Ministerie van Defensie

Accelerating Defence Real Estate

A Design-Oriented Analysis

28 mei 2026 | Delft University of Technology | MBE

The stakes

"In the 80 years since our establishment, the threat has never been this serious.“
Simone Smit, Director-General AIVD, April 2026

Real estate is a critical enabler of readiness, yet it is currently becoming a limiting factor.

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What is Defence Real Estate?

Defence real estate is the physical and licensed infrastructure that enables operational readiness, including training, maintenance, deployment, and personnel support.

It directly supports personnel, materiel, and training readiness and is therefore a critical enabler of military capability.

The Dutch Defence real estate portfolio consists of a large and complex network of bases, training areas, offices, warehouses, airfields, ports, and operational facilities across the Netherlands.

467 locations - 11.000 Buildings – 6 million m2 - 40 years average building age

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Problem statement & research gap

Rising geopolitical tensions and the deteriorating European security environment require the Dutch Ministry of Defence to rapidly modernise and expand its real estate portfolio to maintain operational readiness.

The current portfolio of 11,000 buildings across 468 locations is ageing, fragmented, growing. Constrained by governance complexity, limited execution capacity, and external regulations such as nitrogen restrictions and grid congestion.

13 structural and interconnected bottlenecks prevent the Defence real estate chain from delivering the speed, scalability, and flexibility required for modern military capability

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Problem statement & research gap

CHAPTER 1 →		CHAPTER 2
BN Nr.	Bottleneck	Assessment metrics
#1	Inadequate provision of information throughout the entire chain	Support operational readiness & function within the broader defence organisation structure (Van den Eijkel, 2025)
#2	Fragmented governance and unclear responsibilities and roles	
#3	Limited financial control over the real estate portfolio	
#4	Lack of predictability for internal and external stakeholders and late involvement	
#5	Inconsistent decision-making	
#6	Unclear prioritisation	
#7	Current organisational model is oriented on maintenance and risk management	
#8	Poor demand articulation, prioritisation and upfront planning	
#9	An overly complex chain that lacks effective chain integration	
#10	Insufficiently skilled employees	
#11	Absence of information standards	
#12	Insufficient external commissioning	
#13	Legal and administrative barriers beyond sphere of influence	

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‘From bottlenecks to a viable intervention model’

Research questions & conceptual framing

How can Defence accelerate the modernisation and expansion of its real estate portfolio to support organisational objectives?

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Research questions & conceptual framing

1. What strategic and operational requirements do the organisational objectives impose on the real estate portfolio?
2. What is the structure and scale of the Defence real estate supply chain and how effective is it in meeting these requirements?

3. What theoretical models and concepts can contribute to acceleration?
4. Which interventions identified in RQ3 are most relevant for accelerating the modernisation and expansion of the real estate portfolio?

5. What acceleration strategies are employed by comparable international organisations, and what lessons can be derived from these?
6. How can the selected interventions be clustered, designed and validated into an integrated approach to accelerate modernisation and expansion?

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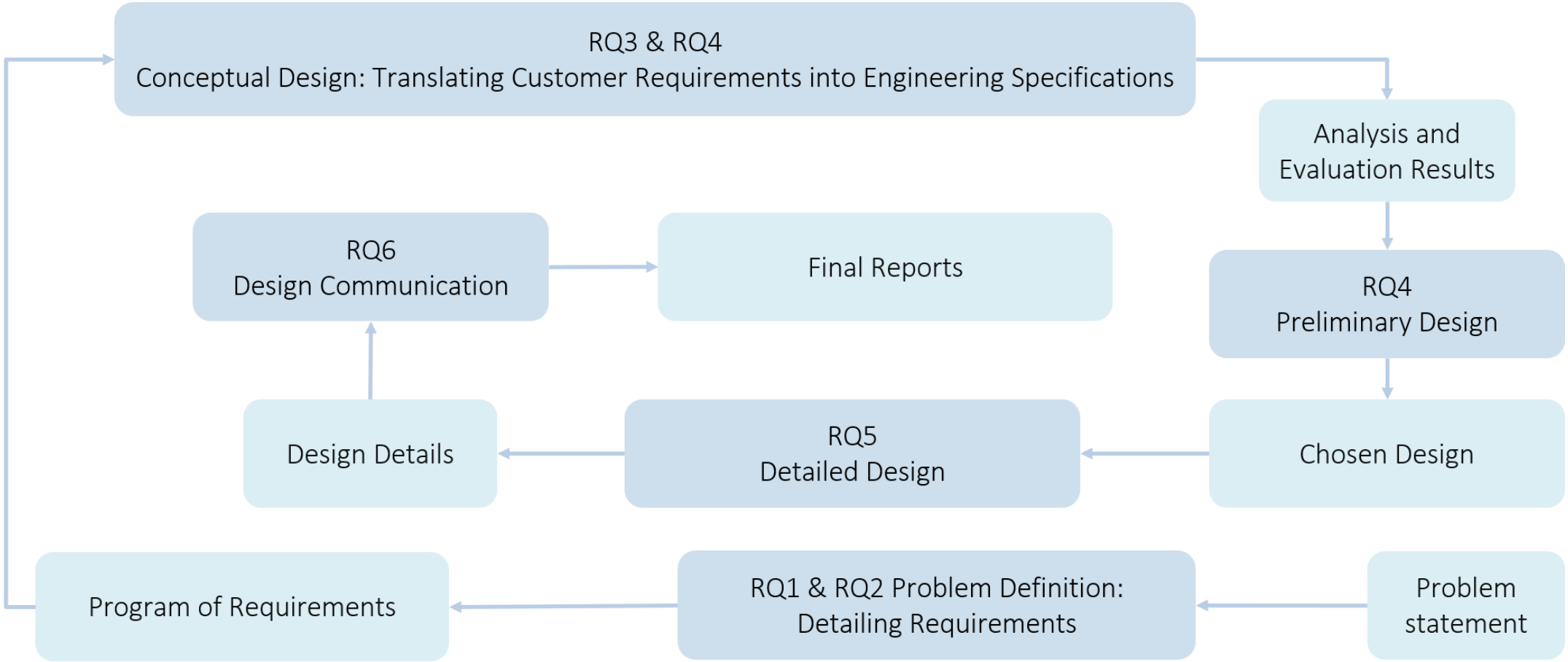
Methodology

‘To identify accelerate interventions for the modernisation and expansion of the Defence real estate portfolio ’

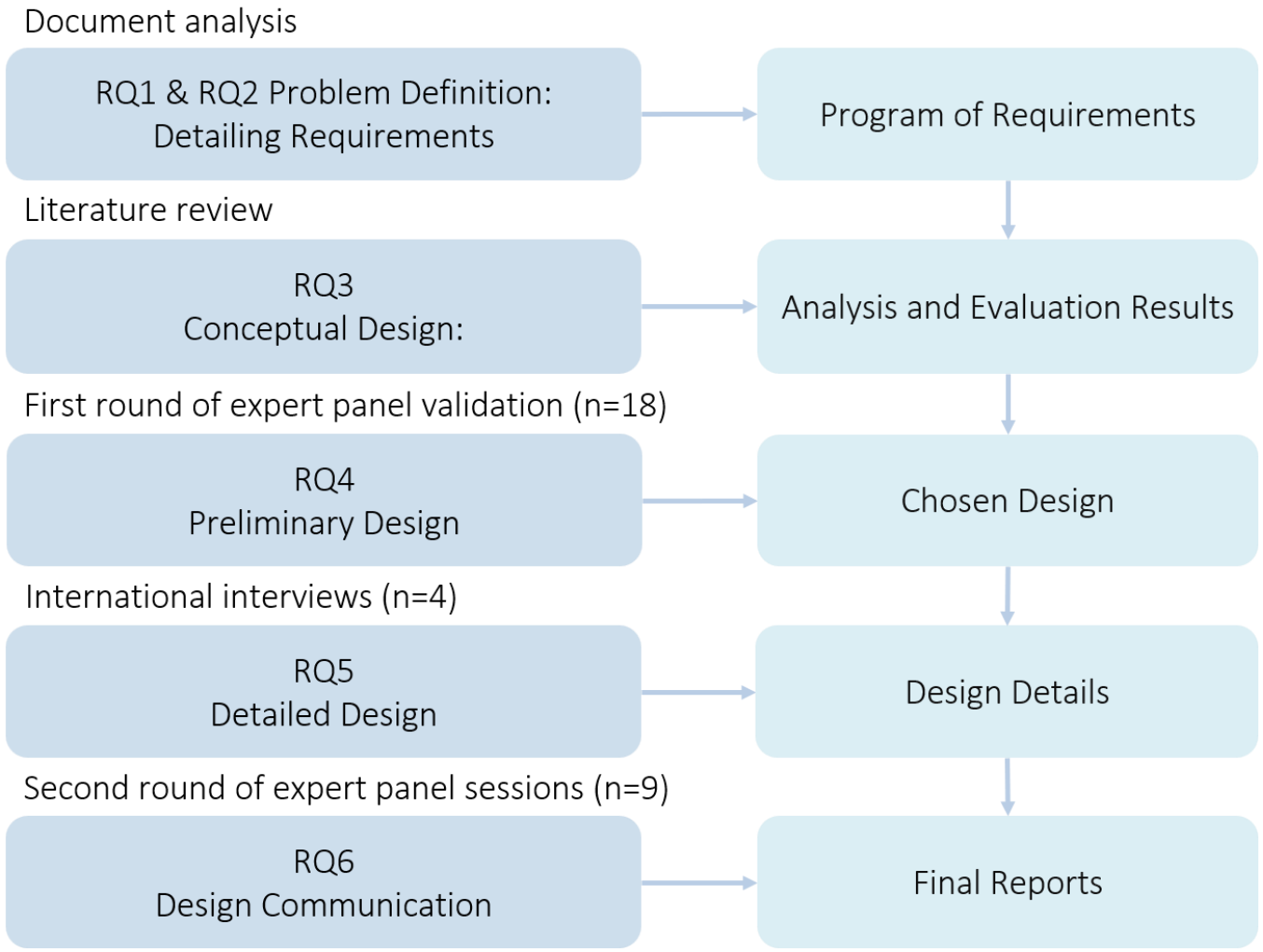
Methodology



Methodology

Mixed-method

Design-oriented



‘Data collection and findings’

RQ3

Problem statement identifies three main causes of delays in defence real estate: institutional constraints, fragmented governance, and a lack of information and capacity. Based on these findings, in the literature review 23 acceleration interventions were identified.

The results show that acceleration can mainly be achieved through regulatory streamlining, improved collaboration and governance architecture, integrated project teams, and the use of digital technologies such as AI and BIM. In addition, strong leadership, parallel processes, and organisational learning capabilities appear to be crucial for sustainable acceleration.

RQ3

CHAPTER 1 → BN Nr.	CHAPTER 2 → Assessment Metrics	Level	CHAPTER 3 AI Nr.	Acceleration intervention (AI)	Sources
#3, #13	Support operational readiness & function within the broader defence organisation structure (Van den Eijkel, 2025)	Institutional	#1	Regulatory streamlining to reduce complexity and schedule overruns.	Locatelli et al. (2017)
#13			#2	Targeted exceptions to standard procedures for specific projects	Hartley & Belin (2019)
#13			#3	Minimising the impact of political influence	Mahalingam and Levitt, (2007)
#13			#4	Explicit legislative authorisation and public legitimacy for acceleration measures	Flyvbjerg (2014)
#13			#5	Alignment of interventions with regulatory, normative and cultural-cognitive institutional pillars	Scott (2001)
#4, #6		Governance	#6	Early integration of real estate into broader military planning for increased predictability	Van Den Eijkel (2025) Lynch et al. (2021)
#2, #9			#7	A system-based governance structure encompassing the entire project delivery chain	Locatelli et al. (2014)
#9			#8	Supplementing the formal governance structures with informal mechanisms	Klakegg et al. (2016)
#5, #7			#9	Decentralised decision-making through physical co-location and collaborative depth	Eriksson et al. (2019)
#4			#10	Adopting integrated project teams to deliver projects (Shift to parallel collaboration between RVB and Defence [not linear])	Almohsen and Ruwanpura, (2016)
#12			#11	Collaborative governance with long-term investment in dialogue and transparency	Ansell & Gash (2008)
#9			#12	Shared responsibility between public and private actors	Emerson et al. (2012)
#4, #9			#13	Cooperation and standardisation through the procurement tool (Prioritize productivity over flexibility (buy existing assets, standardize new builds)	Mosey (2021)
#4			#14	Balancing internal capacity and external expectations through process and building standardisation	Andrews et al. (2011)
#9			#15	Long-term contracts for life cycle optimisation and innovation incentives	Eriksson et al. (2019)
#5			#16	Reduction of fragmented decision-making through enhanced coordination between institutions. Use uniform KPIs across the chain	Zelli (2013)
#1, #3		Process	#17	Transparent and accessible information to prevent strategic delay and cost overrun (Improve end-user communication)	Tang & Wang (2017)
#11			#18	Digital transformation (AI, AR/VR, digital twins) based on organisational readiness	Al-haimi (2025); Wuni (2025)
#9			#19	Platform-based approach to overcoming public sector constraints (progress, asset condition)	Cao et al. (2023)
#1			#20	Parallel information gathering and early start to the design phase prior to granting a permit	Eriksson et al. (2019)
#10			#21	Empowered and dedicated project leadership committed to project success is a critical enabler of acceleration	Barnes and Wearne (1993)
#10			#22	Investing in fast staff recruitment and retention of experienced project (Establish departments for recruitment, training, and staff development)	Assaf and Al-Hejji (2006)
#1, #10			#23	Developing organisational capabilities and team learning at individual, team and organisational level (Establish departments for information management, communication, research)	Denicol et al. (2020) Klakegg et al. (2016)

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RQ5

Institutional Level

Nitrogen regulation and grid congestion are the most critical external blockers

A significant share of regulatory burden is self-imposed; internal over-regulation and grey areas offer immediate room for manoeuvre

The current political climate is unusually favourable but likely time-bound

Public legitimacy exists around security but rests on a thin narrative; a broader story around societal resilience and value creation is largely absent

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RQ5

Governance Level

Governance structures are formally correct but behaviourally absent — role drift and asymmetry between Defence and RVB cause structural delay

Integrated area teams are the highest-consensus intervention

Capacity shortage is critical but has a long lead time

A market strategy built on standardisation, long-term contracts, and continuous dialogue only delivers when internal demand is stable and predictable

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RQ5

Process Level

Transparent project information and selective parallel information acquisition offer the greatest short-term acceleration potential, conditional on portfolio prioritisation being in place

Digital transformation is technically feasible but organisationally blocked by absent cloud infrastructure, classification policy, and cultural readiness

Recruitment and capability development require early initiation

A KPI-driven Strategic Real Estate Plan is currently missing but functions as the essential steering framework for all other process interventions

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RQ5

CHAPTER 1 →	CHAPTER 2 →	CHAPTER 3 →							CHAPTER 5		
BN Nr.	Assessment Metrics	Level	AI Nr.	R	A	F	Priority H/M/L	Cluster	Explanatory notes	Source
#3, #13	Support operational readiness & function within the broader defence organisation structure (Van den Eijkel, 2025)	Institutional	#1	5	5	3	H	I	AI #1 and AI #2 are most urgent, as nitrogen and grid congestion block projects before governance or process improvements can take effect	Transcript 5.1
#13			#2	5	3	3	H			
#13			#3	3	4	5	L	II	Political involvement is seen as supportive rather than obstructive	
#13			#4	5	4	3	M	III	AI #4 and AI #5 are necessary complements: the political window is in favour but temporary, and the organisation must use it rather than wait	
#13			#5	4	3	2	M			
#2, #9		Governance	#7	3	3	4	H	IV	AI #7, a chain-wide governance structure with clearly assigned roles, is explicitly identified as a prerequisite for AI #8, AI #9 and the capacity gains anticipated under AI #14	Transcript 5.2
#5			#16	3	3	2	M			
#4			#10	4	5	5	H	V	AI #10, integrated area teams, is the only intervention to receive unanimous high scores and directly resolves the handover losses and context fragmentation that generate structural delay across the portfolio	
#4, #6			#6	2	4	3	M			
#9			#8	4	4	5	H			
#5, #7			#9	4	3	5	H			
#12			#11	3	4	3	L	VI	AI #11 must precede AI #13; AI #19 and AI #21 are effective when AI #6 and AI #9 have created stable portfolio prioritisation and decentralised mandates.	
#4, #9			#13	4	5	5	H			
#9			#12	2	2	3	L			
#9			#15	3	4	5	M			
#4			#14	3	4	3	H	VII	AI #14 is at the top of the priority list, despite its low feasibility score, because the capacity gap it addresses is not incidental but crucial	
#1, #3		Process	#17	4	5	4	H	VIII	AI #17 and AI #19 are the most immediately deployable interventions with the highest short-term acceleration potential, provided the governance conditions for portfolio prioritisation are in place.	Transcript 5.3
#9			#19	3	5	4	H			
#11			#18	4	4	4	M	IX	Defence-specific condition: classification policy for real estate information is an institutional prerequisite without which the scalability of digital instruments remains structurally blocked.	
#1			#20	5	5	5	H			
#10			#22	2	4	3	M	X	AI #22 and AI #23 carry lower strategic priority but require early initiation given their long lead times.	
#10			#21	3	3	4	L			
#1, #10			#23	2	3	3	L			

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RQ6

Institutional Level

Energy autonomy via microgrids reduces operational dependence on grid rather than resolving the network problem

Project-specific exemption (for example monumental buildings) accelerate delivery while preserving democratic accountability

Legislative mandates and EU instruments (e.g. Article 346 TFEU) provide opportunities for accelerated procurement.

Acceleration requires both political legitimacy and societal support to remain sustainable.

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RQ6

Governance Level

Hybrid agency models increase speed but can create financial-political tensions

Central coordination combined with decentralised mandates prevents fragmentation and delays.

Mandatory government-wide project standard eliminates repeated structural redesign

Integrated project teams and co-located decision-makers reduce coordination loops and bottlenecks.

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RQ6

Process & Capacity Level

Reliable project data requires decades of cumulative investment; data maturity is a long-term prerequisite

Parallel processing enables design and engineering to start before all permits are completed.

Workforce growth, recruitment, retention, and security clearances are critical acceleration factors.

Regional knowledge-sharing and competency development improve long-term organisational resilience.

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RQ6

CHAPTER 1 → BN Nr	CHAPTER 2 → Metrics	CHAPTER 3 → Level	AI #	P	CHAPTER 5 → Cluster	LP #	CHAPTER 6 Learning Point (LP)	Country
#3, #13			#1	H	I	#1	Energy autonomy via microgrids reduces operational dependence on grid rather than resolving the network problem	DK
#13			#2	H		#2	Project-specific exemption instruments accelerate delivery while preserving democratic accountability	FI, DK, UK
#13			#2	H		#3	Article 346 TFEU provides EU-level coverage no national instrument can achieve alone	DE, DK, FI
#13		Institutional	#2	H		#4	Article 346 TFEU enables direct market contact bypassing public notice obligations	FI, DK
#5, #13			#3	L	II	#5	Geopolitical threat creates a reform window; structural action must precede its closure	DE, DK, FI
#5, #7			#4	M	III	#6	Acceleration optimised for political timelines without lifecycle safeguards shifts costs forward rather than eliminating them	DK
#10, #12			#4	M		#7	Financial legitimacy is necessary but insufficient without regulatory execution legitimacy	NO, DE
#5, #13			#4	M		#8	Legislative mandate eliminates project-specific political approval and provides multi-year institutional authority	NO, DE, DK, UK
#5, #13			#5	M		#9	Framing defence real estate as resilience accelerates decision-making; active cultivation required in low-legitimacy contexts	FI, DK
#2, #9			#7	M	IV	#10	Direct integration into military command eliminates intermediary coordination layers	DK
#2, #9			#7	M		#11	Hybrid agency models increase speed but can create financial-political tensions	FI, NO, SE
#2, #9			#7	M		#12	Three-tier separation generates structural coordination costs at each boundary (negative)	DE
#9			#7	M		#13	Central coordination alongside decentralised mandates prevents portfolio fragmentation	SE
#2, #9			#7	M		#14	Mandatory government-wide project standard eliminates repeated structural redesign	NO, DE
#5			#16	L				
#4			#10	H	V	#15	Integrated on-site project office eliminates round-trip decision cycle; empirically validated as effective governance instrument	DE
#4, #8			#10	H		#16	Early contractor involvement integrates market expertise before requirements are fixed	UK, DK, FI
#4, #6			#6	M		#17	Synchronising infrastructure planning with materiel acquisition prevents capability gaps	SE, DK
#9, #10			#8	H		#18	Explicit portfolio balancing against production capacity prevents commitment overload	DK
#10			#9	H		#19	Decentralising mandates requires capacity preparation at receiving organisations	SE
#5, #9			#9	H		#20	Raising autonomous decision threshold resolves two-thirds of projects within the agency	SE
#2, #5, #7			#9	H		#21	Consolidating investment decisions in a single accountable role prevents fragmentation	UK, DK
#12			#11	L	VI	#22	Annual Industry Day consolidates pipeline transparency and relationship development	DK
#12			#11	L		#23	Market dialogue framed as capacity development (not price) enables specialist investment	DE, DK,NO
#4, #9			#13	H		#24	Regional framework contracts with pre-qualified suppliers eliminate repeated tendering	NO, DK, FI
#9			#12	L				
#12			#15	M		#25	Strategic multi-year contracts (2–5 years) reduce transaction costs and mobilisation delays	NO, DK, FI
#9, #12			#15	M		#26	Long-term procurement plan (5–8 years) enables market investment in specialist capacity	NO, DK
#4			#14	H	VII			
#1, #3			#17	H	VIII	#27	Mandatory site survey phase converts unpredictable information deficits into controlled activities at minimal cost	DK
#9			#19	H				
#11			#18	M	IX	#28	Reliable project data requires decades of cumulative investment; data maturity is a long-term prerequisite	FI
#1			#20	H		#29	Synchronising infrastructure planning with materiel acquisition prevents capability gaps	SE, DK
#10			#22	M	X	#30	Workforce expansion must lead budgetary growth; capacity lags produce backlogs regardless of legislative or financial progress	NO, SE, FI, DK, DE
#10, #12			#22	M		#31	Security clearance processing becomes a bottleneck once others are resolved; dedicated procedural reform is required	FI, SE, DK, DE
#10			#22	M		#32	Social legitimacy of defence employment accelerates recruitment structurally within a five-year horizon	DK
#10			#22	M		#33	Retention of experienced personnel during rapid growth is an active strategic priority, not a residual HR concern	DK
#10			#22	M		#34	Pre-screened consultant pool with approved clearances is a practical intermediate instrument	DE
#10			#21	L				
#10			#23	L		#35	Regional knowledge exchange frameworks deliver process knowledge more efficiently than internal reinvention	NO, SE
#1, #10			#23	L		#36	Competency transition to information profiles requires both targeted recruitment and sustained internal education	DK

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‘Towards the integrated final design’

Design and validation

Defence real estate modernisation is blocked by three simultaneous constraints: institutional barriers such as nitrogen regulation and grid congestion, governance gaps, and structural capacity shortfalls.

The Acceleration Model links targeted interventions across institutional, governance and process levels, with conditionality relations that govern their implementation sequence.

Progress requires not new structures, but enforced governance, integrated area teams, and an immediate formal commitment from Defence to RVB on expected workload.

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The Final Model

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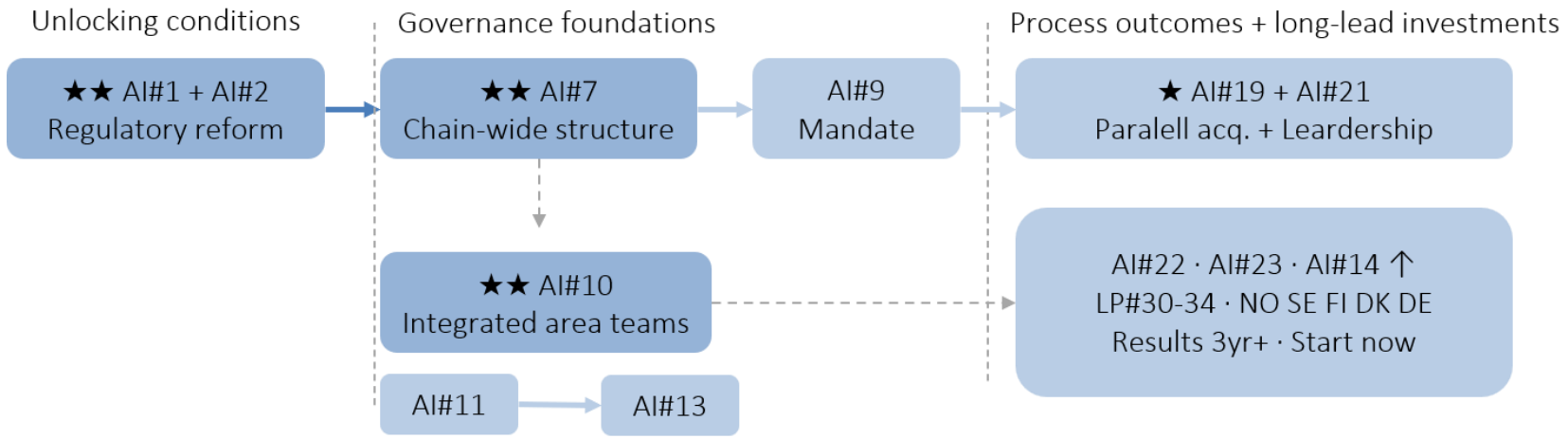
Key Sequence



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Discussion & Interpretation

This research demonstrates that delays in Defence real estate are primarily caused by institutional constraints, fragmented governance, and limited execution capacity, and that acceleration requires an integrated approach across all three levels. The resulting Defence Real Estate Acceleration Model shows that sustainable acceleration depends not only on structural reforms, but also on behavioural change, organisational legitimacy, and the parallel implementation of interventions.

Limitations

This research contributes an evidence-based acceleration model that helps the Dutch MoD prioritise and sequence interventions across institutional, governance, and process levels to improve defence real estate delivery. The findings show that successful acceleration depends on simultaneous implementation, international best practices adapted to the Dutch context, and a careful balance between speed, quality, and democratic legitimacy.

Recommendations

Future research should focus on empirically testing the Defence Real Estate Acceleration Model through longitudinal implementation studies and further investigation of key bottlenecks such as nitrogen regulation, grid congestion, governance structures, and digital transformation.

Comparative and interdisciplinary research across NATO member states could strengthen both the practical application of the model and the broader scientific understanding of military real estate management under conditions of operational urgency.

Conclusion

Political will and increased funding alone are insufficient to accelerate Defence real estate modernisation and expansion without structural solutions to nitrogen restrictions, grid congestion, governance architecture, and execution capacity.

The ‘Defence Real Estate Acceleration Model’ provides an integrated framework to overcome these bottlenecks and sustainably strengthen Defence operational readiness.

‘Accelerating defence real estate in a world that no longer permits delay’