external development, namely the “governmental request for more rationalisation and efficiency”, and two internal developments, specifically the “financial constraints” and “accessibility for the current and future employees” are particularly highlighted and potentially more influential on the location choice. While the government requests more rationalisation and efficiency, without sufficient budgets create financial constraints that hinder implementing this objective. Additionally, the “difficulty in requesting adjustments to regional plans” further complicates the situation.



3.2.3 Generating future strategies (models)

In response to the federal government's demand for rationalization, the federal police developed a master plan in 2017 to focus on operational parameters and proximity to sites, aiming for centralisation and synergy. This centralisation targets operational employees, such as those guarding prisoners, ensuring adequate monitoring without affecting on-site presence and reducing travel for activities like training. Since 2017, the police have been working to reduce the number of locations from 145 in 2012 to 101 by 2035. Further goals might be set by the federal government between 2035 and 2060 (BE#1).

The large majority of CALogs have already been centralised in Brussels in one location, and little centralisation is expected for them, as stated by the interviewee. Most of the tasks that many CALogs take over depend on DGR (see Figure 15), and those services are already mostly centralised, according to the interviewee. Thus, the current centralisation goals are mainly focused on the operational police (BE#1).

"We prefer to work on rationalisation of via the application of the NWOW principle, for which we have to switch from a classic environment (one workstation per employee) to a NWOW-based environment with 58-68 desks for 100 employees (depending on the management and the functions performed)", according to the interviewee (BE#1).

The Federal Council of Ministers initiated the promotion of satellite offices for federal and programmatic government services in 2016. This initiative designated office spaces within federal buildings for employees from various federal government services [28]. In 2017, the Federal Government of Belgium introduced satellite offices in 17 cities nationwide as part of a pilot project ("We-Change!" project [29]). The Buildings Agency collaborated with Belnet, the Federal Public Service Policy and Support (BOSA), and other participating organisations for this initiative. Initially, satellite offices were established in cities such as Aalst, Arlon, Ath, Antwerp, Berchem, Mons, Bruges, Charleroi, Hasselt, Kapellen, Kortrijk, Leuven, Liège, Mechelen, and Ostend. The success of the pilot project led to the expansion of this network to 27 satellite offices nationwide (see Figure 17).

Figure 16. Internal and external developments within the police of Belgium and their nexus with each other; the grey dashed lines show the internal nexus between the different developments, and the blue dashed lines show the nexus between internal and external developments.

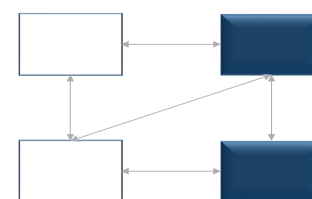


Figure 17. Map of satellite workplaces in 2019 as part of the Belgian Federal Police's mobile working initiative [26]

DAS framework

Sub-question 4: What future accommodation plans do police organisations have, especially regarding the location choices?

These satellite offices aim to improve work-life balance for police staff by providing collaborative workspaces for employees without suitable home office setups and by reducing commuting times. However, despite these efforts, in 2019, Federal Police employees logged only 149,553 hours of home or satellite work, representing only 0.64% of the total hours worked [28].

Regarding the satellite office, the interviewee mentioned, "It gives us the opportunity to increase accessibility [...]. However, a drawback is that we are still in the process of development and have not fully achieved our goal. We work with an internal network that is closed and has very limited internet connectivity. Therefore, teleworking can only serve as a partial solution. Our colleagues from the ICT department are working towards the implementation of new systems that should allow the possibility of remote or teleworking, even for operational personnel" (BE#1).

The organisation aims to achieve its infrastructure goals (e.g., centralisation of locations) by around 2035, but challenges arise from opposing developments like the underfunding and the lengthy timeframe required for real estate projects in combination with attracting future employees. Decision-making within the organisation is complex, involving multiple stakeholders and approval processes (BE#1).

Summary of the Real Estate of the Belgian Federal Police

The main conclusions are depicted in the DAS Frame in Figure 18.

Number of employees:
 13,965 employees (10658 employees as part of the operational cadre (Ops) and 3307 as civilian personnel (CAlLog)).

- Values:**
- Integrity.
 - Respect.
 - Open-minded.
 - Flexibility.
 - Service-oriented attitude.
 - Pride.

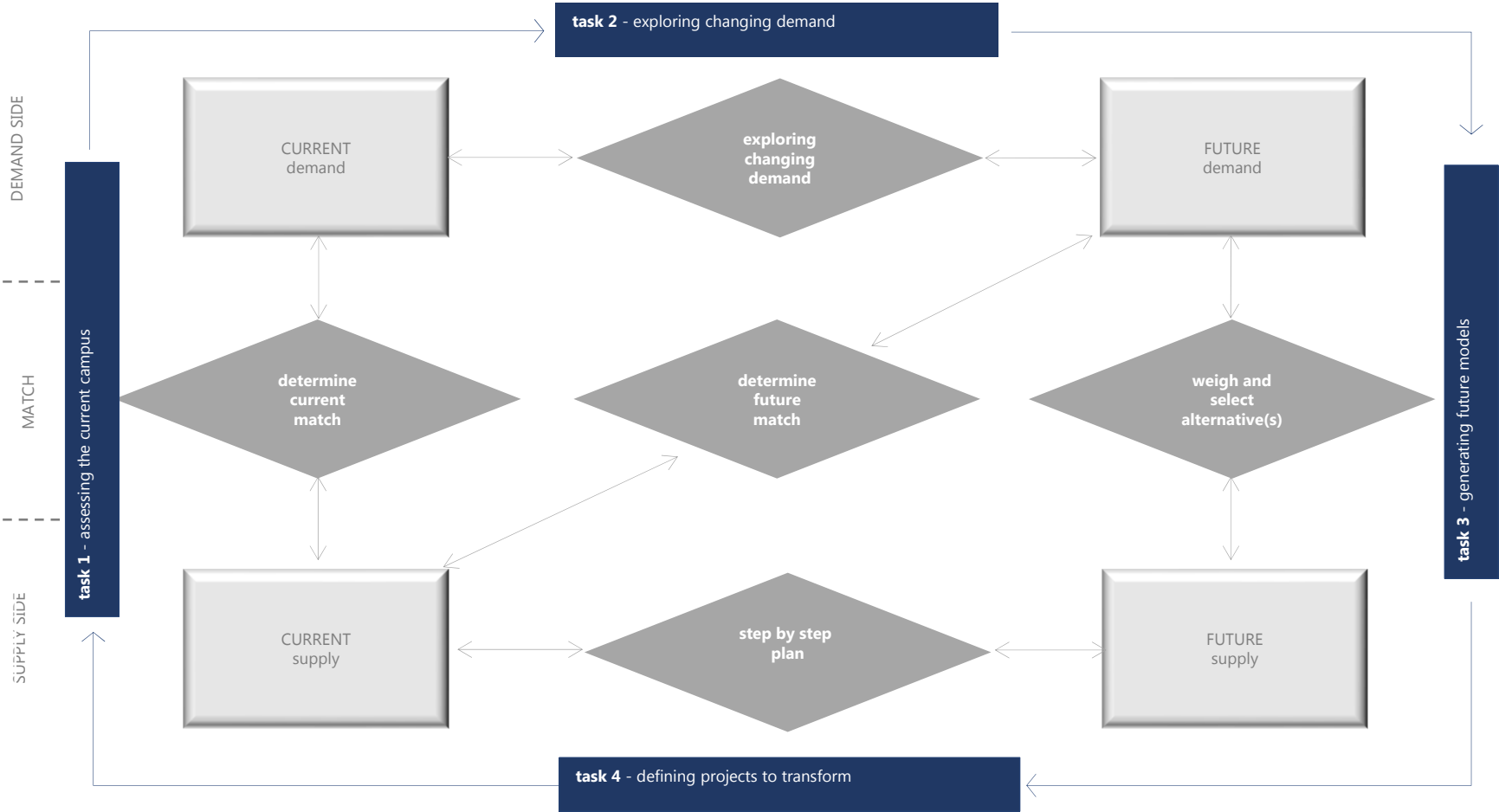
Information about the portfolio:

- Over 140 buildings across the country.

- External developments:**

 - COVID-19 pandemic.
 - Governmental request for more rationalisation.
 - Difficulty with requesting adjustments to the regional plans.
- Internal developments:**

 - Financial constraints.
 - Operational challenges.
 - Accessibility for the current and future employees.



Future models/Scenarios:

- Centralisation.
- 101 offices by around 2035.
- Satellite offices for teleworking.

Figure 18. Summary of the real estate of the police of Belgium following the DAS framework (Den Heijer [3], based on De Jonge et al. [4], Arkesteijn [21]). This information is based on interviews and desk research.

3.3. The Norwegian Police Services (NPS)

Firstly, an insight into the current situation is provided, addressing sub-question 1. Secondly, the changing demand is explored by determining which developments influence the location choices of the police in Norway (NPS). These developments can be internal or external and address sub-questions 2 and 3. Lastly, the future plans of the NPS are described, answering sub-question 4.

3.3.1. Assessing the current portfolio

Following the DAS framework (as discussed in section 1), the current demand of the organisation for its real estate is first examined, along with an overview of the organisation and its values. After that, the current supply is discussed, providing insight into the portfolio of the police in Norway.

Current demand: the organisation and its values

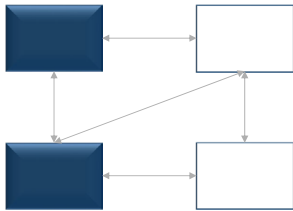
The Norwegian Police Services (NPS) is a national civilian police agency in Norway. The police services are organised into police districts and national agencies with specialist competence. Each district, headed by a police chief, encompasses both urban police stations and rural police stations. The police services operate under the Ministry of Justice and Public Security and has 18,323 employees, 10,858 police officers, 1,002 legal staff, and 6,463 civilian personnel, as mentioned in the annual report of 2023 [30].

In Norway, specialised tasks are handled by national agencies: the Police University College, the Norwegian Criminal Investigation Service (NCIS), the Police Immigration Service, the National Road Policing Service, the National Authority for Investigation and Prosecution of Economic and Environmental Crime, and the Norwegian Commissioner for Border Control [31], [32] (see Figure 19).

Norway is in a complex situation because of its geographic conditions (mountains), and there are around 350 municipalities within the country. Their borders with other non-EU countries make their mission more complicated. There are terrorist targets (e.g., the oil rigs) in the North Sea (NPS#1)¹.

The Ministry of Justice and Public Security aims to foster a modern and competent police service. Their values and goals as outlined in the annual report of 2023, are as follows [30]:

- The safety and security of society are safeguarded.
- The crime rate is low.
- The criminal proceedings are legal and efficient.
- Everyone staying in Norway has clarified their identity and legal residence.
- The police are available and have good service and provide efficient services throughout the country.



DAS framework
Sub-question 1: In which locations are police organisations currently accommodated?

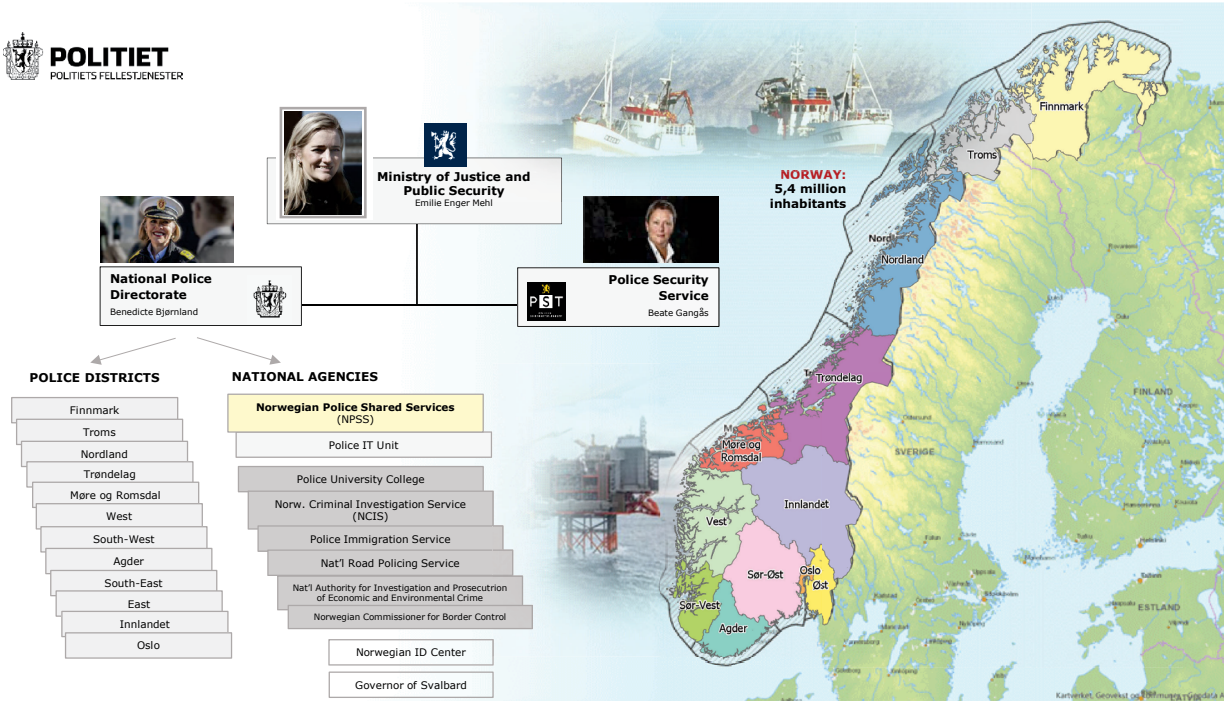


Figure 19. Organogram Norwegian Police Service [32].

Current supply: the real estate portfolio

The Norwegian Police Service (NPS) has established a national department dedicated to comprehensive property management, overseeing police facilities across Norway. With operations spanning the nation, this department procures and administers all police lease contracts, working diligently to align with government objectives on energy conservation and efficient property utilization.

Figure 20 shows the aims and strategies of the NPS regarding its real estate from 2022 to 2026.

As shown in Figure 20, the aims and strategies include “digitalisation”, “continuous improvement, evaluation and improvement of workplaces and work processes”, and “fulfillment of societal and environmental requirements within the operations”.

¹ In this report, the abbreviation of each country has been to refer to the interviewees. For example, “NPS#1” means the first interviewee in the Netherlands.

Aims and Strategies 2022 - 2026 - Real Estate

AIM			
Ensuring the needs of the Police in relations to Real Estate at the right quality and price, Supporting the Core Business through developing effective Real Estates services			
OBJECTIVE 1 - Further professionalisation of projects	OBJECTIVE 2 - Further development of the Police Workplace concepts	OBJECTIVE 3 - Maintain the digitalization needs of Real Estate. Existing ICT products are expiring, these must be replaced and new systems acquired	OBJECTIVE 4 - Streamline Real Estate and use the market actively where appropriate
Strategic measures: <ol style="list-style-type: none">1. Ensure sufficient business and personnel management2. Enforce incorporation of internal control in our processes and follow-up.3. Conduct training through our intranet site Kilden (The Source), network gatherings, our own online e-learning Eiendomsskole (Real Estate School) etc.4. Continuous improvements/evaluations.5. Enforce communication of the work with out assignments and projects.6. Ensure compliance with HSE regulations.	Strategic measures: <ol style="list-style-type: none">1. Prepare proposals for principle rules for what different types of police buildings shall contain and propose conceptual solutions for the different functions within these.2. Continue the work developing Police Specific Functions in our workplace concept (WPC).3. Audit and evaluate WPC in 2023.4. Implementing responsibilities for physical security in the WPC.5. Implementing new technology in buildings in relation to ICT deliveries made by PIT (Police IT unit).6. Ensure the fulfilment of societal and environmental requirements in our deliveries.	Strategic measures: <ol style="list-style-type: none">1. FM / MOM-system (Lydia) to be replaced in part or entirely by 2025.2. Plan and acquire other support systems such as CRM / project tools / project hotels / IOT etc.3. Establish a strong collaboration with PIT as our strategic advisor and partner.4. Enhance order processing skills within PFT Property Management	Strategic measures: <ol style="list-style-type: none">1. Continuous assessments of different concepts of operational deliveries.2. Test new competition models for the rental market3. Implementing the responsibility for physical security<ul style="list-style-type: none">• Establish operating organization• Establish processes, requirements and solutions• Implement information and training of stakeholders• Implement process liability.4. Develop quarterly meetings and participation together with strategic management in the Police Districts (PD) and National Agencies (Særorgan/SO).5. Develop our Customer Support and customer support services.

NPS shoulders national responsibilities concerning physical security, operating and administering the limited properties owned and leased by the NPS. Given Norway's vast geographic dispersion, NPS manages 350 police facilities nationwide (see Figure 21).

The NPS is present all across the nation, with major work hubs in Oslo, Hadeland, and Kristiansund, alongside seven FM regions. This extensive footprint necessitates strategic planning to ensure effective location spread and resource allocation. Collaborating with police districts and other national agencies, the NPS engages in meticulous planning to optimise efficiency and maintain suitable facilities. Acting as a reliable support system for local management, the NPS integrates market resources and services where most effective, delivering both strategic and operational real estate and facilities management services at central, regional, and local levels [32].

Most generic non-operational police buildings are leased, and most of them are old and have not been renovated for years, according to the interviewee, a facility manager at the Norway Police (NO#1). An article by Inderhaug & Trædal (2018) also confirms this, specifically for Oslo. The Oslo police district comprises approximately 142,000 square meters spread over 27 locations. The expiring leases have an area of 75,000 square meters. The Police Shared Services examined the conditions of the estates as part of a concept study conducted in 2017 (Trædal & Inderhaug, 2018). This research included interviews with all unit managers to gain their views on the current building stock as an objective assessment. The assessment focused on specific locations: Sandvika, Asker, Sentrum, Majorstua, and Grønland. The results concluded that most unit managers, except Grønland, are generally satisfied with how the building stock supports the operations. In addition, a professional assessment was carried out for these police stations: Asker, Sandvika, Majorstua, Sentrum, and Grønland. Professional assessments of the buildings showed that all locations bear challenges linked to changing future use, technical quality, and safety. The buildings were concluded as inflexible, old, and not

Figure 20. Aims and strategies of the police [32]

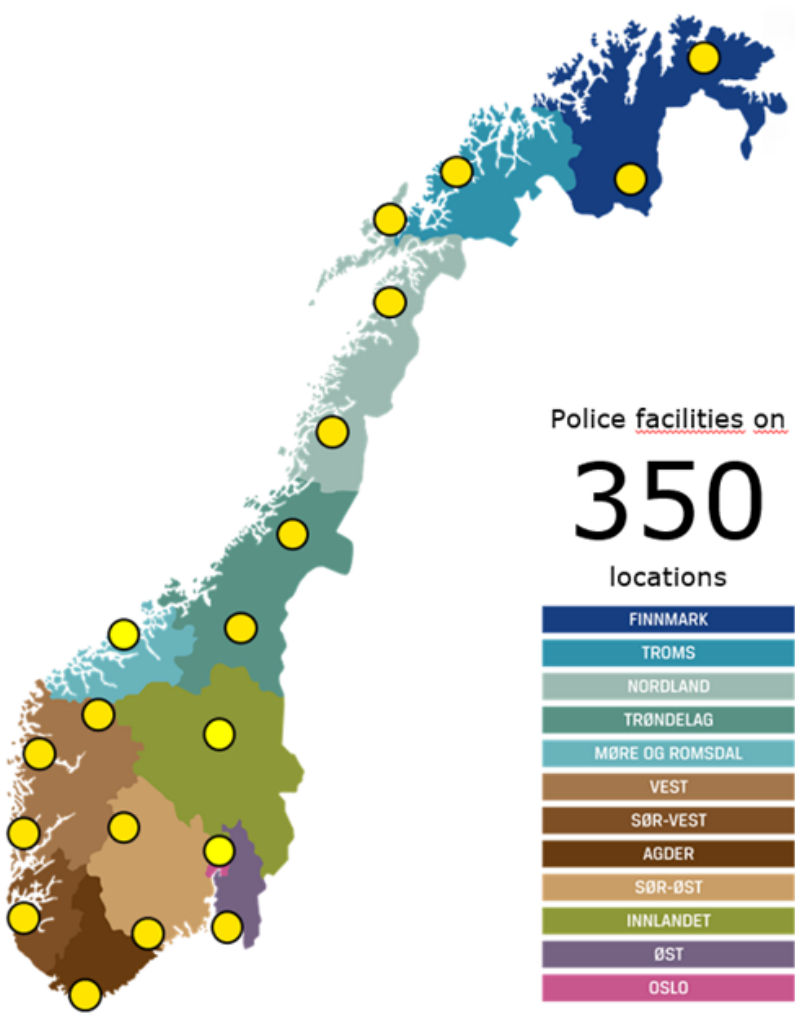


Figure 21. Geographic Distribution Police Services, the yellow dots show (roughly) the center of each district [32]

necessarily of a good standard based on the building regulations of today [33].

At a conference held on the 25th of January 2018, the deputy police chief Bjørn Vandvik held a presentation mentioning the total number of buildings under the ownership of the police in the capital of Oslo and how they could best be managed, "Many of the premises are not suitable for police operations. The building stock in the Oslo police district has an annual rent expense of NOK 200 million and has over 20 lease agreements [...]. Many of the premises are unsuitable for police operations. Therefore, we must have a master plan that lays down guidelines for what we will look for when the current leases expire [...]. [The calculation of the needs] was approximately 135,000 square meters [...]. This will result in a saving in the rental price of at least NOK 40 million annually" [33].

3.3.2. Exploring changing demand

The future demand of the organisation is influenced by external and internal developments.

External developments

The main external developments that influence the work of the police and, consequently, location choice are political aspects, COVID-19 pandemic, and digitalisation.

Political aspects

Politics plays a significant role in determining the distribution of police stations, as evidenced by the opening of 20 new stations. This decision is rightfully so driven by political choices. However, these police stations were not originally included in the strategic priorities of the police. “Over the past two years, 20 new police stations have been opened, despite limited operational need from the police perspective”, according to the interviewee. He noted that while many crimes today are internet-related, political decision-makers continue to prioritise the establishment of new physical police stations in municipalities with small populations (NPS#1).

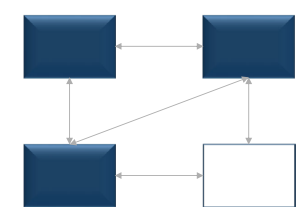
The influence of unions in decision-making processes within the Norwegian police is significant, often adding complexity to organisational changes. “Every proposed change requires engagement with the unions, which can lead to a recurring process that presents notable challenges”, according to the interviewee. This dynamic is particularly demanding in a large organisation, where each change necessitates collaboration with unions, resulting in additional procedural steps. The decision-making process involves evaluating various options, such as negotiating new lease agreements or working with relevant agencies. However, final authority often rests with these entities due to their budgetary oversight. This applies even to smaller projects, such as maintenance and energy efficiency initiatives, which require approval for each instance (NPS#1).

COVID-19

The 2020 annual police report identified that the Norwegian police department had a reduced expenditure of NOK 1 billion; out of the allocated NOK 20,6 billion that the agency was allocated per the state budget in the year 2020, 1 billion remained unused. The report justifies this lower rate of consumption based on implemented cost control methods, stringent measures, and fiscal constraints as posed by the government as well as the postponing of certain financial obligations to the year 2021. Delayed staffing and lower activity due to the pandemic undoubtedly also affected the lower consumption rate. However, the need for efficiency is also emphasised. It is pointed out that the COVID-19 pandemic has played a critical role in affecting the distribution of police resources. For instance, to optimise police resource deployment during the crisis, reinforcements and personnel were increasingly reallocated across police districts. These reinforcements “still remain temporarily deployed in the police districts, which are still in need of these resources this year [2021]” [34].

In an interview with the department director Roger Bjerke of the Norwegian Police Directorate (POD), he mentioned that “2020 was a special and demanding year with a heavy load for many of our crews. Paradoxically, regarding results, it was also a year in which we saw improvements in most of our business areas [...]. When we look at the composition of the reduced consumption, I believe there is no contradiction between the financial result in 2020 and the need for efficiency. The reduced consumption in 2020 is a “snapshot” that changes quickly. Taking advantage of opportunities to make one’s own operations more efficient is a necessary contribution to being able to meet tomorrow’s challenges in Norwegian police” [35].

The annual police report of 2021 states that operating costs linked to real estate



DAS framework

Sub-questions 2 and 3: To what extent are police organisations confronted with external and internal developments and how do these influence the work of the police that (may) have consequences for the location choices?

properties amount to NOK 4,572 million in 2021. NOK 1,722 million is related to expenses for property, building, and construction (EBA). Compared to 2020, there has been a net increase in EBA expenses corresponding to approximately NOK 100,000 [30]. It can be concluded that external developments, such as the nationwide lockdown, have significantly affected internal management systems and resource deployment. The 2020 annual police report does not outline the links between them, but it may be interesting to study further how overcoming large-scale interferences is potentially linked to promoting the effective utilization and management of existing real estate.

Digitalisation

Digitisation remains a priority to meet evolving real estate needs, necessitating replacing outdated systems and acquiring new technologies to facilitate effective internal and external collaborations. Streamlining real estate operations and actively engaging the market where appropriate are highlighted, focusing on evaluating operational concepts, testing new rental market models, enhancing physical security measures, and bolstering customer support services. The rising importance of digitization in the workplace is discussed in an interview with IT director of the police Catherine Janson, “In 2025, we will face crime effectively in the digital space (effectively manage cybercrime), and in the context of traditional crime. Citizens feel safe and have a high level of trust in the police’s work in this area. By streamlining work processes, we have increased the agency’s financial scope to drive development within its own budget framework. Digital services and joint solutions have contributed to freeing up resources” [36]. However, the interviewee believes that digitization costs huge money (NPS#1).

Internal developments

In the NPS, three internal developments influence the location choices: financial constraints, efficient accommodation (NWOW), and environmental-sustainability aspects.

Financial constraints

Meeting the challenges posed by inefficient and inadequate spaces, alongside rising rental prices and the imperative for cost reductions, remains a priority for the Real Estate and Facility Management for the Norwegian Police. When considering renegotiating lease agreements, even in locations that are not ideal, the prospect of relocating presents challenges, as mentioned by the interviewee (NO#1). Moving to a new location would likely triple the lease cost, posing a significant financial burden. There is a clear economic imperative to save costs and optimise space utilisation within police facilities in response to the “increasing lease prices” (NO#1). With expiring lease dates, the default choice often leans towards renewing leases due to financial considerations. Consequently, decisions to stay are significantly influenced by financial constraints. Efforts to mitigate these challenges include intensive work on workplace management aimed at reducing leased area – “We also are now working a lot with workplace management to reduce the area we have to lease”. The pressing nature of these challenges is further underscored by the observation of high real estate and facility management costs (NPS#1).

Efficient accommodation

The internal organisational structure and systematic principles greatly influence location choices within the Norwegian police force, particularly concerning the assessment of roles, responsibilities, interactions, and competence needs within Police Real Estate to best meet core business requirements. Measurements conducted across multiple operational police sites revealed occupancy rates significantly lower than the designed capacity, prompting negotiations with unions to optimise space utilization in new buildings. At one site, despite a workplace designed for 10 people, no more than five people are present simultaneously, representing a 50% occupancy rate. Negotiating this with unions was challenging, but a nationwide agreement allowed up to 80% occupancy,

translating to eight out of ten spaces typically being filled. A national agreement was achieved, allowing for increased occupancy rates in new buildings. However, constraints exist for implementing changes in older structures. Additionally, considering shared workplaces aims to enhance efficiency and optimise space utilization, particularly given budget constraints. According to the interviewee, in some tasks within the police, the staff must do a substantial amount of work with laptops and conduct investigations at the crime scene; thus, the area that the police can reduce is considerable. These developments are not fast but can be observed slowly. He highlighted that the new police are highly digitalized and can conduct all the tasks in the car. However, they still demand to have an office. The interviewee mentioned, “This is not logical [...]”. The police organisation has comprehensive plans to conduct, but the decision to follow and actualize them is complicated. There are different unions for the final decision and implementation, which always makes it hard to reach a consensus” (NPS#1).

Environmental-sustainability aspects

According to the interviewee, their organisation is working on achieving the government objectives regarding energy conservation and efficient use of police properties. Notably, many old buildings, as part of the Norwegian Real Estate Portfolio, face significant health and safety challenges due to neglect and inadequate maintenance. The interviewee mentioned that while many acknowledge the importance of addressing environmental issues, few are willing to invest in solutions. According to him, the need to implement environmental systems, such as ISO 14001, is emphasised within the police organisation to address these concerns. However, the reluctance to allocate resources remains a persistent obstacle despite the apparent consensus on the importance of environmental initiatives (NPS#1).

It should be mentioned that even though the internal and external developments on the location choice have been distinguished in the current document, they might still be linked (more specifically, environmental sustainability and digitalisation).

In Figure 22, the internal and external developments influencing the location choices of the Norway police are depicted.

Among the various developments highlighted in interviews and documents, two stand out prominently: “financial constraints” and “political aspects”. These two aspects are not isolated. In the case of Norway’s police organisation, financial limitations are closely linked to political decisions. This relationship between financial constraints and political aspects has further implications for other developments, such as environmental sustainability. The interconnectedness of these developments suggests that addressing one development, like financial constraints, requires consideration of the political aspects and vice versa.

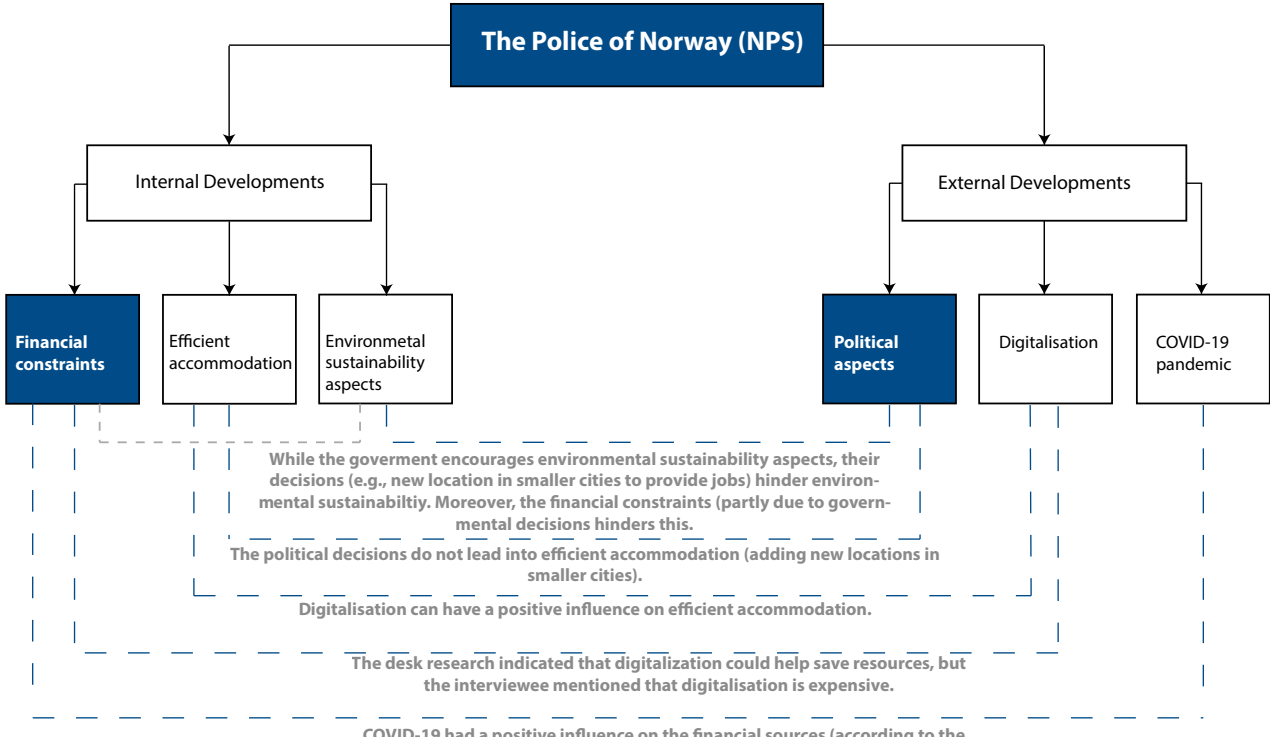
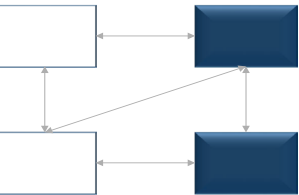


Figure 22. Internal and external developments within the police of Norway and their nexus with each other; the grey dashed lines show the internal nexus between the different developments, and the blue dashed lines show the nexus between internal and external developments.



DAS framework

Sub-question 4: What future accommodation plans do police organisations have, especially regarding the location choices?

3.3.3 Generating future strategies (models)

There are long- and short-term goals, and if the necessary budget is provided, the police organisation can achieve its goals further, according to the interviewee. There is a need to have systematic plans for the projects and to hire new employees with competitive and key competencies, as highlighted by the interviewee. Professional real estate and facilities management play a crucial role in supporting the strategic investment areas of the NPS towards 2030, particularly focusing on the National Master Plan. This necessitates a comprehensive approach to assessing real estate development, administration, and operation across various police divisions and functions (NPS#1) (Figure 23).

Environmental sustainability, energy efficiency, and maintenance are integral aspects that the Police uphold in all acquisitions, demonstrating social responsibility through considerations such as health, safety, universal design, and labor conditions.



Figure 23. Strategic investment areas towards 2030, the focus of the National Master Plan for Norwegian Police Real Estate

Oslo's masterplan

During the work on the concept investigation, led by project leader Lars Olav Nordstoga, four possible alternatives for a future property structure in the Oslo police district have been considered. During the concept study, the working group tried to free itself from the current 27 locations in order to avoid tying up too much in the existing structure and layout [33]. The first option was to retain the current structure. The others are as follows [33]:

- A decentralised solution

This comes with the necessity of increasing the accessibility of services for the public. In its ultimate consequence, a decentralized alternative means that the services of the Oslo police district have to be divided into far more locations than the current 27 locations. The alternative involves 11 meeting points for the public, including seven additional police stations.

- A centralised solution

In a centralised alternative, the strategy involves collecting as many units as possible into a single main building. The alternative, therefore, requires a flexible, central police building. The geographical operating units are also assumed to be co-located in their own place. However, the alternative could also involve gathering all three geographical operating units in one common building. The alternative also means that all meeting points for the public are gathered in the same building or that a public centre is established in a separate building.

- Function-adapted solution (i.e., the selected solution by the police)

This strategy involves co-locating units/functions to ensure collaboration and appropriate teamwork. For instance, the administrative functions of immigration administration and passport issuing are proposed to be co-located. In contrast, the functions belonging to each individual geographical operating unit are clustered in separate buildings. This option involves seven meeting places for the public. This solution is based on the needs of the individual functions. This strategy emphasises separating administrative functions and the head office with an operations centre and other functions with a special need for security. This strategy has not undergone any management processes and may also be limited by political guidelines.

Challenges arose in negotiations with police districts despite earnest efforts and transparency. Suggestions were made to reevaluate approaches, especially in response to feedback from the Oslo area police. While similar strategies had been implemented in smaller districts, progress has stalled since 2018 due to financial limitations. Moreover, discussions revolved around relocating national agencies to police districts as part of master plans, contemplating decentralisation and organisational restructuring pending political developments. Outsourcing facility management operations was being pursued to diversify skill sets and improve efficiency, with an emphasis on developing master plans, project plans, and robust systems for project and customer relationship management, areas currently lacking attention. The overarching aim was to optimise resources, not by reducing staff, but by adopting more cost-effective and quality-focused solutions, thereby enabling individuals with strategic competencies for the Norwegian police force. Organisational strategies were outlined to advance project professionalization, emphasising personnel management, internal control integration, training initiatives, continuous improvement, communication enhancement, and compliance with health, safety, and environmental regulations [33].

Summary of the NPS real estate

The main conclusions are depicted in the DAS Frame in Figure 24.

Number of employees:
18,323 employees (10,858 officers, 1,002 legal staff, and 6,463 civilian personnel).

Values:

- Safeguarding of community, safety, and security.
- Effective confronting with criminality.
- Criminal proceedings are efficient and legal.
- Clarification of the identity and legal stay of all the residents.
- Appropriate and efficient services.
- High-quality police services.
- Secure digital workplaces.

Information about the portfolio NPS

- 350 police facilities and seven FM regions.

NPS (Oslo):

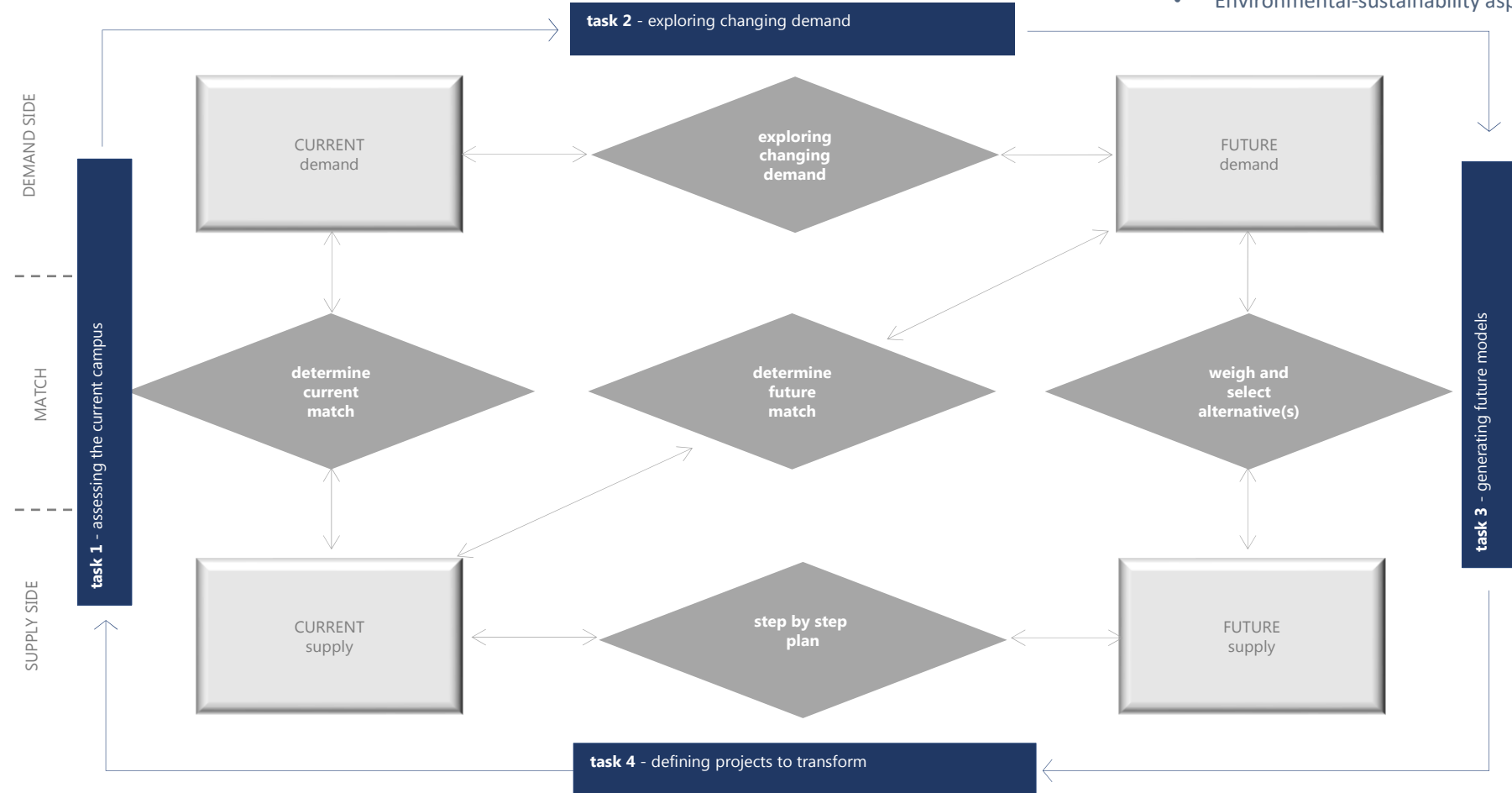
- 142,000 square meters over 27 locations.

External developments:

- Political aspects.
- Digitalisation.
- COVID-19.

Internal developments:

- Financial constraints.
- Operational challenges.
- New ways of working.
- Environmental-sustainability aspects.



Future models/Scenarios:

- Function-adapted solution (selected solution).
- Retain the current structure.
- A decentralised solution.
- A centralised solution.

Figure 24. Summary of the real estate of the NPS following the DAS framework (Den Heijer [3], based on De Jonge et al. [4], Arkesteijn [21]). This information is based on interviews and desk research.

3.4. Germany- The Federal Criminal Police Office (BKA)

Firstly, an insight into the current situation is provided, addressing sub-question 1. Secondly, the changing demand is explored by determining which developments influence the location choices of the BKA. These developments can be internal or external and address sub-questions 2 and 3. Lastly, the future plans of the BKA are described, answering sub-question 4.

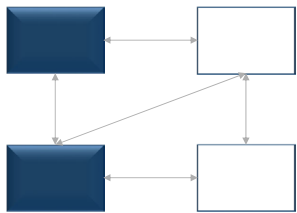
3.4.1. Assessing the current portfolio

Following the DAS framework (as discussed in section 1), the current demand of the organisation for its real estate is first examined, along with an overview of the organisation and its values. After that, the current supply is discussed, providing insight into the portfolio of the BKA.

Current demand: the organisation and its values

The Bundeskriminalamt (BKA) maintains internal security in a free, democratic Europe in cooperation with the German police forces of the federal states. The BKA provides services to citizens and the state as a matter of social responsibility, [37]. In the BKA, the blue and grey police staff are referred to as the operational and non-operational police, respectively (BKA#1)¹.

BKA has more than 8,000 employees, including experts in criminal science, natural and social sciences, law, economics, information technology, and administration, to effectively address the wide range of criminal phenomena. Around 47% of the employees are “administrative employees” and “other officers”, as stated on the BKA website. The organisational structure is being modified continuously, according to the BKA webpage. The current framework is presented in Figure 25 [38].



DAS framework
Sub-question 1: In which locations are police organisations currently accommodated?



The values of the BKA have been distilled out of a document that has been prepared as its vision for the future for the accommodation in Wiesbaden [39]:

- Being an open, transparent, and accessible authority for citizens, interested parties, its partners, and the neighbourhood in Wiesbaden (its traditional location).

¹ In this report, the abbreviation of each country has been to refer to the interviewees. For example, “BKA#1” means the first interviewee in Germany (BKA).

- Networking and cross-collaboration with national and international police organisations.
- Promoting exchange and communication via flexible, adaptable, and scalable spatial concepts.
- Providing modern and more flexible work as an attractive employer for everyone.
- Having social responsibility.
- Highlighting the identity and self-image of the BKA.

Current supply: real estate portfolio

BKA is presently situated in three cities across Germany: Berlin, Wiesbaden, and Meckenheim (near Bonn). Figure 26 illustrates the BKA buildings within Wiesbaden, Figure 27 depicts the BKA buildings in Berlin, and Figure 28 shows the BKA buildings in Meckenheim.

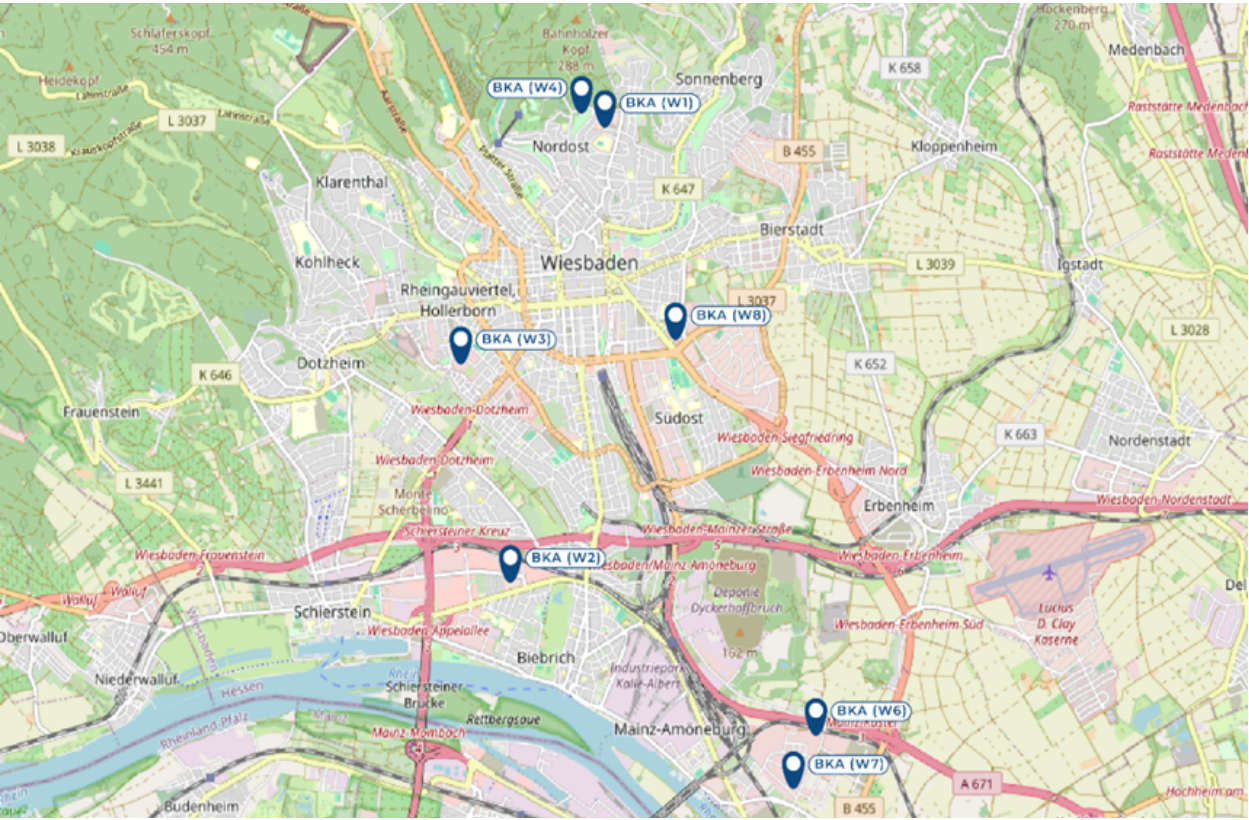


Figure 26. Distribution of BKA offices in Wiesbaden (adapted from “Travel Directions,” n.d.). It should be noted that at the time of the second interview with the interviewees (28-8-2024), some locations have been changed (W6 building has been discarded and W9 is added to the portfolio). However, the website of BKA has not been updated, thus unchanged in the current report.

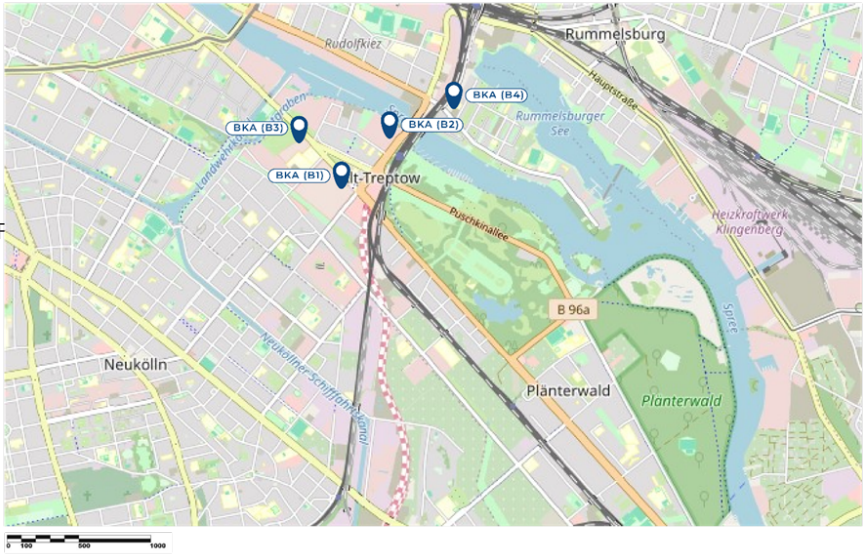


Figure 27. Distribution of BKA offices in Berlin. Offices are clustered within close proximity, allowing for convenient access and ensuring that all locations are within a 15-minute walking distance from one another (adapted from [40]).



Figure 28. BKA office in Meckenheim (near Bonn) [40].



Figure 29. BKA Office Building W1 in Wiesbaden (map and image) [40].

This research focuses on the real estate management strategy of the non-operational police stationed in Wiesbaden, the capital of Hessen.

The different types of BKA buildings can be divided into “office buildings” and “special areas”, as stated by the interviewees. The category special areas can include different functions, such as workshops, laboratories, etc. The BKA in Wiesbaden has seven locations. The management of the governmental real estate, including the BKA buildings, is handled by BImA (BKA#1). The main problem in Wiesbaden is the inconvenient logistics between the buildings , according to the interviewee. He mentioned, “We are not in one area of the city; we have groups in different locations” (BKA#2).

3.4.2. Exploring changing demand
External developments

This research led to the recognition of three external developments: new crime areas, COVID-19, and political aspects.

New crime areas

New departments are being created to take care of the new crime areas due to the existence of new crime areas (BKA#1) and subsequently need to be accommodated in one of the cities. Being able to accommodate these changes asks flexibility of the accommodation which is currently is not available. For the departments related to new crime areas, the location choice is based on the vicinity of the location to other organisation working on the same issue. For example, the department of cybercrime is in Berlin because the Federal Intelligence Service (BND) is also in Berlin.

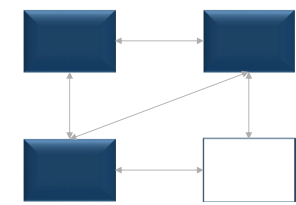
COVID-19

The BKA has been significantly impacted by external developments like the COVID-19 pandemic, as highlighted by the changes in workplace dynamics and plans for future location choices. Before the pandemic, remote work, particularly home office options, was not prevalent within the BKA's operational framework. However, the advent of COVID-19 necessitated a drastic shift in the way of working, leading to adopting remote work practices, including home office arrangements, as a viable option for many departments.

This shift introduced flexibility in work arrangements and prompted a re-evaluation of IT infrastructure, enabling employees to work remotely with the necessary equipment. The interviewees highlighted the transformation in work, “Before, you had to come to the office to work because you had no laptop. You could not work from home, and now everyone can, more or less” (BKA#1).

Moreover, within physical office spaces, implementing “desk-sharing or hot desk” policies reflect a further adaptation to the changing work environment brought about by COVID-19. This flexibility allows employees to move within the building and utilize shared workspaces as needed, with desk-sharing approaches facilitating a more dynamic and efficient use of office resources. Traditional notions of one employee having one dedicated workplace are being reevaluated, particularly in light of operational functions that require round-the-clock presence. The shift towards flexible work arrangements and desk sharing reflects a departure from the previous model, impacting the layout of office spaces and location planning for new buildings (BKA#2).

Political aspects



DAS framework

Sub-questions 2 and 3: To what extent are police organisations confronted with external and internal developments and how do these influence the work of the police that (may) have consequences for the location choices?

Political and governmental aspects influence the location choice, according to the interviewees. As stated by them, “[The government] heavily influences the size of the buildings [...]. We are [...] not allowed to plan ahead, so we cannot say that in 2040, we expect double the size of employees [...]. We are only allowed to plan for the FTEs we have according to the governmental balance sheet”. For each employee the BKA uses a government quote of 0.82 for the workplace of employees. This is a different ratio compared to the normal German ratio of 0.75, as most of the BKA employees need their own desk; thus 0.75 was not achievable (BKA#2) because in the BKA they have operational and non-operational functions, as well as 24/7 functions.

The interviews revealed that the BKA's response to external developments such as COVID-19 has led to significant changes in work practices and location choices, reflecting a commitment to adaptability, flexibility, and efficiency in the face of evolving challenges.

Internal developments

This research led to the recognition of two internal developments: efficient accommodation (flexibility and accessibility- commute time between police locations) and environmental-sustainability aspects.

Efficient accommodation (flexibility and accessibility- commute time between police locations)

The evolving police organisation within the BKA significantly impacts both its internal structure and the principles guiding location choices. The dynamic nature of the organisational structure, shaped by shifts in criminality and operational demands, necessitates a flexible approach to office setup. The decision to base the building setup on functions rather than specific departments reflects this adaptability, as stated by one of the interviewees. By prioritising functions over organisational hierarchy, the BKA ensures adaptability to rapid organisational changes. Moreover, considering potential departmental splits or mergers, the need for fluidity in office spaces becomes evident.

Challenges arise in relocating personnel to different buildings effectively, as highlighted by the interviewee, “Right now, we see the problem. Suppose we have one department, but there is a need to either split it or perhaps half of it needs to join another department” (BKA#2). Additionally, the logistical hurdles posed by having departments spread across multiple locations as main problem in the current accommodation emphasise the importance of consolidating operations within a unified campus (see next paragraph).

In contrast to the difficulties faced in Wiesbaden, the accessibility and infrastructure advantages of Berlin are highlighted. With its comprehensive public transportation system, including subways, trains, buses, and trams, Berlin offers personnel easy access also in combination with the building distances: “In Berlin, they can really walk. I think the longest distance between the buildings is like 15 minutes to walk”, as mentioned by one of the interviewees (BKA#2).

The challenges posed by the current spread of departments within the BKA seem to underscore the importance of strategic location choices and flexible campus design. Addressing logistical inefficiencies and enhancing accessibility is paramount to optimizing operational effectiveness and responsiveness to evolving demands.

Environmental-sustainability aspects

The current buildings of the police are not environmentally sustainable, as highlighted by one of the interviewees; “The buildings that were rented, and our other old building, W1, which was the first building in Wiesbaden, are now so old and inefficient and require

so much maintenance. You would have to invest a lot of money to keep all the buildings running. [...] So, it is probably even cheaper to build a totally new campus than to keep all the buildings we have right now operational over the next 25 years.” The other interviewee also highlighted the issue of sustainability within the existing buildings (BKA#1).

It should be mentioned that the interviews revealed that some developments can be both external and internal (e.g., environmental sustainability).

Figure 30 illustrates the internal and external developments that have influenced the location choice in the BKA police of Germany. The grey dashed lines indicate the internal connection between the developments, and the blue dashed lines show the connection between internal and external developments. Two of the developments are more highlighted than the others: New crime areas and efficient accommodation (flexibility and accessibility- commute time between police offices). Due to new crime areas, new departments are needed, and the BKA needs to work efficiently within different departments. Other aspects were also mentioned, e.g., environmental sustainability, the COVID-19 pandemic, and their impact on location choice; however, the necessity for accessibility (commute time between police offices) due to the new police roles seems more emphasised.

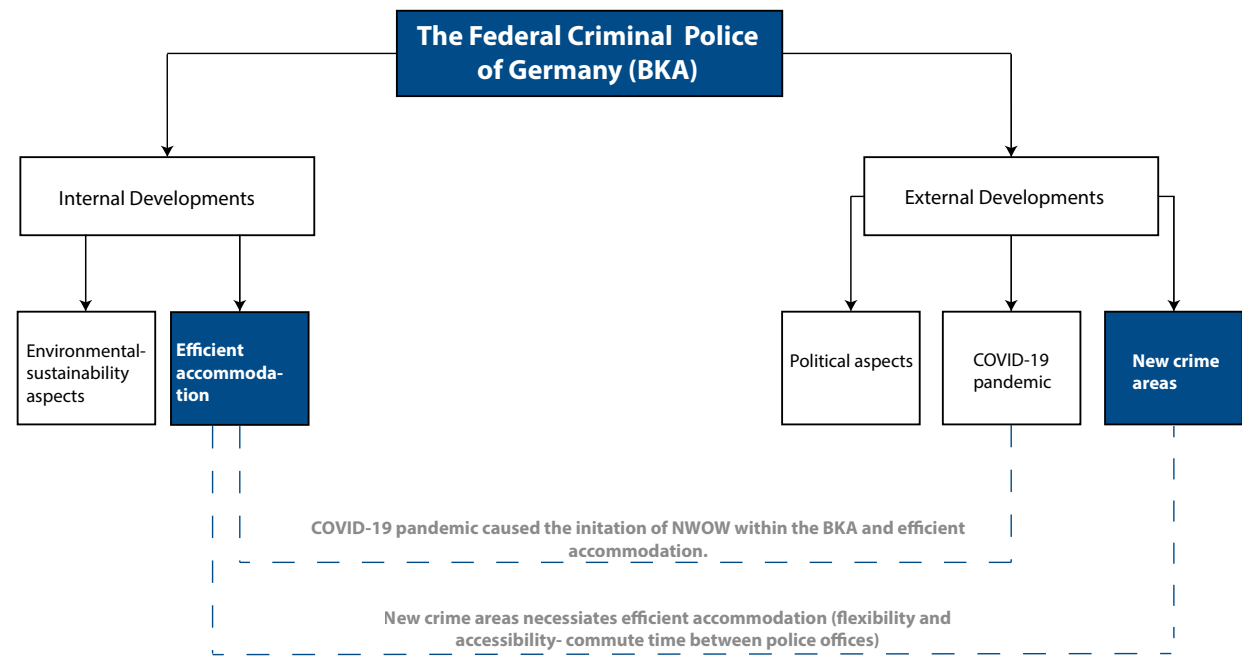
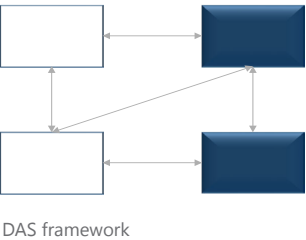


Figure 30. Internal and external developments within the police of Germany (BKA) and their nexus with each other; the grey dashed lines show the internal nexus between the different developments, and the blue dashed lines show the nexus between internal and external developments.

Sub-question 4: What future accommodation plans do police organisations have, especially regarding the location choices?



3.4.3. Generating future strategies (models)

The future plans for location choices for the BKA involve the establishment of a centralized campus in Wiesbaden (all in one) to address operational challenges and enhance efficiency. This decision was focused on staying in the current city. Changing the location would have led to losing the workforce, as stated by the interviewee. As part of this endeavour, the President of the BKA has signed an agreement with the city of Wiesbaden in 2020 and the state of Hessen to explore suitable locations jointly. This collaborative effort aims to consolidate larger facilities into one campus, as stated by the interviewee, “They agreed to look jointly with the city of Wiesbaden and the state of Hessen for suitable locations where all the bigger facilities could be joined, and one bigger campus could be created” (BKA#2).

Ideas were collected during a workshop with employees who wanted to work on this project to guide further its plans. In the workshops, the focus was to organize and build a campus that was most efficient, and this sometimes might have an influence on the organisational structure in the future (BKA#2).

Additionally, there is a commitment to environmental sustainability in planning the new campus. The aging infrastructure of current buildings presents challenges to energy efficiency, motivating the desire for a more sustainable approach. Plans for the new campus include implementing energy-efficient systems to create a more environmentally friendly working environment. “The buildings are so old that we can’t really make them energy efficient, and for the new campus, we have a really high aim to set up the energy systems and so on to make it a sustainable campus,” according to one of the interviewees (BKA#1).

As part of the campus strategy, the BKA aims to unite seven buildings into one campus, with an estimated functional area of 240,000 square meters. This is part of the development plan of the city of Wiesbaden (Ostfeld development plan) and is an official planning contest for architects and the BKA is mentioned in this developments. The Ostfeld urban development plan covers an area of around 450 hectares in the southeast of Wiesbaden. It essentially involves the creation of a new urban district on an area of around 70 hectares and a new authority location for the BKA on an area of around 30 hectares [41].

An architectural competition is planned (October 2024) to develop the design and layout of the future campus, reflecting a comprehensive approach to meeting the needs of the police organisation in terms of accommodation strategy and operational efficiency (BKA#1).

The vision for this new all-in-one campus emphasises flexibility, adaptability, and the scalability of buildings [39]. Efforts are underway to ensure that office spaces can easily adapt to changing needs, promoting operational agility. In the words of one individual involved in the planning process, “We are trying to set up our campus in a way that we can easily change office spaces, that we can, at least in the office space, have flexibility in every room” (BKA#1).

Summary of the BKA Real Estate

The main conclusions are depicted in the DAS Frame in Figure 31.

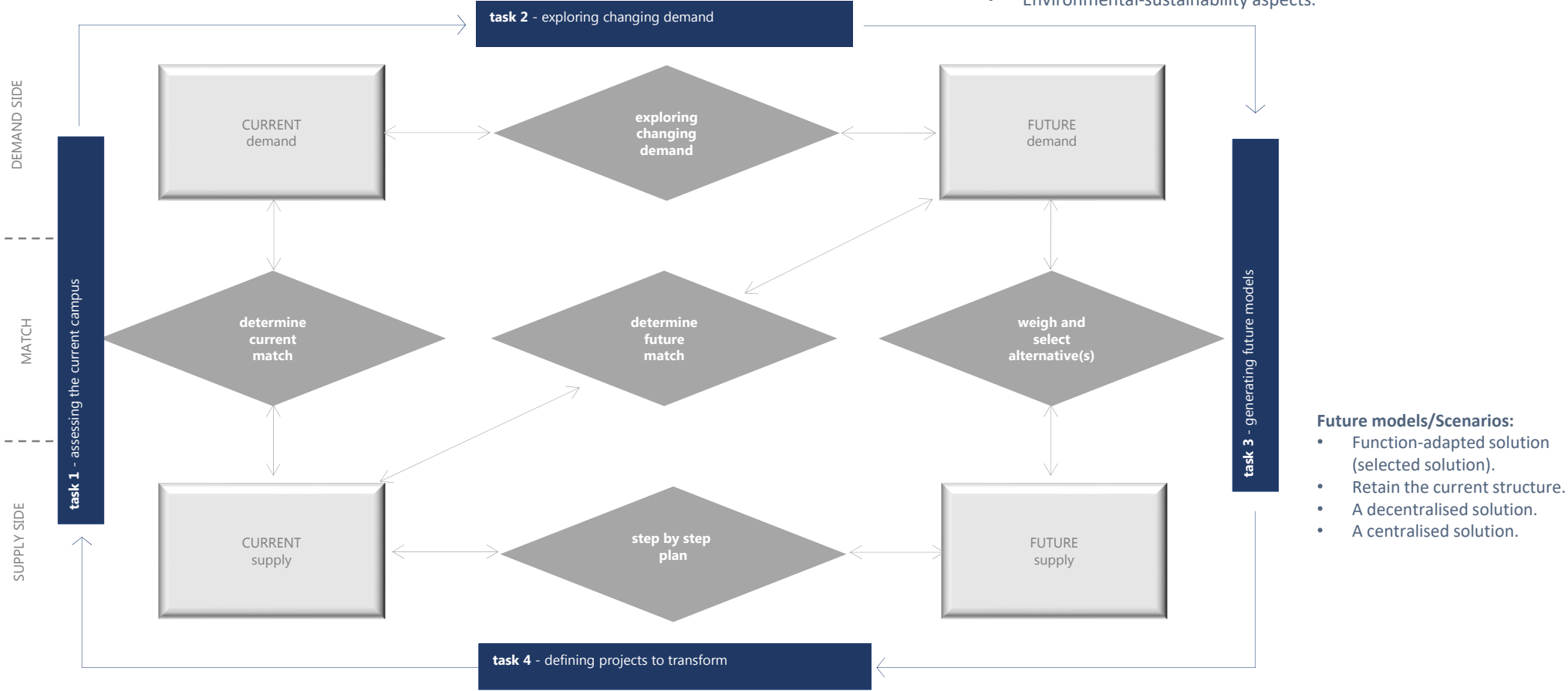
Number of employees:
8000 employees (4,240 operational and 3,760 non-operational).

- Values:**
- Being an open, transparent, and accessible authority for citizens, interested parties, its partners, and the neighborhood in Wiesbaden (its traditional location).
 - Networking and cross-collaboration with national and international police organisations.
 - Promoting exchange and communication via flexible, adaptable, and scalable spatial concepts.
 - Providing modern and more flexible work as an attractive employer for everyone.
 - Having social responsibility.
 - Highlighting the identity and self-image of BKA.

- Information about the portfolio:**
- 12 buildings in three cities of Wiesbaden, Berlin, Mechelnheim.

- External developments:**
- Political aspects.
 - Digitalisation.
 - COVID-19.

- Internal developments:**
- Financial constraints.
 - Operational challenges.
 - New ways of working.
 - Environmental-sustainability aspects.



- Future models/Scenarios:**
- Function-adapted solution (selected solution).
 - Retain the current structure.
 - A decentralised solution.
 - A centralised solution.

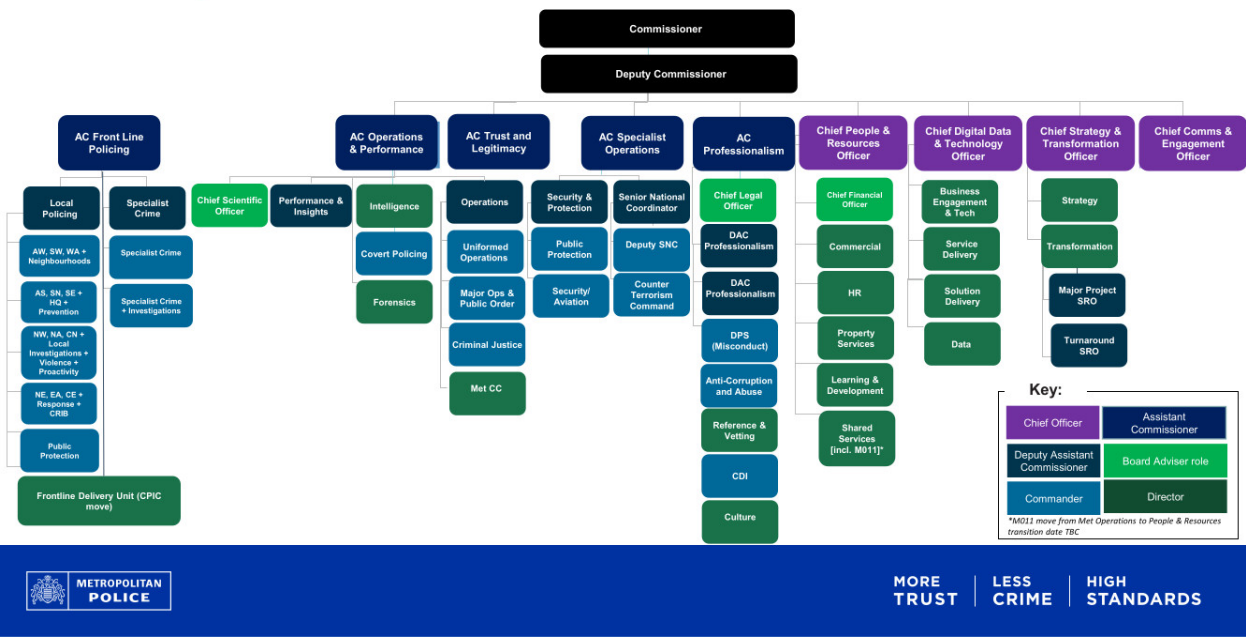
Figure 31. Summary of the real estate of the police of Belgium following the DAS framework (Den Heijer [3], based on De Jonge et al. [4], Arkesteijn [21]). This information is based on interviews and desk research.

3.5. United Kingdom, The Metropolitan Police Service (MPS/Met)

3.5.1. Organisation

With more than 46,000 members of police and staff, the Metropolitan Police Service (MPS) forms UK’s largest serving police force and has 25% of the total police budget in England and Wales (more than £4 billion). As of November 30, 2024, the personnel is divided as follows: 33,473 police officers, 11,178 police staff, 1,486 police community support officers, and 1,177 special officers. The MPS comprises of five business groups—Frontline Policing, Specialist Operations, Met Operations, Trust and Legitimacy, and Professionalism—which are supported by a number of functions providing strategic and transactional services covering Data, Digital and Technology, Communications and Engagement, People and Resources, Strategy and Governance, Legal and Commercial and Finance [42].

Figure 32 shows the organogram of the MPS [42]. The area covered by the MPS comprises of 32 London boroughs within Greater London, excluding the city of London (see Figure 33) [43].



The mission and vision of the MPS is to ensure safety and security first and foremost. This will be achieved via three operational principles [44]:

- Focus on what matters most to Londoners.
- Mobilise partners and the public.
- Achieve the best outcomes in the pursuit of justice and in support of victims.

As an organisation, the MPS intends to continue developing its internal capabilities by focusing on four main priorities [44]:

- Seize the opportunities of data and digital tech to become a world leader in policing.
- Care for each other, work as a team, and be an attractive place to work.
- Learn from experience, from others, and constantly strive to improve.
- Be recognized as a responsible, exemplary, and ethical organisation.

Figure 32. Organogram of the MPS [42].

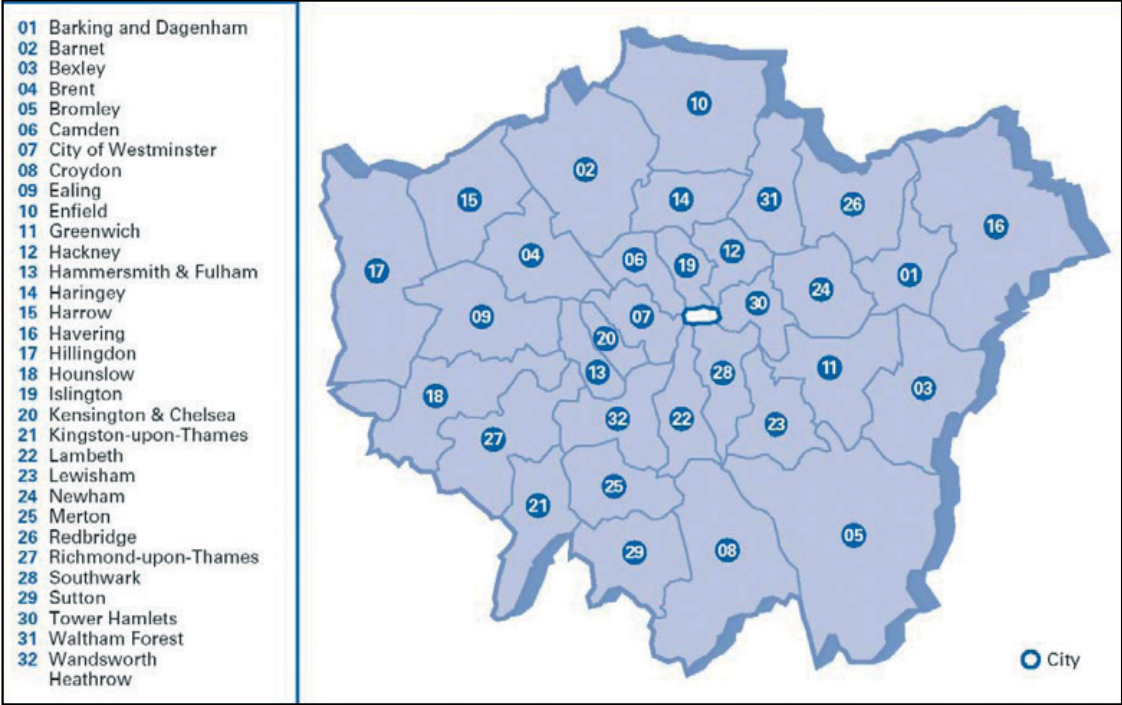


Figure 33. The London Boroughs covered by MPS [43].

3.5.2. Real estate portfolio

Like many public organisations, the MPS works with constrained resources, an increasing demand and a changing environment which reinforces the need to make London police more efficient. The MPS’s transformation portfolio seeks to deliver transformation across functions and departments, modernising the force as a whole and focus resources on priority areas and overall providing an effective and efficient service to all Londoners. The Property Services team is responsible for maintaining and managing all aspects of the estate, ensuring it is fit-for-purpose, efficient, compliant, and resilient supporting the demands of the Metropolitan Police Service. Plans for future portfolio of the London Metropolitan Police include [45]:

- Investing and improving the quality of accommodation of retained estates to support operational needs.
- Intensifying and enhancing the use of retained estates through targeted investments in order to support smart working, which in turn enables operational objectives to be met within a smaller estate.
- Maximising the value of those assets released that are in surplus in order to release capital for reinvestment to support operational need underpinning the Capital Programme.
- Reducing running costs of the retained estate to support the objective of reducing back-office costs.

In an interview with the Mayor of London Sadiq Khan on 19th March 2020, a question was posed regarding the current real estate portfolio under ownership of the Metropolitan Police. In response to the question concerning the progress that has been made to ensure that the MPS’s property portfolio is fit for purpose and how that can

be measured, the Mayor elaborated, “The refurbishment of buildings within the estate needs to continue and is time critical to ensure there is sufficient capacity within the estate to meet the initial uplift in officer numbers and reduce the reliance on retaining additional properties. A business case for a significant investment programme in BCU buildings has recently been approved. Work includes opening up buildings to make them open plan, allowing more officers to work in them in a more joined-up way. The MPS is also doing some essential remedial works to make older buildings fit for purpose and ensure they are compliant with the MPS’s obligations under the Equality Act” [46].

As part of the 2017 report “A Safer City for All Londoners”, the Mayor described future plans regarding the estate under the MPS’s ownership, “We will continue to review the MPS estate. It is essential that the MPS’ buildings support policing, rather than drain resources that could be better spent on services to the public. We will sell buildings that cost policing more than they benefit and invest in others to create a modern environment for our staff and the public who need our services. Providing more affordable homes for Londoners is a key Mayoral priority, and we will ensure that contributing to this goal is a key consideration in any future sales of MPS buildings” [47].

The report “Metropolitan Police Service – Business Plan 2020-23” outlines the MPS’s long-term estate strategy. It involves modernising buildings to accommodate flexible, agile working that can adapt to changing operational requirements, whilst reducing long-term revenue costs through disposing underutilized buildings. In the year 2020, the MPS oversaw the completion of the full refurbishment of Charing Cross (providing a modern working environment whilst also conducting repairs for the listed building) and opened the new Driving Academy at Hendon. Property projects have a lead-time of between two and five years, so another key strand over the last 12 months has been planning for the major refurbishment program of a series of local police buildings that will commence this year. These include the refurbishment of police stations at Peckham, Bethnal Green, Edmonton, Islington, Hounslow, Twickenham, Ilford, Croydon, Kingston, Acton, Colindale, Brixton, Stoke Newington as well as Quicksilver and Havering Patrol Bases [48].

As the demand for housing continues to grow in London, a substantial amount of industrial land across the capital has been converted into housing. This proves as a challenge for the MPS estate as for instance, “The landlords of [our] leasehold industrial units and land for impounded cars are applying for change of use to more profitable residential development” [48]. As industrial land prices escalate, the MPS must reconsider ways of purchasing this land in order to deliver critical services whilst ensuring delivery of critical services without which London could not operate [48].

3.5.3. Digitisation and the future of smart policing

Whilst the core aspirations of that strategy remain, in the context of officer growth, the MPS intends on prioritising on the frontline and deliberately seeks to accommodate growth within existing buildings wherever possible by means of smarter working and blended options of work from home for staff and support. The MPS sets forth ambitious plans to capitalise on the new and more agile ways of working that have been adopted through COVID-19. New laptops and tablets provided to mobile workers, the elimination of out-of-date operating systems and the provision of modern cloud-based collaboration and information processing solutions will help support a mobile workforce. The MPS intends to continue actively monitoring the usage of technology across all BCUs and have a network of Digital Champions who enable them to support the frontline in their use of technology. This approach towards “smart working” will enable a smaller estate in the long term, occupy fewer, more flexible and economic buildings, sell highly uneconomic and underused buildings, to release capital and reducing operating costs [48].

3.5.4. Environmental-sustainability

The report “Metropolitan Police Service – Business Plan 2020-23” reflects how through the management of real estate, the running of the city’s vehicle fleet and the procurement of goods and services have a huge impact on London. Under the Management Board environmental champion, the MPS launched the 2019-21 Environment and Sustainability Strategy committing to operating in the most sustainable and environmentally beneficial way. With the strategy the MPS intends to [48]:

- Reduce environmental impact.
- Become a more resource efficient and resilient organisation.
- Embed environmental sustainable considerations as part of critical decision-making.

These goals will be established via [48]:

- Ensured compliance with environmental legislation, policy and standards, preventing pollution, and addressing the impacts of climate change through the delivery of an organisational environmental management system.
- Managing direct and indirect emissions (from buildings, transport and business air travel) to reduce impact on climate change and to improve London’s air quality.
- Embedding responsible procurement practices within the organisation in order to adopt sustainable products and services and actively encouraging our supply chain to do the same.
- Managing resources responsibly through the effective running of our estate and policing operations, so we reduce costs, increase efficiency and support the transition to a circular economy in London.
- Supporting and enhancing biodiversity, through the enforcement of wildlife legislation and initiatives to prevent wildlife crime within London, and through sustainable design and estate management within our estate.

The MPS’s targeted estate refurbishment is planned to contribute towards their overall aim of a 60% reduction in carbon emissions by 2025. The Met has deployed 550 electric and hybrid vehicles and reduced their diesel fleet by 39% in 2020 [48].

3.6 United Arab Emirates (Dubai Police Force)

As highlighted in the overview of the research, the data in this section of the report are limited to the desk research conducted within the (online) publications and reports about the police of Dubai.

3.6.1. Organisation

The Dubai Police Force comprises of 30,000 employees for the Emirate of Dubai, and they cover an area of 4,114 square km and a population of over 3 million people. Figure 34 shows the organogram of the Dubai police.

There are currently 12 police stations based in the capital city of Dubai. Figure 35 shows the location of 11 of them [49]. However, it is difficult to determine from the available information where the police staff is based. In addition to these police stations, Dubai police has implemented Smart Police Stations (SPS) to provide services without human intervention.

The mission of the Dubai police is to improve the quality of life in the country, by operating in accordance with the constitutional rights to enforce the law and maintain safety, security and community of Dubai. [50].

The strategic goals of the Dubai police are [50]:

- Society happiness: Enhancing safety and security, enhancing confidence in police, enhancing happiness and quality of life.
- Safe and resilient city: Safety facilities and safeguarding individuals, crisis and disasters management (Resilient Dubai Essentials), crime reduction rate, respond to emergency situations, reduce road's fatalities
- Innovation in organizational capabilities: Developing the human capital effectively and efficiently, managing the technical resources effectively and efficiently, managing the technical resources effectively and efficiently, developing the organizational performance effectively and efficiently, developing the organizational performance effectively and efficiently, managing the physical resource effectively and efficiently.

One of the highlighted goals of the Dubai police is about its smart plan, which is about digitisation and the future of smart policing in the city (see Figure 36). The plan aims to provide complete virtual access to the police for the public by 2030 [51].

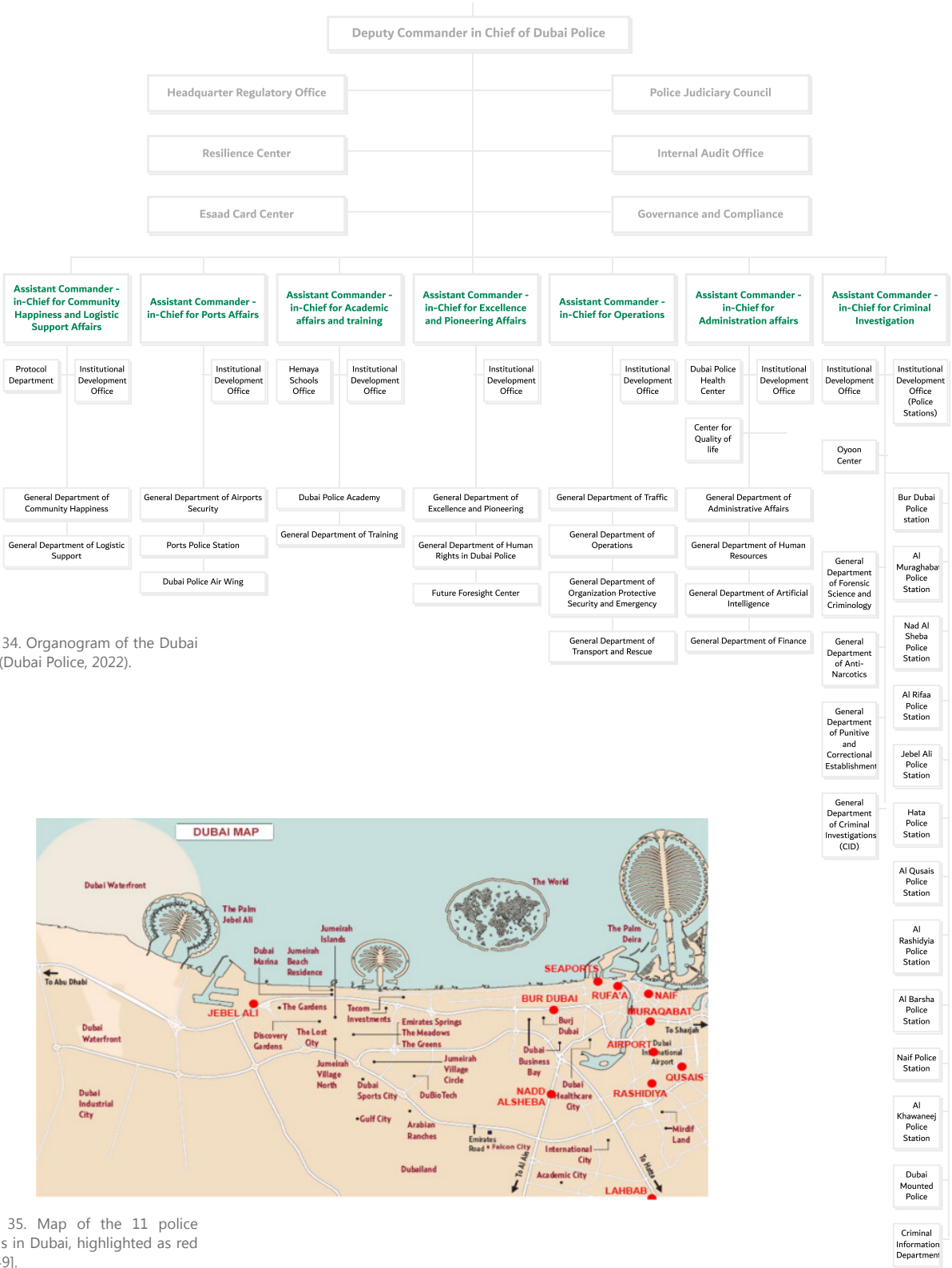
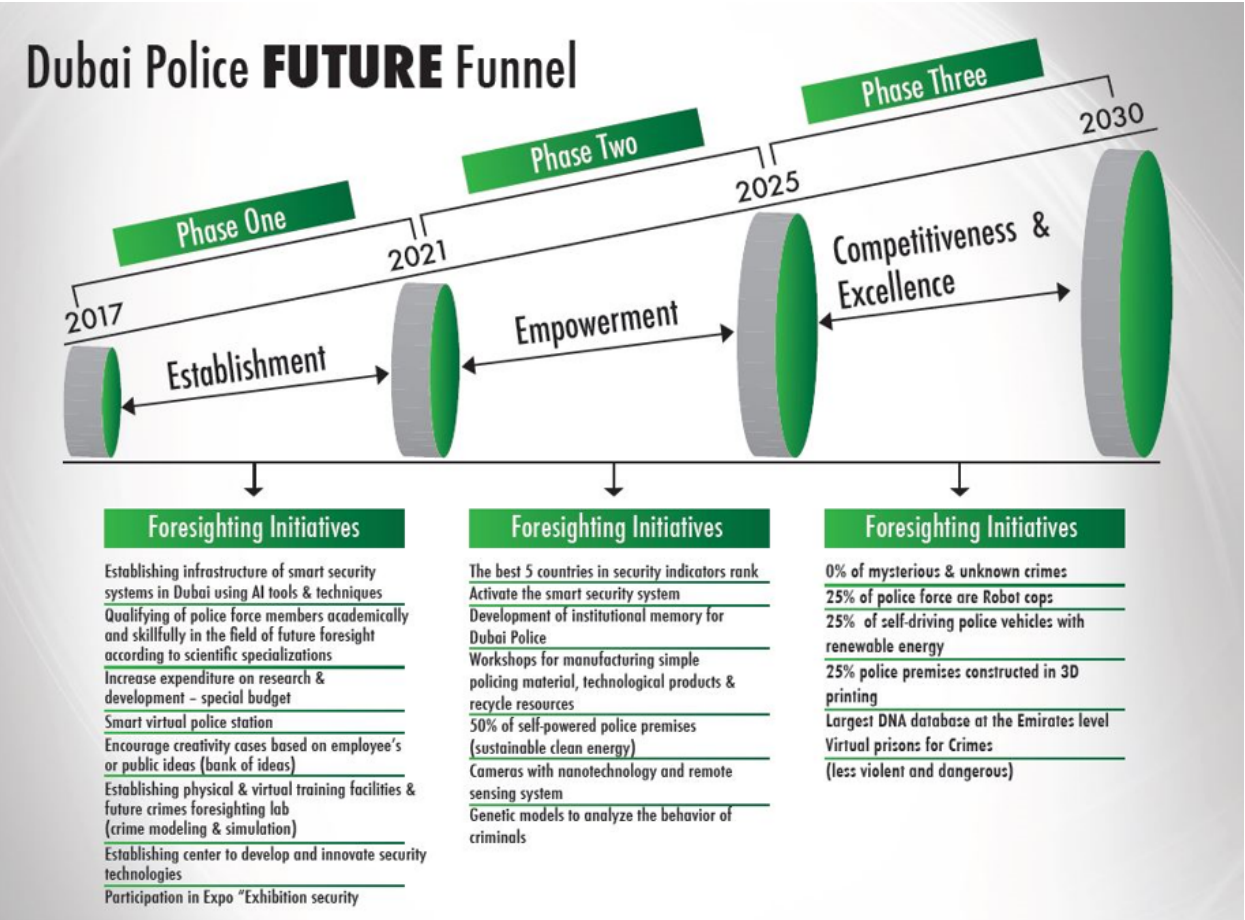


Figure 34. Organogram of the Dubai Police (Dubai Police, 2022).



Figure 35. Map of the 11 police stations in Dubai, highlighted as red dots [49].



3.6.2. Future of smart police

Dubai has always been in the forefront of technological innovation. The Dubai police force had announced that it planned to deploy its first robot police officer by May 2017, and that their ambition is to have 25 percent of the force consist of robotic officers by 2030, as well as to operate a “smart” police station that won’t require human employees (Figure 37).

The launch of the Smart Police Stations forms a key part of Dubai Police’s Smart Plan. Dubai Smart Police Stations (SPS) are a series of self-service centres across Dubai, offering smart police services. The service enables customers to apply digitally for a range of services, thereby reducing the traditional need to visit a police facility. The 27 stations are strategically based around areas of new areas and property developments making use of systematic optimisation techniques (see Figure 38 for map, note: not all the stations are illustrated in the map). “Walk-In” and “Drive-thru” services located in key arteries and infrastructural links in Dubai make the services accessible to the wider public. The police force aims to increase its use of AI and reduce police station visits by 80%. These solutions become especially of relevance in the post-COVID future, where the promotion hybrid means of working and digitized solutions will reduce the need for physical offices [50].

Figure 36. Dubai Police FUTURE Funnel [51].



Figure 37. Smart police stations in Dubai [52].

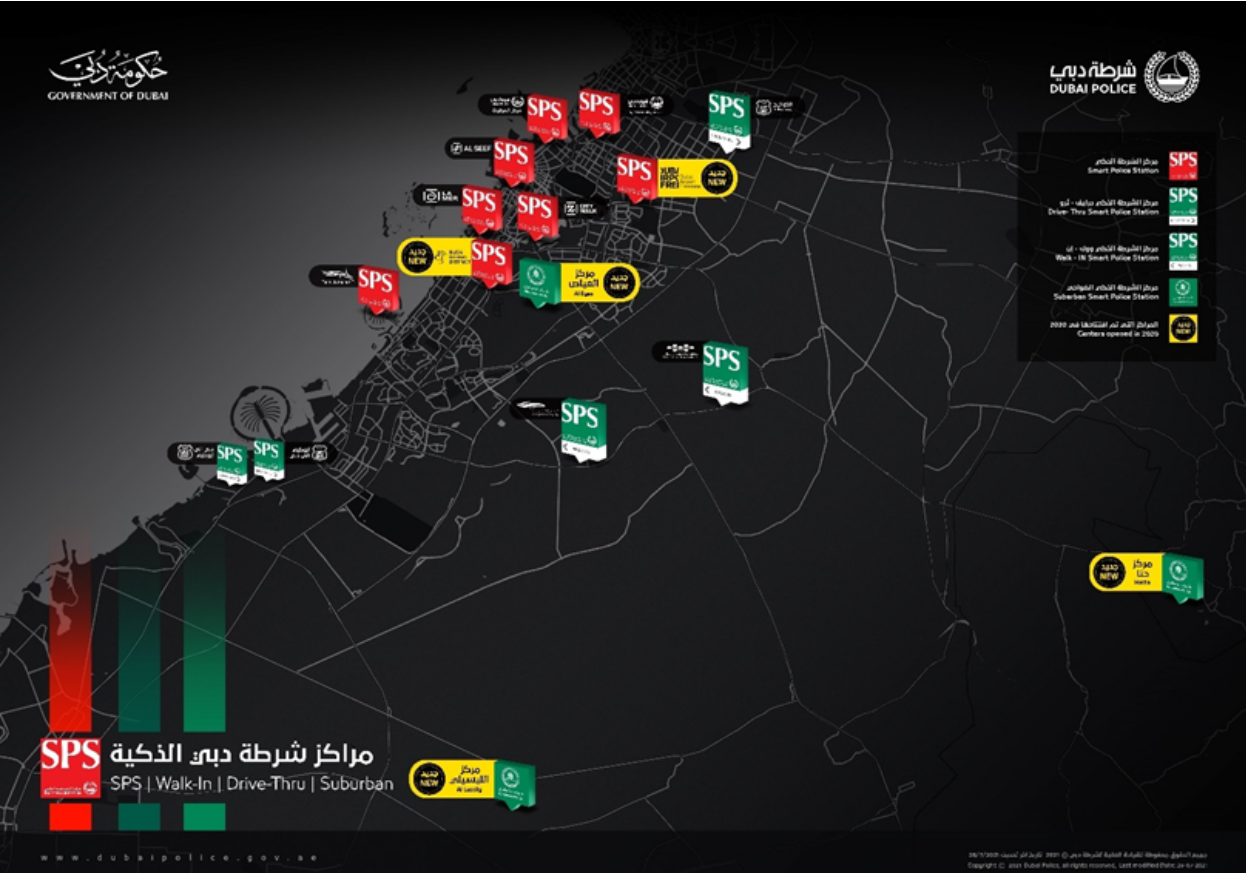


Figure 38. Locations of a number of Smart Police Stations across Dubai [53].

“The inaugurations [of the Smart Police Stations] are in line with the objectives of Dubai Vision 2021, which aims to strengthen Dubai’s position as the world’s most preferred place to live, work and visit. It is also in support of the UAE Strategy for Artificial Intelligence that seeks to develop and regulate artificial intelligence technology tools to speed up the government’s performance and create a conducive creative environment with high productivity,” Director of the General Department of AI added [53].

Environmental-sustainability practices

As part of its long-term sustainability strategy, the Dubai police force also aims to adopt energy-efficient appliances and develop route optimisation strategies to reduce fuel consumption. Clean energy will be produced via solar water heaters, and the installation of solar rooftops across all Dubai Police buildings will increase clean energy dependency to its maximum by 2022 [51].

4. Cross-case analysis

This section provides an overview of the real estate portfolios and external and internal developments of four police organisations: the Netherlands Police, the Belgium Federal Police, the Norwegian Police Service (NPS), and the Bundeskriminalamt (BKA) Police of Germany. Next to that, the Metropolitan Police of the United Kingdom (MPS/Met), and the Dubai police have been added for comparison, which is included in the overview (Table 3). Different organisations use different terms for referring to operational and non-operational employees, as shown in Table 3. The focus of this research is on non-operational, as highlighted throughout the report. In the research, we observed that in most police organisations operational and non-operational police officers are often accommodated jointly in the same building, making a clear cut division between the two impossible. It should be mentioned that while the analysis in the first four cases is based on interviews and desk research, the analysis of the last two countries is only based on desk research. Thus, in this report, only the “current situation” of these countries, based on the review of the documents, has been compared with other cases.

Table 3. Type of employees within the police organisation in the studied countries.

Type of employees/ Countries	The Netherlands Police	The Federal Police of Belgium	The Norwegian Police Service	The BKA Police of Germany	The Metropolitan Police of the United Kingdom	The Dubai Police Force
Non-operational	Non-operational employees ¹ (Grey)	CALog ²	Administrative Personnel ³	Administrative Personnel ⁴	Police Staff	Administrative Staff
Operational	Operational employees ⁵ (Blue)	Operational Cadre (Ops) ⁶	Operational Personnel	Operational Cadre ⁷	Police Officer	Police Officer

4.1. The current situation

A cross-comparison between different studied cases regarding the current situation, i.e., the number of employees (operational/blue police and the non-operational/grey police), number of buildings, ratio (non-operational to total FTE), number of buildings, portfolio size, size per building (average), size per employee (space per employee), size of the country or region, ratio of the size of the portfolio to the size of the country, number of inhabitants, GDP, and the ratio of employees per inhabitant are provided in Table 4.

The police organisations in the Netherlands and Norway are the ‘sole’ police organisations in the country and perform comparable activities. Belgium is not fully comparable to them, as, in Belgium, alongside the national police, there is also a local police force that handles some tasks which, in the Netherlands and Norway, are carried out by the national police. The BKA is a specialist organisation focusing on national and international treats (e.g., terrorism, money laundering, etc.) (marked with * in Table 4) and is therefore comparable to a part of the Netherlands Police (LO and LX organisational units). These differences partly explain the variations in the size of the organisations, their real estate portfolio, and their locations.

1 In Dutch: Niet-operationele Politiedewerker
2 In Dutch: CALog: Cadre Logistiek
3 In Norwegian: Administrativt Personell
4 In German: Verwaltungsbereich
5 In Dutch: Operationeel Kader
6 In Norwegian: Operativt Personell
7 In German: Operativer Bereich

Table 4. Cross-comparison between the current situation of different countries [15], [22], [33], [38], [53], [54], [55], [56], [57].

Police organisation	Number of employees (operational (blue) police (FTE))	Number of employees (non-operational (grey) police (FTE))	Ratio (non-operational/total FTE) (%)	Number of buildings	Portfolio size Gross Floor Area (m2)	Size / building average (m2)	Size / employee (space per employee (m2)	Size of the country (region) (square kms)	Size of the portfolio/size of country (%)	Number of inhabitants	GDP (USD)	Ratio (Number of employee (operational and non-operational) per inhabitant (%))
Netherlands Police	50,939	11,390	18%	813	1,9 million	2,337	30	41,543	0.005%	18,3 million	1.12 Trillion	0.34% (1 employee per 294 inhabitants)
Federal Police of Belgium	10,658	3,307	24%	143	650,000	4,545	47	30,528	0.002%	11,77 million	633 billion	0.0012% (1.2 employees per 1000 inhabitants)
Norwegian Police Service (NPS)	10,858	7,463	41%	350	813,000	2,323	44	148,729	0.001%	5,6 million	486 billion	0.32% (1 employee per 306 inhabitants)
Germany* (BKA Wiesbaden, Berlin, and Meckenheim)	4,240	3,760	47%	12	226,000 (Net Floor Area) ~293,800 (GFA)	~24,416	37	357,022	0.0001%	84,55 million	4.46 trillion	0.009463% (1 employee per 10,569 inhabitants)
The United Kingdom (MPS- Greater London Area)	33,473	11,178	33%	48	NA	NA	NA	1,572 (Greater London Area)	NA	9,5 million (Greater London Area)	3.34 trillion	0.5% (1 employee per 200 inhabitants)
The United Arab Emirates (Dubai)	30,000	17,500	58%	11	NA	NA	NA	4,114	NA	3,79 million (Dubai)	504 billion	1.2% (1 employee per 80 inhabitants)

The Netherlands Police has the largest portfolio of the police organisations with more than 800 buildings and a total gross floor area of 1.9 million square meters. The portfolio supports a large police workforce of over 60.000 employees (in FTE) with an average of 30 m2 GFA per FTE and a per-building average of 2,300 square meters. Norway has the second largest portfolio with 350 buildings and over 800.000 m2 square meter portfolio (Oslo) accommodating more than 18.000 employees (in FTE) with an average of 44 m2 GFA per fte and a similar average building size of about 2300 m2. Belgium's Federal Police logically has a smaller portfolio of more than 100 buildings and more than 650.0 00 m2 GFA, accommodating almost 14.000 employees. Belgium has a similar average to Norway, with 47 m2 GFA per FTE, but a larger average building size of more than 6,000 m2 per building, compared to the Netherlands and Norway. This seems logical given that in the Netherlands and Norway, police team offices are also part of the portfolio, whereas in Belgium they are not. Each of these portfolios is dispersed evenly across the countries (see Figures 13, 17, 23, 28-30).

The BKA has a different portfolio than the other organisations; they are highly specialised and are accommodated in three cities (Berlin, Wiesbaden, and Meckenheim). Therefore, logically they have less buildings (12) and the smallest portfolio with almost 300.000 GFA than the other organisations, leading to an average per building size of nearly 25.000 m2 GFA and 37 m2 per FTE.

When looking at the ratio of operational to non-operational staff as a percentage of the total staff, the Netherlands (80%-20%) and Belgium (75%-25%) have a comparable ratio as well as Norway (60-40%) and Germany (55%-45%). This could be explained by the activities performed by the different organisations, as well as by the definitions they use for operational and non-operational staff.

Zooming out to the size of the police force in relation to the country, the Netherlands Police has one employee (in FTE) per almost 300 inhabitants (Table 4). Norway is similar to the Netherlands as it has one employee per just over 300 inhabitants. The Federal Police of Belgium has one employee per 1,000 inhabitants and the BKA has a much lower presence, with one employee per more than 10,000 inhabitants, which is again due to the division in Belgium of national and local police and to its specialised support in Germany.

When comparing the size of the country and the real estate portfolio, it becomes evident that the Netherlands and Belgium have a larger real estate portfolio size in comparison to Norway. The BKA has a smaller portfolio, which is again due to its specialised activities.

Reviewing the documents and analysis of the interviews showed that these organisations are confronted with some similar challenges, including aging real estate, the need to make the accommodation more sustainable, recruiting new colleagues, and challenges such as drinking water, electricity, and more. The internal and external developments also influence these issues, which will be discussed in the next section.

4.2. The internal and external developments

Six external and nine internal developments were identified in the analysis of the interviews and document review (see Table 5). The first thing that stands out when looking at the table is that the Netherlands (12) identified twice as much developments as have been identified by Belgium and Norway (6) and Germany (5). The reason for the recognition of more developments in the Netherlands might be due to the inclusion of more reports focused on the real estate strategy. For each country more influential developments

Table 5. Cross-comparison between the internal and external developments affecting the location choice (based on the data from interviews and case studies). The darker colours shows the significance of the development highlighted in the interviews and reports.

have been highlighted with a range from 2 (Germany and Norway), 3 (Belgium), and 4 (Netherlands). Only two main developments have been mentioned by more than one country. First of all, financial constraints have been mentioned by all countries except Germany, and hybrid working by two. Next to that, only one development has been mentioned by all countries. These developments not only influence the location choice, as can be seen in 4.3 but also influence each other.

External (E)/Internal developments (I)	Organisation				Mentioned in the literature
	The Netherlands Police	The Federal Police of Belgium	Norwegian Police Service	The Federal Police of Germany (BKA)	
COVID-19 pandemic (E)	•	•	•	•	[2]
Political aspects (E)	•		•	•	
Governmental request for more rationalisation (E) > NWOW		•			-
Digitalisation (E)	•		•		[2]
New areas of crime (E)	•			•	-
Difficulty with requesting adjustments to the regional plans (E)	•	•			-
Hybrid working > NWOW > Efficient accommodation < Flexibility (I)	•		•	•	[2]
Cultural change within the organisation (I)	•				-
Organisational structure change (I)	•				-
The retirement of the police employees and difficulties in recruiting new employees (I)	•				-
Environmental-sustainability aspects (I)	•		•	•	[7]
Accessibility for current and future employees (I)		•			for current employees [6]-[11]
Financial constraints (I)	•	•	•		[7], [8]
Identity and image of the organisation (I)	•				-
Operational challenges (I)		•			[6], [7], [9], [10]

Financial constraints are the most influential internal development. For the Belgium's Federal police, financial constraints is about the underfunding, outdated infrastructure, and rising costs due to indexation and crises. Despite its own **request for rationalisation** (expressed in a reduction of buildings and locations), the government does not provide adequate funding for such projects. For the Netherlands and Norway, this includes the increasing price of land/real estate and rising rental prices. Like in Belgium, other countries are also confronted with contrary developments. Analysis of the data indicates that while the governments are requesting for sustainability actions (Netherlands and Norway) or rationalisation/restructuring of the portfolio (Oslo, Norway), the financial constraints limit this.

Similarly, while both Netherlands and Belgium need to **recruit new employees**, they have to consider their interest in using their personal cars instead of public transportation and accessibility for the employees. Because of these constraints, the desired projects or changes in the portfolio are not possible, as will be shown in the next paragraph. Additionally, difficulties in **modifying regional plans** further complicate location choices. In Norway, next to the financial constraints (mainly due to rising market rental costs) **political aspects** are the most highlighted development. These two developments are deeply interconnected. While on the one hand, the real estate portfolio is being rationalised, the government also made political decisions (e.g., opening new offices and hiring more police staff in smaller cities).

The interplay between financial limitations and governmental request underscores a critical tension that influences strategic decisions regarding police locations. Financial constraints (e.g., budgetary constraints [7] and service costs [7]-[8]) have also been frequently emphasised in the literature as imperatives in decisions about location choice.

Hybrid working as the second most influential internal development, is a common practice in most cases but the **COVID-19 pandemic**, as external development, either accelerated (Netherlands Police) or started this within the organisation (BKA). Hybrid working is closely connected with **digitisation** and leads into a different demand for space (different types of spaces and less overall space). While this shift does not directly influence location choices, it is likely to do so within the next 10-15 years, as policies take time to be implemented. Hybrid working and digitalisation are also connected with the **environmental-sustainability**, with organisations focusing on the accessibility of locations to reduce traffic movements between offices and/or between home and work. Commute time between police facilities has been highlighted as one of the imperatives frequently discussed in the literature [6]-[11].

It should be mentioned that environmental sustainability is not standalone; it intersects with **cultural change within the organisation** to encourage more use of public transportation and recruitment challenges. With many current employees nearing retirement, attracting new recruits is critical. Potential hires often prefer commuting by car, complicating efforts to enhance environmental sustainability. Considering the environmental impact is highlighted in literature [7] as an imperative influential on the location choice.

The second most influential development for the BKA is **new crime areas**. New crime areas necessitate the creation of specialised departments, influencing their location choice and at the same time driving the need for **flexible accommodation solutions**.

In addition to the mentioned external and internal developments, in the studied countries, the approvals needed for the internal decisions add to the complexity of the location choice. For example, in Norway, the unions approval is necessary for location

and real estate decisions.

An extra comparison with the UK and Dubai (based on the desk research) shows that the external developments of the United Kingdom Metropolitan Police (MPS) are similar and include complying with environmental legislation and COVID-19, and the internal developments include financial constraints and operations efficiency. The internal developments of the Dubai Police include implementing their Smart Police Stations project, operations efficiency and financial security (self-sufficiency), and the external developments include COVID-19. Although digitisation plays a role in the Netherlands and Norway, in Dubai the Smart Police Stations is a major innovation.

Another illustration showing the external and internal developments per country is presented in Figure 39. The colour codes in Figure 39 align with those in Table 5 (the darker the colour, the more it is highlighted by the interviewees).

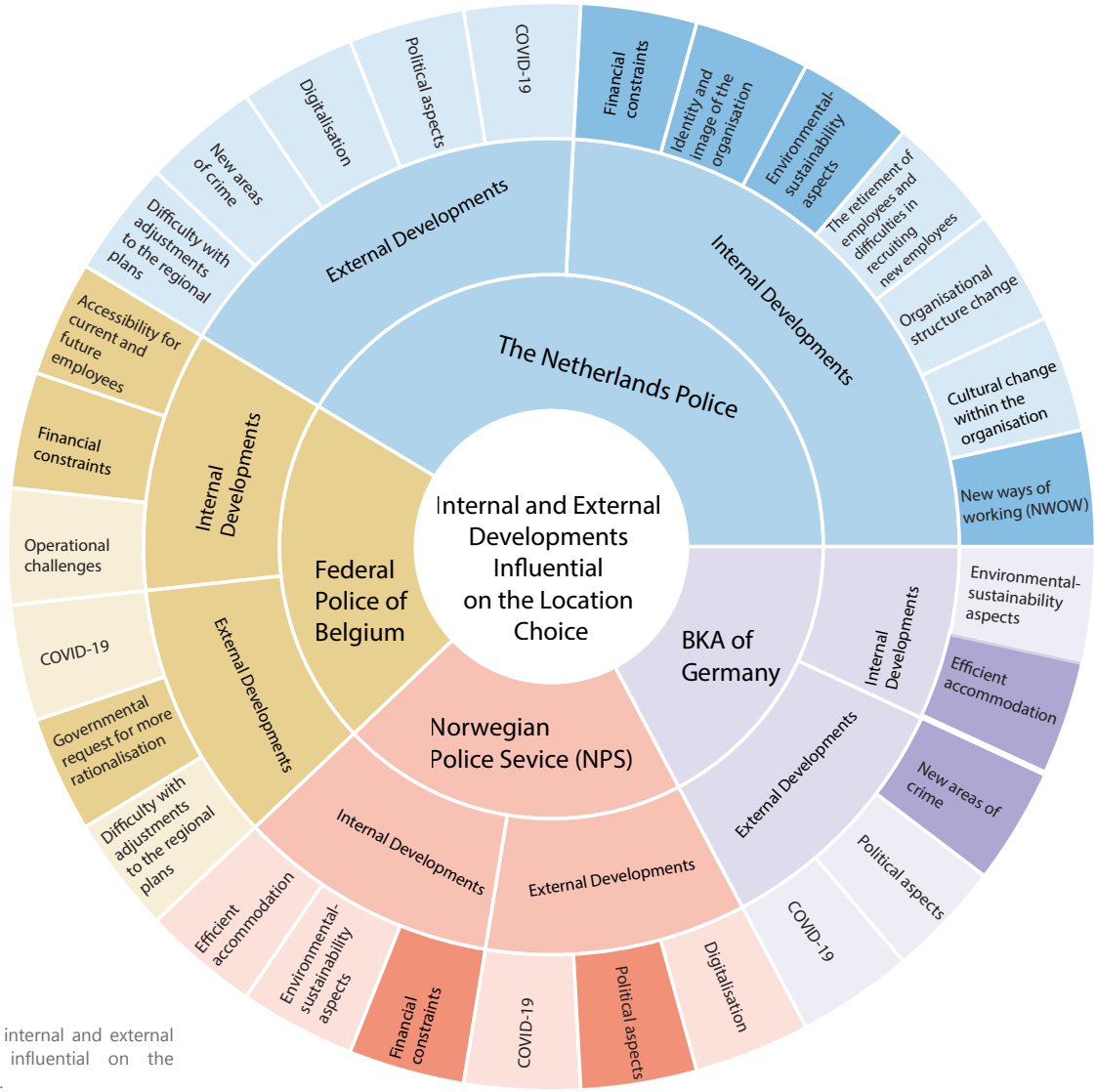


Figure 39. The internal and external developments influential on the location choice.

4.3. The nexus between the future real estate plans and the internal/external developments

The strategies and future plans discussed across various police organisations highlight a shift towards efficiency, and environmental sustainability in managing their real estate portfolios, while all of them are confronted with an aging real estate portfolio. Each organisation faces internal and external developments based on its operational needs and national context. They all have already started the new ways of working; the analysis of the data collected shows that these organisations did not share workplace in the past, then they started to share the workplaces and this has influenced the square meter needed per FTE. While COVID-19 did not influence the location choice, it added to the speed of this shift regarding the type of real estate and the square meter required per FTE.

Belgium and the Netherlands Police, on one hand, have portfolios that are evenly dispersed over the whole country, and as such have a decentralised portfolio. On the other hand, both countries are working towards a more centralised portfolio. They are actively pursuing centralisation strategies to consolidate their activities, aiming to improve operations, reduce costs, and enhance collaboration among different units. For instance, Belgium’s Federal Police is reducing the number of locations to improve operational efficiency, aiming to minimise travel time and optimise resource allocation. Similarly, the Netherlands Police emphasises functional analysis to co-locate teams for better synergy. At a country level, Norway also has a dispersed portfolio and even added new smaller offices to their portfolio. This is displayed in Figure 41.

A similar movement can be seen at the city level. The BKA in Germany already has a centralised portfolio in Berlin and Meckenheim and is now planning a sustainable all-in-one campus in Wiesbaden, emphasising energy-efficient buildings and a flexible design to adapt to future needs. In Norway, for the city of Oslo, four possible location strategies were created, as previously discussed. Although they did not choose the strategy for centralisation, the selected functional-focused strategy also involves co-locating units/functions to ensure collaboration and appropriate teamwork, thereby reducing the number of buildings they use.

Flexibility in space utilisation is also a key focus for future police accommodation. The BKA’s approach includes designing spaces that can easily adapt to changing operational requirements, promoting agility and responsiveness. This flexibility is essential in accommodating evolving technologies and operational methodologies, ensuring the accommodation remains relevant and efficient.

Despite these plans, significant challenges remain. Internal and external factors, such as budget constraints (in Belgium and the Netherlands), rising market rental costs and real estate/land values (in Norway and the Netherlands), the inability to plan ahead (in Germany and Belgium), lengthy approval processes (in Norway), and political considerations (in Norway), continue to hinder the successful implementation of these strategies.

Figure 40 and 41 illustrate a conceptual overview of movements towards centralisation or decentralisation, both inside and outside cities within each organisation. It should be noted that dashed arrows indicate a schematic influence, and the arrows’ length shows the power of its influence on real estate decisions within each region (Figure 40) and country (Figure 41). These forces are actually internal and external developments, as explained in previous sections. In these two figures, only the main highlighted developments have been included. It should be highlighted that these figures are based

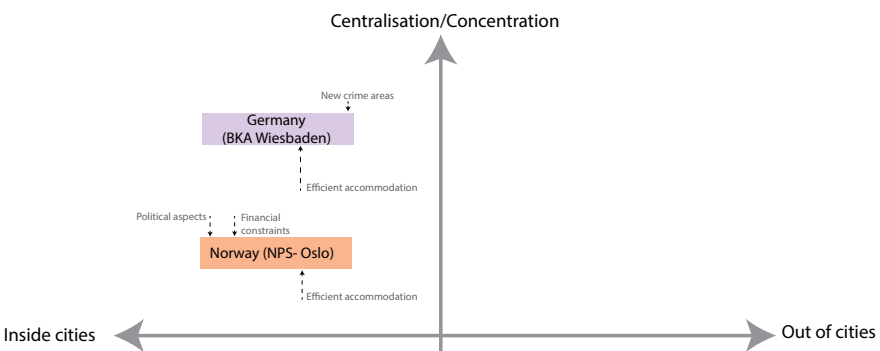


Figure 40. The internal and external developments influential on the location choice (BKA- Wiesbaden and NPS- Oslo).

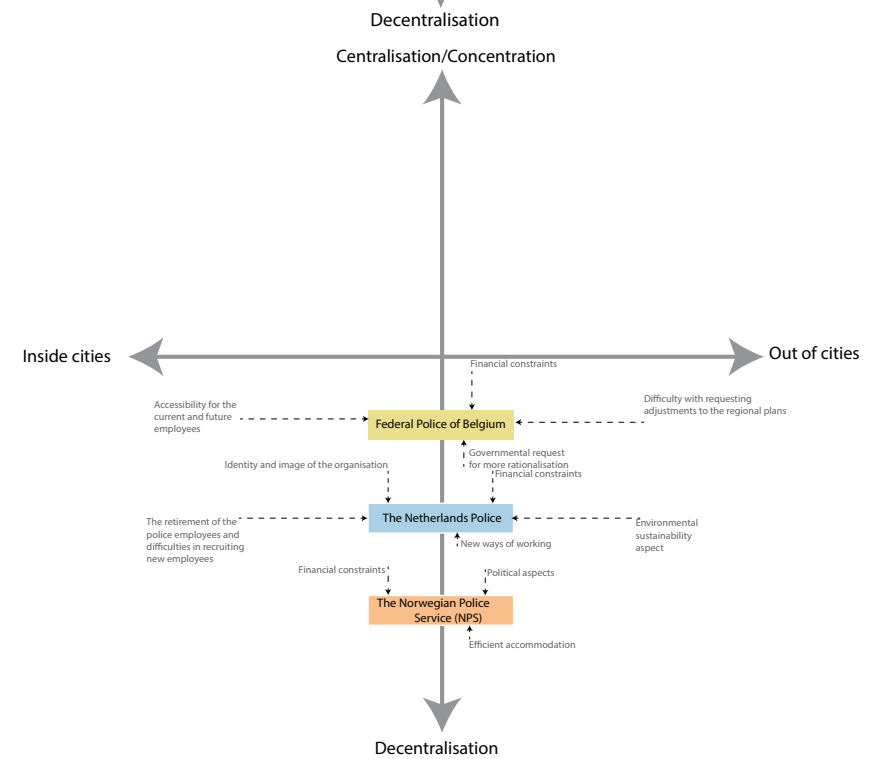


Figure 41. The internal and external developments influential on the location choice (Netherlands, Federal Police of Belgium, and NPS).

on the researchers’ impression after analysing the data. In these two figures, the term “concentration” has been added next to “centralisation”. It should be mentioned that in some publications, when scholars refer to the physical aspects (environment), the term “concentration” is used by them and the term “centralisation” is more used when referring to the organisational level. In these figures, both terms have been used equally with a similar definition.

5. Conclusions

This research aimed at understanding the location choice strategies of four police organisations, including the Netherlands Police, the BKA of Germany, the Belgium Federal Police, and the Norwegian Police Service (NPS), and used insights into the strategies of the Metropolitan Police of the UK, and the Dubai Police of the UAE from desk research. The DAS framework was used to systematise the research process (understanding the current portfolio, exploring changing demand, and future models).

To provide the theoretical background for the research, a literature review was conducted, identifying key imperatives influencing the location choices of police organisations. These imperatives include “optimising commute, congestion, and transportation costs”, “financial constraints”, “physical constraints”, and “diverse influencing factors (such as the COVID-19 pandemic)”. The review revealed that the first imperative is the most extensively investigated and emphasised by researchers. Another notable observation was that in studies related to police organisations, these organisations, and their employees are rarely involved. This finding underscored the necessity of including these organisations in studies about them. Therefore, in this research, these organisations were involved, which enhances the reliability of the data collected. Following this, desk research was conducted on selected cases, and several interviews were carried out with real estate advisers within each organisation.

Analysis of the data showed that police organisations vary significantly in size and structure. At the country level, the Netherlands, Belgium, and Norway are evenly distributed over the country, but the Netherlands and Belgium are working towards a more centralised portfolio. In Norway, new locations are being added to the portfolio, showing a move towards decentralisation as a response to political developments, while, on the other hand, they have been working to reduce the number of buildings as well. At the city level, the BKA in Wiesbaden is working towards creating an all-in-one campus and, as such, fully centralising its portfolio in this city. Although the NPS is focusing on a functionally oriented portfolio in Oslo and chose not to fully centralise, they aim to reduce the number of buildings in Oslo and, as such, move towards a more centralised portfolio.

All countries, in one way or another, are working towards centralisation and also have internal and external developments that favor decentralisation, like the recruitment of new employees in the Netherlands, accessibility for current and future employees in Belgium, and political aspects in Norway. The budget constraints (Belgium and the Netherlands), rising market rental costs and real estate/land value (Norway and the Netherlands), inability to plan ahead (Germany and Belgium), lengthy approval processes (Norway), and political considerations (Norway) remain significant hurdles for implementing these plans.

In the four cases, nine internal and six external developments have been identified, with financial constraints and hybrid working being identified as the two main developments in the cases. In literature, almost all developments have been identified as well, expect for the retirement of employees and difficulties in recruiting of future employees, identity and image of the organisation, political aspects and governmental requests, new crime areas, difficulty with adjustments to the regional plans, and cultural change within the organisation.

Whereas in the literature, the research emphasises the use of mathematical models for optimising space and resource allocation, such as the Domination Set Algorithm and Heuristic Algorithm, in the cases based on the insights of the researchers hardly

any mathematical models have been used in this process. Strategic plans are made both at the country and city levels, choosing between different strategies (i.e., central, decentral, functional or current), where the current locations form the starting point of the plans. In the Netherlands, research is being done into more inclusive, participatory optimisation approaches, such as the Preference-based Accommodation Strategy (PAS). By incorporating stakeholder preferences and promoting consensus, PAS can provide a more holistic approach to real estate decision-making. This can be further investigated in future research.

This research contributes to the limited body of knowledge on police real estate management in the scientific literature, offering a systematic approach for analysing location decisions in public sector organisations. While these findings are helpful to be used in the practice of location choice, it is needed to further work on the results of this study and understand how they could be translated into policies and actions within the police organisations.

During the webinar on the 28th of January, the findings of this report were discussed with the interviewees and several other colleagues they had introduced to join the webinar. This final report has been modified using the outcomes of the webinar.

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