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Resilience at the Frontline of Defense Supply

A Qualitative Study about the Configuration and Application of Resilience Strategies by Swedish Defense Suppliers and their Ability to Shape the Swedish Defense Market

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Abstract

Current geopolitical tensions and renewed military spending in Europe have placed growing pressure on defense supply chains. Swedish defense suppliers face demand shifts, strict security requirements, and expectations to become more resilient. Despite expanding research on supply chain resilience, it largely focuses on buyer-side procurement logics, and generic capabilities. Much less is known about how suppliers in highly regulated defense markets configure resilience at the product level, or how these configurations vary with product characteristics and market conditions. This study investigates how Swedish defense suppliers employ resilience strategies to manage demand fluctuations and lead-time pressures under geopolitical uncertainty. Based on semi-structured interviews and thematic analysis, this study identifies a broad but uneven portfolio of resilience strategies, including planning and intelligence practices, supplier diversification, local sourcing, buffering, and technology-enabled capacity flexibility, that tend to emerge as implicit, mindset-oriented configurations rather than formal programs. The findings of this study indicate that the suppliers' design of resilience is shaped by several factors, including product criticality, product orientation, firm size, supply-chain position, and the supplier's perceived responsibility for enhancing resilience. Most firms predominantly adapt to existing rules, incentives, and procurement logics, while only a few large suppliers close to the customer occasionally use resilience strategically to shape upstream or downstream practices. The study contributes to supply chain resilience literature by conceptualizing product-level resilience portfolios in a security-critical, highly regulated context and offers guidance for FMV and Swedish defense suppliers on how to align and structure efforts to face current developments and uncertainties.

Keywords:

Defense Supply Chains, Defense Market Dynamics, Geopolitical Uncertainty, Product-Level Resilience Strategies, Market Shaping

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List of Abbreviations

ASAP	Act in Support of Ammunition Production
CEO	Chief Executive Officer
COVID	Coronavirus
CPO	Chief Procurement Officer
EU	European Union
FMV	Försvarets Materielverk/Swedish Defense Materiel Administration
NATO	North Atlantic Treaty Organization
OECD	Organisation for Economic Co-operation and Development
R	Respondent
REE	Rare Earth Elements
RQ	Research Question
SME	Small and Medium sized Enterprises
SOFF	Säkerhets- och försvarsföretagen/Swedish Security & Defense Industry Association

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1. Introduction

1.1. Background and Motivation

Over the past decade, European defense markets have been reshaped by a series of geopolitical shocks and structural shifts (Glas & Essig, 2017). Russia's invasion of Ukraine, strained relations among long-standing allies, and repeated supply disruptions have collectively intensified demand volatility and shortened acceptable delivery timelines in the defense industry (Glas & Essig, 2017; Hutchings & Wilding, 2022). This has reinforced product lead time and volume flexibility as key factors for resilience in said market environment (Sokri, 2014). This, combined with regulations, price fluctuations, export controls, and capacity bottlenecks in defense supply chains result in uncertainty in sourcing and production planning (Hellberg, 2023; Yoho et al., 2013).

The Swedish Defense Materiel Administration (FMV), who oversee defense procurement and lifecycle support, have historically operated with limited budgets, reflecting a broader trend among many Western countries, resulting in it relying heavily on supplier relationships and on supplier and market understanding (Ekström, 2025). Many supplier practices build over the last decades that prioritize lean operations, cost minimization, and stable demand are not fitting for the market environment anymore (Yoho et al., 2013). Their long-standing strategies, shaped by a stable Cold War environment, are increasingly misaligned with today's "new normal" of frequent, unplanned shocks and disruptions (Ekström, 2025; Hutchings & Wilding, 2022). The suppliers face a structural tension between how to preserve efficiency while ensuring readiness for disruption, surge demand, and rapidly changing requirements (Yoho et al., 2013).

In this context, supply chain resilience has become a strategic imperative in the defense industry, rather than a back end operational concern (Hutchings & Wilding, 2022). Resilience enables suppliers to prepare for, absorb, and adapt to disruptions while maintaining acceptable levels of performance in cost, quality, and delivery (Ekström, 2025). Defense agencies increasingly emphasize resilience as a main focus to meet the new geopolitical market environment (Hellberg et al., 2025; Hutchings & Wilding, 2022). Yet the operationalization of resilience in terms of which concrete strategies are feasible and effective under different product and market conditions and which strategies are actually applied from suppliers remains unevenly understood and researched in the defense sector (Ekström, 2025; Melnyk et al., 2014). This thesis responds to that need on national level with a focus on the Swedish market.

1.2. Previous Research & Research Gaps

Over the past decade, particularly since COVID, research on supply chain resilience has expanded, emphasizing the consolidation of resilience capabilities, practices, and performance outcomes across industries (Padovano & Ivanov, 2025; Statsenko et al., 2025). However, most of the literature focuses on the firms' adaptability to disruptions and market shifts, rather than on how particular portfolios of strategies are configured and used at the product level (Nguyen et al., 2023; Paul & Saha, 2025; Salim et al., 2022).

Within the defense sector, existing studies typically examine overall defense supply chain challenges, network resilience, or redesign options in response to new geopolitical conditions, mostly from a buyer-perspective (Loska et al., 2025; Sani et al., 2022). Insights about how

suppliers themselves view the market developments, resilience in general and how they apply corresponding resilience strategies on the product-level remains limited.

Moreover, while the general supply chain literature documents a broad menu of resilience practices, evidence on why specific practices or configurations are applied under market and product conditions remains limited. This fragmentation is especially pronounced on the supplier side in national contexts such as Sweden (Ekström, 2025; Paul & Saha, 2025).

Finally, an emerging but still thin stream of research links micro-level design to market-shaping outcomes (Nenonen et al., 2024; Storbacka et al., 2022) but has rarely been connected to suppliers' resilience strategies and almost not at all in sole-buyer or specifically defense markets.

How this thesis responds to those research gaps and their positioning within the broader literature are further elaborated in Section 2.5.

1.3. Research Question and Sub-Questions

The overarching research question guiding this study is:

RQ: How do Swedish defense suppliers employ resilience strategies at the product level to manage demand pressures and navigate their market environment under geopolitical uncertainty?

To answer this question, this thesis examines the following sub-questions:

- **RQ1 (Configuration):** Which resilience strategies and configurations are employed by Swedish defense suppliers at the product level?
- **RQ2 (Mechanisms):** Why are particular strategies selected or not selected by Swedish defense suppliers under given product and market conditions?
- **RQ3 (Market Effects):** How do these strategy-configurations reflect adaptive vs. market-shaping intent, and which concrete shaping-enablers do Swedish defense suppliers need to possess to engage in market shaping?

1.4. Aim of the Thesis & Intended Contributions

This thesis examines how Swedish defense suppliers configure and apply product-level portfolios of resilience strategies to manage current market developments. It explains why particular configurations are chosen under specific product, market and operational conditions, and how these choices signal primarily adaptive versus market-shaping intent. By shifting attention from buyer-centric, system-level perspectives to supplier-side decision-making in a sole-buyer defense market, the study links micro-level resilience design to potential market-level effects. This research therefore advances three contributions:

First (theoretical, resilience configuration): This research develops an empirically grounded mapping between supplier capabilities in the current market environment, product-level characteristics and the configuration of resilience strategies in the Swedish defense supply base. Leveraging specifically the distinction between dual-use and pure-defense focused products and the product categorization according to the Kraljic Matrix (Ekström et al., 2021; Kraljic,

1983). Rather than cataloguing practices in isolation, it explicates the configurations that recur under specific conditions, the reasons behind their occurrence and the trade-offs they entail, thereby extending contingency views of resilience and resilience strategies.

Second (theoretical, market shaping): This study aims to extend market-shaping research into the context of a sole-buyer defense market by analyzing whether defense suppliers' resilience strategies are primarily adaptive to existing institutional and market conditions or exhibit an explicit intent to shape them. Building on the intent as the defining criterion for market-shaping behavior (Nenonen et al., 2024), the study identifies which suppliers engage in purposeful shaping and which remain reactive to customer requirements. This research aims to further specify the concrete enablers that condition suppliers' ability to shape resilience expectations, thereby linking intent to the structural prerequisites for shaping in the defense sector. By doing so, the study connects micro-level resilience efforts to the macro-level evolution of the Swedish defense market by identifying which elements of the market currently subject to shaping and under what institutional constraints.

Third (practical): Lastly it derives actionable implications for FMV and policymakers regarding supplier engagement, contracting frameworks, and information architectures that support fit-for-purpose resilience in the developing geopolitical and market condition. For suppliers, it outlines decision considerations and possibilities to better adapt to mentioned developments.

1.5. Conceptual Clarifications

This thesis adopts a focused vocabulary to sharpen the scope:

- **Resilience** in this research context is defined as the suppliers' ability to react to and manage sudden or extreme changes in demand, speed, and uncertainty in their operating environment (Ekström, 2025; Glas et al., 2013).
- **Resilience strategy** refers to a purposeful configuration of design and governance choices (e.g., strategic stockpiling, supplier diversification, or multi-sourcing) implemented to mitigate, withstand, and recover from disruptions while sustaining delivery performance (Ekström, 2025; Glas & Essig, 2017; Hellberg et al., 2025).
- **Defense supplier** is in this research context associated with an organization that is currently involved with the Swedish government and offers or develops products, subsystems, or components that are or may be integrated into military capabilities. The term includes both prime contractors and lower-tier subcontractors, including pure-defense and applicable dual-use firms alike.
- **Dual-use vs. Pure-defense** products refers to the differentiation between products that are solely produced for military purposes (pure-defense) and products that have civilian and defense applications (dual-use) (B. Jiang et al., 2025; Rutner et al., 2012).
- **Agility** is conceptualized as the ability to efficiently change operating states in response to environmental uncertainty or volatile market conditions, which in our context is primarily reflected in lead-time compression and rescheduling (Payne & Peters, 2004; Sokri, 2014).
- **Flexibility** is understood as the ability to respond to long-term or more fundamental changes in the supply chain and market environment by adjusting the configuration of the supply chain, most notably through volume flexibility. (Ekström, 2025; Hutchings & Wilding, 2022; Urmston et al., 2024).

In our research the priorly distinguished adjacent constructs (Ekström, 2025): robustness (maintaining function under a disturbance without change) and redundancy (deliberate slack or duplication) are identified as key parts of resilience (Hutchings & Wilding, 2022; Ivanov et al., 2014). We analyze resilience at the product level, recognizing that the same firm may employ different strategy configurations across product lines depending on market, lead time and volume flexibility constraints.

This research focuses on the individual organizations' resilience strategies and aims to generate conclusions on how those individual approaches can shape the network/market resilience approaches (Schulman, 2023).

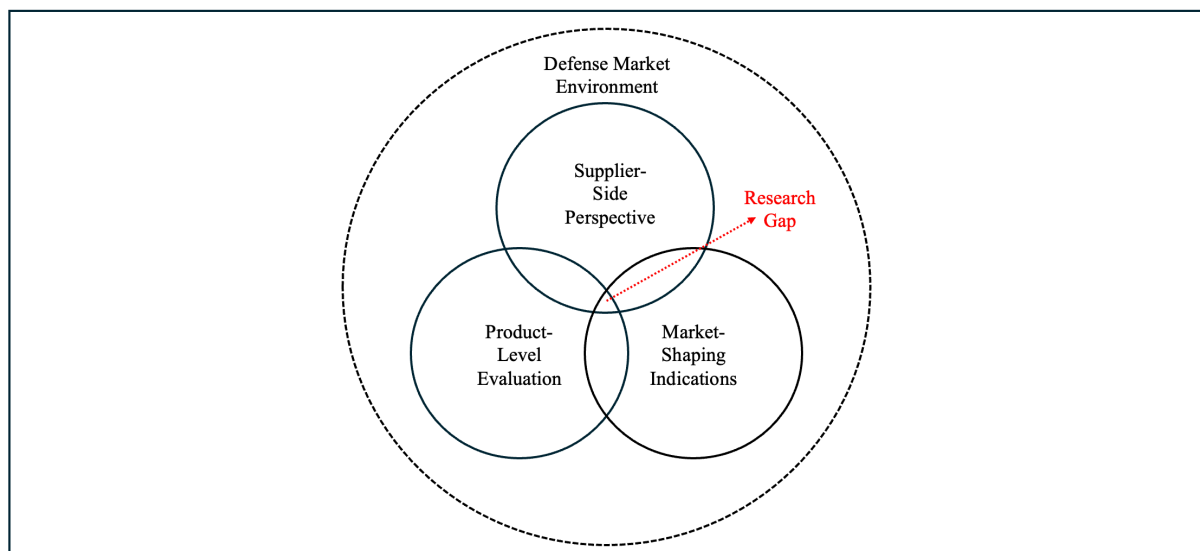
1.6. Scope and Delimitations

The study focuses on Swedish defense suppliers involved with FMV during the current period of heightened geopolitical uncertainty. As the defense market is highly globalized, there are multiple contextual factors influencing the national defense markets, including Sweden, that cannot be accounted for in their entirety, leaving room for future research which will be further addressed in the discussion (Section 6). The unit of analysis is the individual product level strategy portfolio, which enables the examination of within-firm variation in resilience strategy configurations. This research concentrates on material and systems relevant to defense materiel, services that are purely organizational (e.g. consulting or data-security applications) fall outside said scope. The study does not analyze classified programs or sensitive operational details beyond what interviewees can disclose ethically and legally. While considering dual-use dynamics where relevant, this thesis focuses on the military markets and do not evaluate global civilian markets in depth. It rather examines how spillovers from civilian demand and capabilities influence resilience choices for products supplied to defense customers in Sweden. The time horizon is contemporary, capturing practices during and after recent geopolitical shocks.

2. Literature Review & Theoretical Framework

In the following section we will review the literature and lay the theoretical foundation for this research. We evaluate current market shifts (2.1) to clarify why resilience has become a strategic rather than purely operational concern in the defense sector. After establishing resilience as a strategic concern, we turn to the supplier perspective (2.2) and show that limited supplier understanding of today's defense market conditions obstructs their ability to meet emerging requirements. Building on prior supply chain resilience literature we consolidate the findings of concrete resilience strategies into a manageable set of categorized strategy bundles (2.3) whose existences in the defense sector from the supplier perspective we intend to explore by answering RQ 1. Lastly, we present our theoretical framework (2.4) that builds the foundation to answer specifically RQ 2 and RQ 3 by enabling us to evaluate the reasons behind the application or non-application of resilience strategies and the intent and ability to shape the defense market from a supplier position.

Figure 1. Visualization of the Research Gap in Resilience Literature



2.1. Shifts in the Defense Market

European defense markets have been subject to heavy restructuring following the COVID Pandemic and the ongoing Ukrainian war (Karbovska et al., 2025; Singleton, 2024). A sharp, persistent demand increase, and the shift to modern warfare revealed the necessity of adjustments of the market players (Hellberg & Lundmark, 2025; Sani et al., 2022). Lean, just-in-time networks proved unable to absorb surge volumes, exposing bottlenecks in qualified suppliers, materials, and skilled labor, prompting buyers and suppliers toward longer-horizon, trust-based contracting and coordinated capacity expansion (Hellberg & Lundmark, 2025; Loska et al., 2025; Singleton, 2024). The EU prioritized the defense modernization with increasing priority and increasing financial support to facilitate adjustments to the current developments for both EU and NATO members. Initiatives like e.g. the ASAP from 2023 aim to enhance EU's production capabilities (Hellberg & Lundmark, 2025). Despite these efforts, due to the limited state influence over firms and limited governmental bargaining power, the EU, and especially Sweden, are not at the intended stage of modern defense systems including resilient supply chains, agility and flexibility. This lag is also reinforced by the foundational

cultural shift needed to go from a prior anti-military mindset to a pro-military one (Ekström, 2025; Hellberg & Lundmark, 2025; Loska et al., 2025).

Current market developments landed on top of the EU-wide mindset, focused on outsourcing, inventory reduction, and dependence on commercial supply chains (Loska et al., 2025). Choices that optimized peacetime efficiency but raised exposure to disruption. Policy responses increasingly frame the market as “never normal”, requiring supply chains designed for both predictability and shock, emphasizing resilience for agility and flexibility (Hellberg & Lundmark, 2025; Loska et al., 2025). The UK Defense Supply Chain Strategy articulates an exemplary bi-modal design combining efficiency and agility, a shift in the value proposition beyond cost to include reliability, service, and sustainability, and practical pathways like near/reshoring of critical nodes when third-country concentration creates resilience risk (Hutchings & Wilding, 2022). It also calls out the need for earlier, clearer demand signals to the industry and more collaborative contracting and data-sharing between suppliers and the government (Hellberg et al., 2025; Hutchings & Wilding, 2022).

2.1.1. Relevance of Agility and Flexibility

Research has touched upon the relative difference of military demands between peace and wartime (Loska et al., 2025). By doing so it additionally raised the importance of agility by being the bridge between operating at a cost-efficient basis and increasing volume and speed as per demanded criteria (Peltz et al., 2015). Prior research also touches on the shift from peace-to wartimes as it is associated with a shift towards a higher emphasis on agility and flexibility, especially in terms of lead times and volume adjustments (Elvemo, 2025; Hutchings & Wilding, 2022; Sokri, 2014).

2.1.2. Relevance of Dual-Use vs. Pure-Defense Focus

Diving into the product level and its importance for adaptability to the market developments (2.3.7), an additional focus of this research is put on pure defense vs. dual-use products, as the market orientation of the product in focus significantly influences the organizational capabilities and therefore the capabilities to build and apply resilience strategies (Rutner et al., 2012). Prior research indicates different focuses of pure defense and dual-use oriented products in terms of their strategic resilience approaches. A dual-use orientation may enable the organization to e.g. smooth demand by being able to shift between military and civilian applications, build broader supplier networks and have a broader variety of financing options. Pure defense suppliers in turn seem more limited due to higher compliance and security requirements and a narrower customer dependency according to prior literature (Jiang et al., 2025; Rutner et al., 2012). Dual-use focused products may therefore have more scope for flexibility in their resilience approaches and are not as dependent on a concrete number of resilience strategies as pure-defense focused products may be.

2.2. Supplier-Side in the Defense Market

In the following section we will shift the focus to the supplier perspective in the defense market to understand how defense suppliers experience and respond to the new demands. It is important to understand the constraints that suppliers to the FMV operate under to effectively evaluate the strategic choices available to them. The first is the compliance burdens and regulations from both Sweden internally, as well as EU and NATO (Hellberg et al., 2025).

The second are the constraints stemming from uncertainty, driven primarily by the Russian invasion of Ukraine and amplified by the slow internal processes of governmental agencies in reacting to these changes, creating tradeoffs between cost efficiency, speed and ability to provide new demanded volumes (Yoho et al., 2013).

For Sweden, defense procurement authorities are already moving toward segmentation differentiating supply strategies by operational requirements and the market’s on-time delivery ability (Hellberg, 2023). Trying to further understand the supplier side and provide a policy anchor for analyzing supplier-side choices under today’s volatility. That segmentation logic aligns with the observed European shift from transactional to strategic partnerships in the defense market (Ekström, 2025; Hellberg, 2023; Hellberg & Lundmark, 2025). Concluding a further need for understanding of supplier side decisions and providing a clear backdrop for studying which resilience strategies suppliers apply and how product and market characteristics condition these strategies to deal with the current market developments.

2.3. Resilience Strategy Bundles

In the recent literature we identified several resilience strategies applied by defense and non-defense suppliers that have been analyzed, identified as key strategies from the customer perspectives and deem advantageous to be able to adjust to the mentioned geopolitical and market developments in the military setting (Ekström, 2025; Melnyk et al., 2014). The following resilience strategy bundles are not intended to be mutually exclusive or collectively exhaustive but rather to provide a general framework for organizing the strategies identified in the literature.

Figure 2. Resilience Strategy Bundles

Bundles and Categorization	Resilience Strategies
1) Buffers & Circularity What: Physical slack that shortens LT variability and supports short-term surge.	Includes: Strategic stockpiling/safety stock (e.g. Hellberg et. al, 2025) Re-use & recycling of critical parts (Salim et. al, 2022)
2) Sourcing Structure & Network Flex What: How you shape the tier-1/2 network to avoid single points of failure.	Includes: Back-up suppliers/supply reservations (e.g. Dolgui & Ivanov, 2021) Supplier diversification / multi-sourcing (e.g. Ekström, 2025) Network flexibility (supplier in/out) (e.g. Ivanov et. al, 2014) More local/regional partnerships (e.g. Yoho et. al, 2013)
3) Logistics & Routing Agility What: Moving stuff differently when lanes choke.	Includes: Re-routing strategies / alternative transportation routes (e.g. Ekström, 2025)
4) Planning, Intelligence & Category Management What: Seeing risks early and aligning buys to value.	Includes: Enhancing forecast accuracy (e.g. Altay & Pal, 2023) Scenario planning/action plans (e.g. Namdar et. al, 2021) Continuous & upstream due-diligence (risk/threat ID) (e.g. Yoho et. al, 2013) Supply chain transparency/collaboration/supplier network integration (e.g. Kapletia & Probert, 2010) New ways of working with category management (Diff. priorities) (e.g. Hellberg et. al, 2025)
5) Contracts & Risk-Sharing What: Commercial mechanisms that unlock capacity and buffers.	Includes: Adopting alternative contractual frameworks/collaborative contracting (e.g. Hellberg et. al, 2025) (Often linked) supply reservations/back-up suppliers by contract (e.g. Dolgui & Ivanov, 2021)
6) Capacity, Redundancy & Technology Enablers What: Physical/technical levers that increase throughput and resilience.	Includes: Enhancing technology focus (process automation, testing capacity, additive) (e.g. Yoho et. al, 2013) Redundancy focus (remove single points of failure; add spare tooling/fixtures/people, not ‘waste more’) (e.g. Ivanov et. al, 2014)
7) Design & Portfolio Orientation What: Engineering choices that create flexibility.	Includes: Emphasize dual-use items (commercializing previously pure-defense where permissible), modularity/commonality (if applicable) (Rice, 2025)

In the following we elaborate on each category bundle, how the resilience strategies connect, how to interpret the concrete resilience strategies from the literature and how they may enable agility and flexibility in the new defense market environment.

2.3.1. Buffers & Circularity

Resilience strategies in this category are especially relevant to be able to react to short term increases in demand and in the mid- and long-term perspectives can be strategical factors to shorten product lead times (Hellberg et al., 2025; Macdonald & Corsi, 2013). A structured and strategy matching inventory management mitigates the risk for suppliers to be dependent on their suppliers, ensuring short-term flexibility and agility (Ivanov et al., 2014; Rutner et al., 2012). Especially when it comes to scarce inputs and critical REE's, strategic stockpiling determines the supplier's ability to deliver (Salim et al., 2022). Specifically for those resources circularity applications like re-use and recycling strategies can ensure additional operational stability (Salim et al., 2022).

2.3.2. Sourcing Structure & Network Flex

Continuous and proactive control and evaluation of the own supplier network are critical determinants for defense suppliers to react to geopolitical and market developments and ensure delivery at any time (Hutchings & Wilding, 2022). To avoid dependency on only one or a few suppliers and the risk of production stops there is the need for network flexibility (Ivanov et al., 2014). This flexibility aspect highly intertwines with a diversification of the supplier portfolio and the application of multi sourcing (Glas et al., 2013; Salim et al., 2022; Statsenko et al., 2025). Additional resilience measures include having back-up suppliers or supply reservations in place to be able to adjust to supplier drop-outs or short-term demand increases (Hellberg et al., 2025).

Mentioned strategic approaches highly correlate with the current developments to move away from global to more local sourcing. Incorporating the intention of being less dependent on other countries and having shorter ways to further ensure agility and flexibility (Hüther, 2025; Kancs, 2024).

2.3.3. Logistics & Routing Agility

A major advantage in the defense and military setting is the early identification of risks and having action plans in place to react to those risks (Macdonald & Corsi, 2013). Especially for military operations, including their supply chain, it is important to stay flexible. This includes the ability to restructure delivery routes ensuring continuous supply, as prior routes may e.g. become prospects to warzones (Dolgui & Ivanov, 2021; Ekström, 2025).

2.3.4. Planning, Intelligence & Category Management

Enhancing forecast accuracy and conducting regular scenario analyses is important for the suppliers to be ready for sudden changes, generating situational awareness and agile internal structures (Dubey et al., 2021; Namdar et al., 2022; Pfeiffer et al., 2017). This may include quantifying risks and adjusting the category management approaches, in terms of e.g. which are critical items, critical suppliers and critical developments (Hellberg et al., 2025; Hüther, 2025; Kancs, 2024) as well as supply chain transparency to be able to identify risks in the own supply chain as well as being able to react to them and recover from their consequences (Ivanov et al., 2014).

2.3.5. Contracts & Risk-Sharing

Further building on the planning ability as an important resilience factor in the defense market, contracts are a binding way of being able to plan. This includes contracts with customers enabling to plan production, contracts with back-up suppliers to ensure their services when needed or collaborative contracts with partners to be able to outsource production in both ways if demand spikes (Glas et al., 2013; Hellberg et al., 2025; Kapletia & Probert, 2010). The focus shifts from short-term price focused contracts to long-term trust-based agreements building collaboration and facilitating risk-sharing for both sides (Hellberg et al., 2025). As for their key influence in the defense market, governmental decisions about more long-term contracts and potential higher state ownership will foundationally influence the supplier's ability to act, particularly in that field and to initiate actions (e.g. building new product lines etc.) to ensure agility and flexibility in the future (Jiang et al., 2025).

2.3.6. Capacity, Redundancy & Technology Enablers

To be able to further increase throughput and resilience, suppliers enhance their focus on redundancy and technology. Both of those are highly correlated, as the intended outcome of higher technology focus (e.g. by process automation or increasing testing capacities) often is the reduction of redundant and / or potential failure points in the processes at hand (Ekström, 2025; Namdar et al., 2022).

2.3.7. Design & Portfolio Orientation

To further enhance flexibility numerous suppliers that currently focus on solely defense or civilian markets consider moving towards dual-use applications of their products (Peltz et al., 2015). Those dual-use applications provide additional possibilities to leverage opposite production lines in times of demand surges or the leveraging of expertise from one side to the other. For that matter a re-orientation of the product portfolio is another strategic resilience approach (Peltz et al., 2015).

2.4. Theoretical Framework

Our analysis is guided by a theoretical framework that aligns directly with our three research questions addressing the identified research gaps and structures how interview data is interpreted.

By combining procurement and resilience foundations (RQ1), contextualized mechanism testing via product orientation (RQ2), and a market-shaping lens on intent and potential effects (RQ3), our theoretical framework guides our thematic analysis of the interviews and structures how evidence is assembled across the thesis.

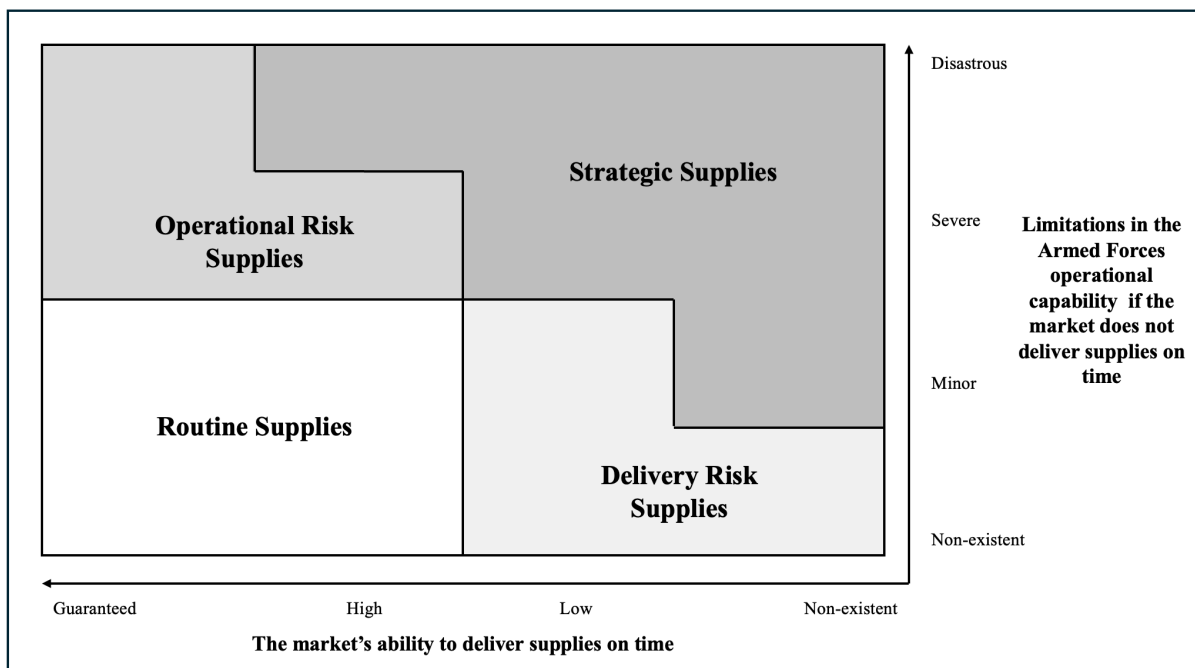
2.4.1. The Kraljic Matrix

The Kraljic matrix serves as the primary framework for distinguishing between product types and categorizing corresponding resilience strategies. As this research aims to explore whether product-category characteristics influence the resilience strategies applied by defense suppliers, the Kraljic matrix offers a structured way to capture these distinctions systematically.

As a well-established analytical tool in supply chain management, the Kraljic Matrix offers a theoretically grounded foundation that has been widely adopted in prior research to guide similar analyses and to derive meaningful conclusions regarding strategic responses across different product segments. (Ekström et al., 2021; Kraljic, 1983)

As the original Kraljic Matrix was designed for applications within civilian markets, certain adaptations are necessary to ensure its applicability to the defense context (Ekström et al., 2021; Kraljic, 1983). Therefore, the matrix' dimensions are redefined emphasizing delivery on time and the operational impact for the military, reflecting the criticality of a product's availability and performance for maintaining military readiness and operability (Hellberg & Lundmark, 2025; Hutchings & Wilding, 2022).

Figure 3. Kraljic Matrix in the Defense Context (Ekström et al., 2021, p. 6)



The developed adaptation of the Kraljic Matrix emphasizes the importance of operational impact to get the supplies in the required amount in the required time (Ekström et al., 2021). Therefore, fitting the elaborated market context and our theoretical and analytical framework to guide our characterization of resilience approaches and the argumentation for certain reasons behind those approaches, depending on the product category.

2.4.2. Market Shaping Theory

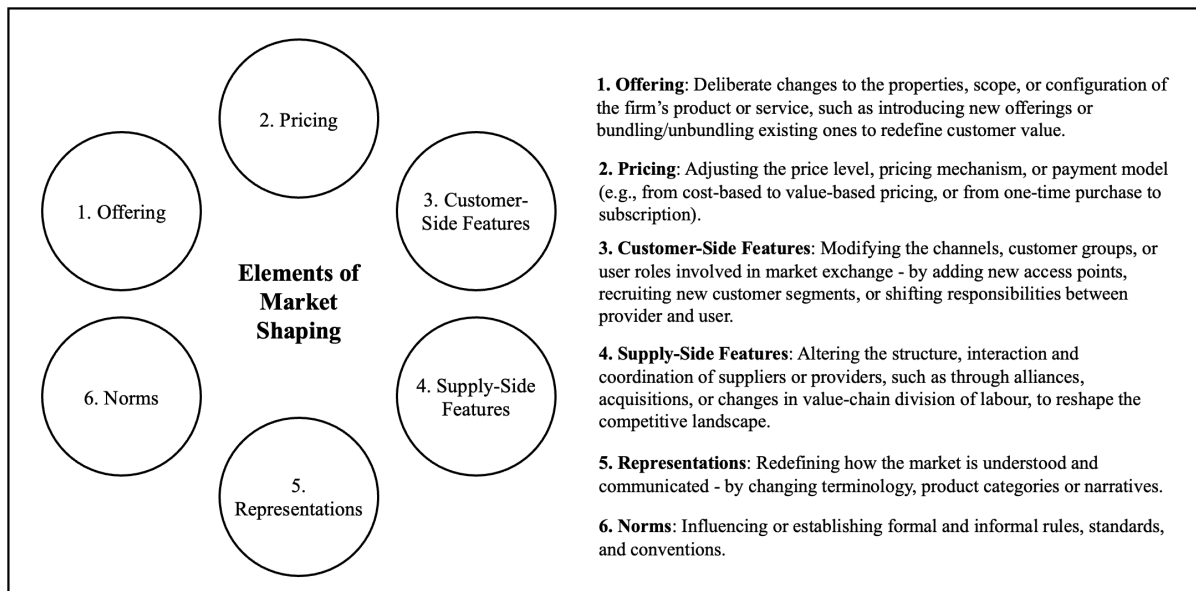
Following the COVID pandemic and the current geopolitical developments, the European defense markets face heavy restructuring, giving the market actors the ability to leverage this situation to proactively influence those market restructuring (Pedersen & Ritter, 2022; Singleton, 2024).

Market shaping theory challenges the traditional assumption that markets are static environments to which firms are solely able to adapt. Instead, markets are constructed configurations of actors, practices, and institutions that are continuously reconfigured through purposive actions (Nenonen et al., 2024). Those actors in the market include the buyer and the

supplier side, making organizations in both positions capable of influencing the rules, roles, and resource flows that define how markets function (Flaig et al., 2021b).

“[...] Market-shaping entails viewing markets as endogenously enacted environments and seeks to induce fundamental changes in these markets through firm strategies.” (Nenonen et al. 2024, p. 1)

Figure 4. Elements of Market Shaping (Nenonen et al., 2024, p.14)



Market-shaping theory identifies six market elements that can be shaped in the market and maintains that intent is a necessary condition for an action to constitute market shaping (Nenonen, 2024). Actions taken by the market actors either have the intent to adapt to the market environment, or the intent to actively shape it (Flaig et al., 2021a; Nenonen et al., 2024). If there is the intent, the shaping actions result in changes in one of the six elements of market shaping and change the market respectively (Figure 3). Building on that intent, the market shaping ability then depends on the capabilities of the market actor on the one hand and other external factors like e.g. institutional rigidity on the other hand that may limit the room for shaping activities (Esbjerg et al., 2024; Liljenberg, 2022).

Enhancing resilience at the market level in the defense sector requires the collective resilience of its constituent actors (Beninger & Francis, 2021; Mazzucato, 2024; Sani et al., 2022). Market shaping theory therefore provides the foundation for us to evaluate if and how applied supplier resilience strategies can shape the defense market and which elements of the defense market. Thereby concluding the broader application of our research findings.

2.5. Synthesis and Research Gaps

The reviewed literature substantiates the outlined research gaps (1.2). First, current supply chain resilience literature converges on a variety of resilience practices (Kancs, 2024; Padovano & Ivanov, 2025; Statsenko et al., 2025) that we bundle into seven resilience strategy clusters.

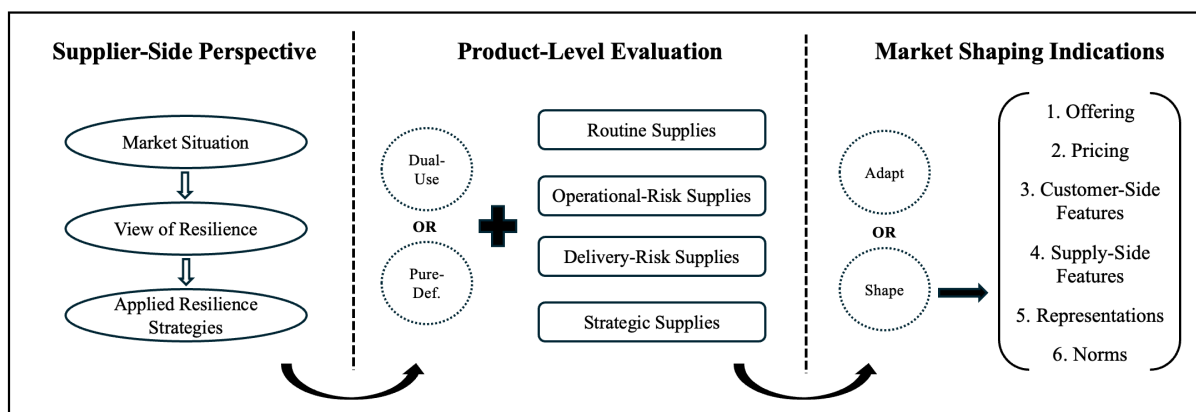
However, only a small set of studies (Nguyen et al., 2023; Paul & Saha, 2025; Salim et al., 2022) examine concrete, applied resilience strategies in specific market settings, and almost none analyze how these strategies are configured and used at the product level, specifically in the defense market.

Second, the analyzed literature exemplifies the scarce research in the defense sector on the supplier side. Prior research has predominately adopted an agency or procurement lens, emphasizing legal compliance, cost-efficiency, and acquisition governance (Glas & Essig, 2017; Ministry for Foreign Affairs, 2024; Pedersen et al., 2025). The supplier side research that has been done focuses on the operating environment and constraints that the suppliers must operate under terms of rules, regulation, and specific market dynamics that direct decision making, thus treating military suppliers as reactive agents on the market and not as strategic decision makers (Ekström, 2025; Glas & Essig, 2017). The literature agrees that in peacetime the military supply chain is guided by cost efficiency, while in heightened security situations cost, volume and speed become co-leading factors (Yoho et al., 2013), yet we still know little about how suppliers themselves perceive these developments, understand resilience, and how this understanding guides their resilience decisions on the product level.

Sokri (2014) introduces widely cited measures of military supply chain flexibility, distinguishing between volume and lead-time (delivery) flexibility, and Elvemo (2025) shows how such flexibility contributes to resilience in military operations. Further, prior research on current defense market developments shows that lead-time regimes and volume flexibility are key conditioning variables for resilience, while product categorizations affect firms' abilities to adjust (Jiang et al., 2025; Peltz et al., 2015; Rutner et al., 2012). Yet, empirical studies that analyze how the interaction between agility and flexibility under current market developments shape supplier-side product-level resilience configurations is still scarce.

Finally, the current market-shaping literature emphasizes that firms can move beyond adaptation to actively shape elements of the market (Nenonen et al., 2024; Storbacka et al., 2022), but this lens has scarcely been applied to suppliers' resilience strategies and almost not at all in sole-buyer defense markets. Existing defense resilience studies acknowledge structural change in European defense markets (Ekström 2025, Pedersen et al., 2025), but they treat resilience in isolation from market structure, governance, and institutional incentives, even though resilience strategies cannot be fully understood without these conditions. Neither do prior studies distinguish between suppliers' underlying intent to adapt to changes or to shape the market, nor analyze the capabilities and institutional constraints that condition such efforts.

Figure 5. Visualization of the Theoretical Framework



Therefore, this research is explicitly designed to fill these gaps. Building on procurement and resilience foundations, it structures RQ1 around the identification of product-level resilience strategy configurations among Swedish defense suppliers. The adapted Kraljic Matrix (Ekström et al., 2021) and the dual-use vs. pure-defense distinction provide the contingency lens for RQ2, linking these configurations to product characteristics, lead-time regimes and volume flexibility and explaining why particular bundles are selected in the broader market context. Market shaping theory then underpins RQ3, allowing us to distinguish adaptive from market-shaping intent and to analyze how supplier resilience portfolios may reinforce or reshape market structures.

3. Methodology

As indicated in the introduction, the aim of this paper is to outline recurring resilience strategies as exemplified by suppliers to the Swedish Armed Forces, and to identify why and with what intent resilience strategies are employed or not employed by each supplier, depending on specific product characteristics.

3.1. Research Context

Sweden has been chosen as the empirical context for this study for several reasons. First, as a smaller country with a concentrated supplier base, Sweden provides a manageable yet diverse sample of defense suppliers for an in-depth qualitative analysis (Lundberg et al., 2025; Olsson, 2021). Second, Sweden has recently increased its monetary and political focus on the military implying a timely and relevant context for examining supply chain resilience under change (Hjelmstrand, 2024; Liang et al., 2025; Pollard & Jacobsen, 2025). Third, Sweden currently exercises governance through regulation and procurement, not direct ownership, implying that this thesis can analyze suppliers as independent market actors within a state-regulated ecosystem (OECD, 2025).

Swedish Defense Agency procurement and material management is centrally governed by the FMV, a government agency responsible for acquiring, testing, and maintaining equipment, technologies, and services for the Swedish Armed Forces. Acting as a central interface between the military and its suppliers, FMV aligns the demand in terms of speed, quality, and volume, with suppliers who can deliver on these criteria (Swedish Defense Materiel Administration, 2025) The supplier side of the defense market in Sweden is primarily controlled by a few large actors such as Saab AB and BAE Systems AB (Ministry for Foreign Affairs, 2024). According to a defense network executive “the governmental agencies prefer to procure complete systems and seldom put specific sub products in their requirements”, thus these larger players in the supply chain function as systems integrators supported by SME’s who provide critical subsystems and components (Swedish Security & Defense Industry Association, 2025).

3.2. Methodological fit

A semi-structured qualitative methodology was adopted, that allowed to engage in deeper research and identify underlying contextual factors (Creswell & Poth, 2018). Whereas a quantitative study may have increased statistical robustness and therefore the replicability of the results, there were also limiting factors which guided us towards a qualitative study.

1. Exploratory, theory-building fit

We ask *how* and *why* suppliers configure resilience strategies in a relatively underexplored setting; qualitative designs are methodologically congruent with theory building and abductive iteration between data and literature as we aim to construct theory, not test it (Edmondson & McManus, 2007; Eisenhardt, 1989; Thompson, 2022).

2. Access to meanings and mechanisms

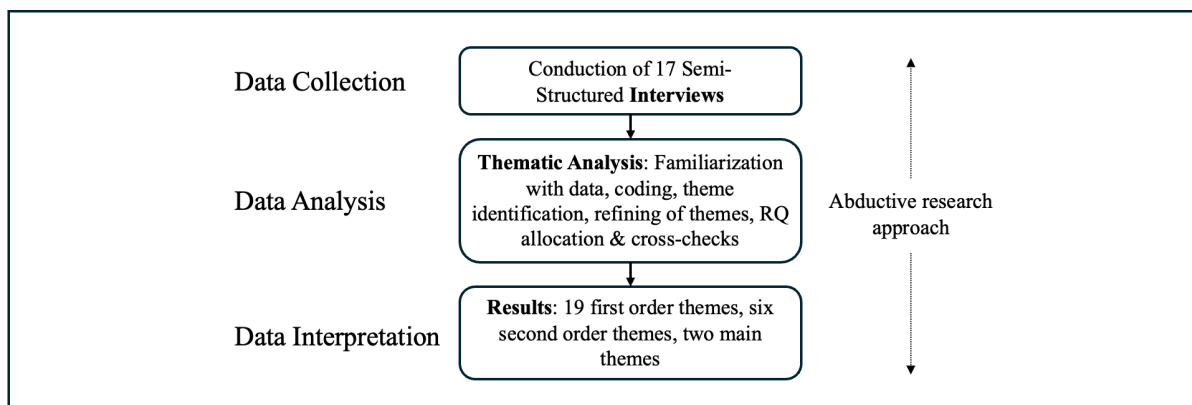
Semi-structured interviews capture managers’ and organizations’ sensemaking, trade-offs, and process mechanisms, and support emergent themes to understand their actions and perspectives (Miles et al., 2014).

- 3. Depth and rigor in a sensitive and limited interview number context**
 As the Swedish defense supplier population is specialized and access-constrained (3.3.2), qualitative research enables analytical (not statistical) identification and generalization of traits, patterns, etc. with rich cross-case comparison, while maintaining rigor via established trustworthiness criteria (Miles et al., 2014; Voss et al., 2002).

3.3. Research Design

Building on an abductive loop, the research is designed to be a qualitative study using primarily interviews to collect data. The reason for this chosen design is to enable longer more in-depth data collection standards for the research, where it is possible to ask follow-up questions based on semi structured interviews (Creswell & Poth, 2018; Thompson, 2022). This approach then allows for a deep exploration of how and why suppliers configure resilience strategies under differing product conditions and how those strategies match the literature evaluations, allowing us to answer the research questions.

Figure 6. Research Process



3.3.1. Literature Foundation

The first stage conducted was a targeted review of literature on supply chain resilience, defense acquisition and procurement, dual-use dynamics, and market-shaping mechanisms. This review informed core constructs (resilience strategies; market dynamics), guided the development of a semi-structured interview guide and build the foundation for the later coding process (Kallio et al., 2016).

3.3.2. Data Collection

Given the inherent sensitivity of defense-market activities, we encountered substantial access constraints when attempting to schedule interviews. Additionally, due to limited direct contacts in the field, our outreach was mainly limited to “cold contacts”, which yielded limited responses. We expanded our sampling by going through all 380+ registered SOFF partners, identified which of those are product suppliers, and contacted those companies (approximately 250+ firms). This broadened outreach generated positive responses and, in turn, enabled a snowballing process whereby early participants facilitated introductions to additional interviewees in their network (Naderifar et al., 2017).

Following these initial efforts, we conducted 17 semi-structured interviews with a total of 19 respondents. Those include three interviews with a researcher, a defense network executive and a government employee (see 8.3). The other 14 interviews comprised 16 executives from 13 different suppliers in the defense sector. To ensure the quality of the interview insights we focused on interview partners in senior roles across a variety of Swedish defense suppliers with different product categories stretching from SMEs to large organizations. The final interviews confirmed that only minor additional insights were emerging in our key focus areas, demonstrating that thematic saturation had been achieved (Hennink et al., 2017). As we reached the limit of available interviews from our network we concluded the data collection at 17 interviews.

The asked questions were structured in four parts: 1) personal & company context, 2) product characterizations from the suppliers' perspective, 3) definition, application & intentions of resilience/resilience strategies and 4) perception and expectation of geopolitical/market developments (see 8.4). The concrete questions were based on the prior literature research and verified by interviews with researchers and field experts verifying the applicability of our interview guide for our research focus (Kallio et al., 2016). As the discussed content is highly regulated and to ensure psychological safety (Hennink et al., 2020), all interview partners were informed that the insights would be dealt with anonymously, that they could decline to answer any question without providing a justification, and that they retained the right to review the transcript afterwards and request the removal of any sections they wished to exclude.

Due to our abductive research approach, the interview findings and question phrasings were continuously reiterated and reinterpreted. Leading to some questions being more emphasized to verify prior indications and tailoring the questions to the interviewee in terms of company size or product categorization of the company (Thompson, 2022).

3.3.3. Data Analysis and Interpretation

We apply a thematic analysis as outlined by Braun & Clarke (2006) to code, compare, and interpret interview material in a transparent and replicable way. The coding structure is rooted in procurement and resilience literature which guides the reading of transcripts. The unit of analysis is the product-level strategy portfolio (the set of resilience strategies applied to a given product or product family). Building on Market Shaping theory we then identify the capabilities associated with those strategic approaches on a deeper organizational level and surface the suppliers' intent and ability to adapt to or shape the defense market.

Our analysis followed a six-step process:

1. We familiarized ourselves with the anonymized scripts and drafted initial memos.
2. We generated deductive codes from our analytical framework (strategy clusters, mechanisms, contingencies, and intent) and added inductive codes where defense-specific practices emerged.
3. We collated codes into themes at resilience portfolio level (see 8.6).
4. We reviewed and refined themes against coded extracts and full transcripts, iterating code definitions (see 8.5).
5. We defined and named themes and mapped them to RQ1–RQ3.
6. We produced and summarized results through cross-referencing and cross-case comparisons.

Throughout our analysis, we addressed the three research questions sequentially and in an integrated way. For RQ1, we build on procurement and resilience literature to identify which resilience strategies and configurations Swedish defense suppliers employ at the product level, classifying them via our Strategy Cluster (Figure 1). For RQ2, we specifically focused on why particular strategies or configurations are selected by relating the identified configurations to product and market conditions, drawing especially on the dual-use vs. pure-defense distinction and the Kraljic Matrix (Ekström et al., 2021). For RQ3, we examined whether suppliers' configurations reflect primarily adaptive behavior or market-shaping intent, and which of the six elements of market-shaping they aim to influence, inferring intent and effects from stated goals, collaboration patterns, reported outcomes, and institutional enablers or constraints such as FMV requirements, incentives, and contracting templates.

Given that the reconfiguration of the defense market represents an ongoing and complex process influenced by multiple external and institutional factors, this study does not seek to determine causal relationships or definitive outcomes. Rather, it aims to provide indicative insights into the directional tendencies, strategic intents, and capability patterns that may enable or constrain suppliers' ability to shape the evolving defense market environment.

Given the importance of a critical approach to empirical analysis, interpretations were continuously summarized and verified during each interview to ensure accuracy. Drawing on interviews with different SME's, large organizations and with multiple suppliers from different product categories, allowed comparisons between early and later interviews, enabling refinement of emerging insights. Through this process we aimed to verify conclusions and ensure correct generalizations (Miles et al., 2014).

3.4. Quality of the Study

Ensuring the quality of our research, we assessed the trustworthiness of our qualitative design along the criteria of credibility, transferability, dependability and confirmability (Nowell et al., 2017). Credibility was strengthened through focusing on interviewing domain experts who are directly involved in Swedish defense supply chains and through summarizing and feeding back our interpretations during the interviews to correct misunderstandings directly. Transferability was enhanced by sampling suppliers of different sizes (SMEs, large) and from different product categories, but is still limited, due to the number of suppliers included in the research and the sole focus on the Swedish market (Nowell et al., 2017; Yin, 2009). Dependability and confirmability were supported by interviewing more than one actor per field and by comparing emergent patterns across cases, following Miles, Huberman and Saldaña's (2014) recommendation to test emerging conclusions against the data. At the same time, we acknowledge that our research was focused on the Swedish market only, which limits the findings generalization. Having research questions shaped by prior literature introduced a degree of preconception into our analysis, consistent with Braun and Clarke's (2006) caution that deductive coding can orient researchers toward anticipated themes.

4. Empirical Data Findings

In the following chapter we will present our empirical findings building the foundation for the subsequent analysis.

4.1. Foundational Geopolitical and Market Views

The current defense market, shaped by post-2022, re-militarization, following years of underfunding, influences how suppliers frame their practices. This includes how they define resilience, how they prioritize and apply their actions and how they perceive constraints.

4.1.1. Market Dynamics

Interviewees described an ongoing European wide policy and mindset shift from peacetime to preparedness for war, accompanied by increased military spendings to rebuild the necessary basic readiness:

“The last 10 years everybody was saving money, and everyone thought it was good to save on military expenses. [...] Now it's the opposite. Now everybody needs to spend [...].” (R 15)

Respondents indicated that a long-standing focus on cost efficiency has resulted in insufficient basic readiness for extreme market shifts.

“We are far from the basic level that we would need.” (R 8)

Despite full order books for many customers, actual cash flows are still lagging. The market structures remained unchanged so far, resulting in an immobility of the market to react and adapt. Interviewed suppliers therefore emphasize clearer role allocation, collaboration, transparency and mutual support to meet those geopolitical and market shifts.

4.1.1.1. Demand and Market Shifts

All interviewees unanimously reported a post-2022 demand surge, as exemplified by one respondent stating they experienced an “incredible increase in demand” (R 12) and backed up by industry experts:

“The whole branch is in an [...] absolutely boom phase. There are companies tripled and multiplied their personnel and business in the field because of increase of demand.” (R 3)

Initially the demand spike was concentrated on the largest 1st tier suppliers but now the downstream suppliers are receiving a trickle-down demand in the market. Most suppliers expect this level of demand to persist, for example one respondent sees the defense market as a “big wheel that will keep on turning for maybe 10 years” (R 2). What varies between respondents is the opinions about the duration of this persistence varies as one interviewee explained: “if nothing else happens in the world, eventually the defense cycle comes back down again, and they start decreasing demand.” (R 16). The dissensus on demand persistence, alongside liquidity constraints limit suppliers’ investment capacity, with one respondent noting Sweden is “the only country in the Nordics where the state is not pushing money into the

industry” (R 4). Because of those unclear future developments and the limited governmental money and influence in the industry suppliers are hesitant to take on investments.

According to the interviewed researcher, the current demand boom is accompanied by “[...] a scarcity in the supply chain and scarcity in production resources, [...] a lack of specific materials, [...] raw material scarcity in some sectors, [...] personnel scarcity and a scarcity of production facilities.” (R 3).

4.1.1.2. Importance of Agility and Flexibility

Across the interviews, the capability to deliver quickly emerged as a central theme.

“The most important area for our customers now is to get vehicles as soon as possible.” (R 5)

The same interviewee added that the “need (for military products) is clearly there, but more importantly is the agility and flexibility [...] because of modern warfare.” (R 5). Due to the international “continuous cat and mouse game, where insufficient flexibility risks are falling behind” (R 5) the governmental decision cycles have compressed significantly “from up to ten years to about half a year” (R 12).

“Procurement agencies don’t care who they’re buying from as long as they get the products that they need in the volume that they need at the speed that they need.” (R 5)

At the same time several interviewees were clear about their focus. As one respondent noted that they “cannot shortcut on quality and they cannot shortcut on compliance” (R 12). Even when firms can be flexible by swapping components or diverting material, “in terms of pure agility, there’s going to be a downside somewhere” (R 16). Emphasizing the challenge for multiple suppliers to balance their long-term perspectives with the need for short-term agility and flexibility as the modern warfare market is evolving very fast.

4.1.1.3. Future Expectations, Hopes & Fears for the Defense Market

Looking forward, many interviewees expect the elevated demand to continue for as long as a decade. Yet respondents emphasized that money alone is insufficient and that the necessary market readiness depends on people, motivation and infrastructure.

“You cannot win the war individually with just money.” (R 5)

“You need Motivation, Motivation, Motivation.” (R 5)

“Logistics is the thing that wins the war.” (R 11)

Suppliers expressed concern that production and reaction times in Western Europe’s major defense firms remain unrushed, with one respondent exclaiming that they are “very, very slow” (R 2) and that the current long termism in contracting is delaying the longer-term capability build-up they view as necessary.

4.1.2. Geopolitical Environment

Interviewees perceive Europe as currently emerging from a prolonged assumption of stability to a period of capability rebuilding and reassessment of supply origins.

“People started to think that peace would be eternal” (R 8)

4.1.2.1. Current Situation in Europe & NATO

Respondents observed national preferences, exemplified by a respondent saying there is “a little bit of an unhealthy nationalism, even within NATO” (R 4) and suggesting that greater collaboration across Europe and NATO would be beneficial. Parallel to this, firms reported re-examining sources and onshoring by re-examining European or non-European sources to mitigate geopolitical risk and strengthen security of supply.

“Resilience is built by governments, not companies” (R 2)

On that note respondents emphasized that a major issue standing against governmental shifts, nationally and in Europe/NATO, is the fact that governmental institutions are “afraid of (being) quick” (R 9) and there is a “mental shift that needs to happen” (R 14). Without that mental shift, reaching resilience is hard to accomplish as suppliers noted that:

Suppliers observe a shift towards European and NATO-focused supply chains to decrease EU/NATO external dependencies but as “companies are searching for profit” (R 2) there needs to be governmental support or promotion.

“If the contracts don't promote that, why would you as an industry use the Swedish supply chain when it's twice as expensive as other parts of Europe?” (R 11).

“Someone has to pay and it's always the money from the governments that pays for the resilience of the country.” (R 2)

4.1.2.2. Role and Perception of the Swedish Government (FMV)

The perceptions of the Swedish government highlighted a tension between agility/flexibility and the rigorous adherence to rules leading to the perception of authorities being too slow.

“Military applications are not quick anyway, but we need to have an agile way of work, together with our customers.” (R 4)

Policy uncertainty in crisis scenarios was also noted as an influencing factor. One respondent noted that they “don't know what decisions the Swedish government will take in case Sweden gets invaded” (R 9). Building on the raised issue that contract structures do not explicitly reward shorter lead times, volume flexibility or e.g. local sourcing, suppliers emphasized that long-term planning ability is essential to further move towards individual and market resilience.

“The governments are placing too small orders, too short orders [...] and it's not enough for the companies to make investments.” (R 2)

There is the willingness to do those necessary investments to “upgrade machinery, [...] to have twin lines everywhere.” (R 16), but for that to happen, the contractual structures would have to change, which can only happen if the governmental shift happens.

4.1.2.3. Political Future Expectations, Hopes & Fears

Interviewees emphasized that many capabilities have been lost to time and that rebuilding said capabilities can take long periods of time and learning as “it takes forever to rebuild knowledge”

“If you lose knowledge, you lose resilience” (R 2)

According to the interviewees that shift needs to happen on a policy level.

“Europe is relearning how to be a defense manufacturer” (R 16)

The Swedish Government and Swedish Defense Agency need to remove their “risk elimination” mindset and instead apply a “risk mitigation” mindset (R 14) as such a shift is deemed necessary to sustain the agility and flexibility that the current security environment demands.

4.2. Product Categorizations

The interviewed defense suppliers vary strongly in their perception of advantages and disadvantages in respect to the categorization of their products. Specifically in the focus fields of dual-use vs. pure-defense and in the categorization according to the Kraljic Matrix (Ekström et al., 2021).

4.2.1. Associations with Dual-Use or Pure-Defense Focus

There is a trade-off of having a dual-use product focus as on the one hand “[...] it's always strategically good to have a dual use that if something stops, we can see something else grow” (R 2) but on the other hand for dual-use suppliers “[...] resilience is also about being able to facilitate both markets, the civilian market and the military market.” (R 7). One dual-use supplier emphasized that “if you look at the defense profile of demand over time, it's huge variations. So, your business would be in for a bit of a rough ride” if solely focused on the defense market (R 16), supporting their advantage of not being solely dependent on the defense market.

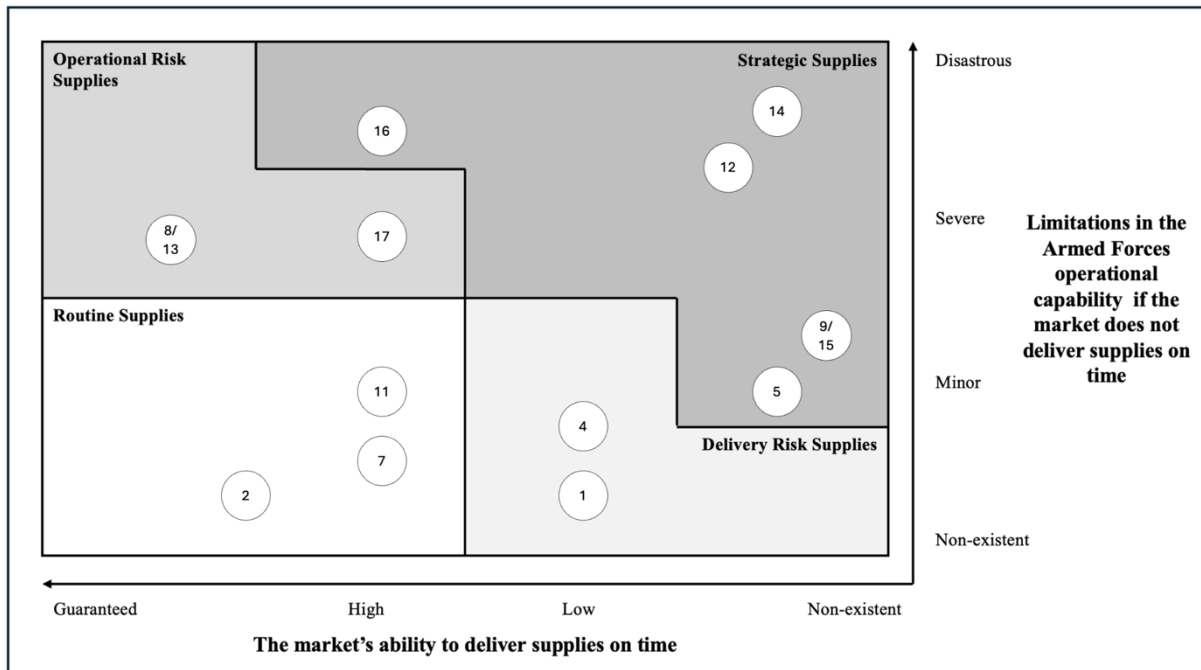
As mentioned before, currently the demand in the defense sector is increasing constantly, making other suppliers question this perception. To be able to profit in the best way possible from the current developments and the increasing demand, other pure-defense suppliers see “dual use of products more like a burden because they come with different requirements and expectations” (R 14). Those suppliers would therefore “always prioritize the military” (R 4).

4.2.2. Associations with the Suppliers Product Categorization

Throughout the interviews numerous suppliers saw their product as strategically important to the military and the military supply chain, emphasizing their uniqueness, exclusiveness and

established standing. Mainly smaller companies acknowledged the replaceability of their product and wouldn't say their product is a critical component for the military. After further discussions multiple suppliers adjusted the categorization of their product leading to a variety of product categories covered by the conducted interviews.

Figure 7. Supplier Mapping in the Kraljic Matrix (Ekström et al., 2021)



It should be noted that the allocation above reflects an interpretive assessment rather than an objective measure. It serves as a visualization based on the subjective perceptions of the respondents and their elaborations concerning the markets' ability to deliver the focus products on time, including the competitive landscape, and the limitations for the armed forces if they do not get ahold of the suppliers' products.

Throughout the interviews we saw different mindset habits in the different categories, as less critical suppliers feel more influenced from the top, than suppliers allocated in the other categories.

“They push down their terms and conditions [...] on to us so it's really about what was decided in the contract, whether we treat things in one way or another.” (R 8)

Suppliers for strategic supplies put more importance on their actions. Exemplary one respondent elaborated that they see themselves in a position with the “ability to take on the challenges that we have today and tomorrow to continue to deliver the contracts that we have today and handle the growth that the market demands from us so that we can continue delivering good products tomorrow” (R 13).

Suppliers for strategic supplies and partly from operational and delivery risk supplies acknowledge and are aware of their importance for the military. Explaining from one perspective why they “will always prioritize the military” (R 4). But on the other hand, specifically suppliers of strategic supplies are also aware of their unique new position that they can put demands to the customer.

4.3. Suppliers' Resilience Mindset

The following subsection outlines how suppliers view resilience as a strategy, starting with their internal definitions of resilience and what resilience strategies have been exemplified in the interviews, as well as the interviewees view on resilience going forward.

4.3.1. Resilience from Suppliers' Perspectives

Interviewees differ strongly in their understanding of resilience. Their understanding varies heavily on the matter of resilience being proactive or reactive. Numerous suppliers take a clear standpoint on resilience having a reactive association.

"This whole business either if it is military or civilian defense, is always reactive." (R 2)

For other suppliers the distinction between resilience being reactive or proactive is not as clear. They associate resilience with a proactive process. Their focus is on being prepared before something happens and not being able to react when something happens.

"Raising knowledge and understanding is key to resilience" (R 14)

Additionally, the definition and the scope of resilience varies across the interviewed defense suppliers. The majority of perspectives align with the scope of this thesis where resilience refers to the ability to supply whilst simultaneously adapting to exogenous changes. Yet, some suppliers see resilience broader than that. As one respondent noted:

"You need to also have a look at the support phase when it comes to resilience. So how to make sure that the vehicles will roll and run and shoot and move after 30 years." (R 12)

4.3.2. Resilience Strategies Exemplified

Given the span of practices mentioned across interviews, it is neither feasible nor analytically meaningful to catalogue every individual resilience measure described. Instead, the findings and following analysis focus on the strategies that recurred most frequently across respondents.

4.3.2.1. Information Gathering / Planning

Different respondents emphasized the importance of Planning, Intelligence, and Category Management in various capacities as one of their key resilience strategies.

From the respondents' standpoint, planning as a resilience strategy came in 3 fronts: ensuring delivery to the client, ensuring supply to their own organization, and ensuring profitability.

"We do a risk mitigation, and we do a risk analysis of our suppliers on a regular basis." (R 9)

Another respondent explained, "We have a really close collaboration with our customers. [...] So that is something that we are always trying to interact with them to get a forecasting." (R 12).

4.3.2.2. Geographical Proximity and Local Sourcing

Several of the interviewees identified geographical or proximity-based sourcing as an important resilience strategy, specifically in a military context. Sourcing as a resilience strategy was usually brought up on two fronts. A) Region based and B) Proximity based.

“Our production radius is 550 kilometers. We buy everything within those 55 miles, so the machinery, the raw materials, the assets, everything.” (R 4).

These practices were typically associated with security and speed of supply to the organizations. However, while multiple interviews outlined this as important, not everyone who mentioned it had implemented this strategy yet.

“You want [...] manufactured close to home. You don't want to buy [...] from Southeast Asia or from the US anymore. So, you want European-made [...].” (R 8)

4.3.2.3. Supplier Diversification

Supplier diversification was another recurring strategy that emerged as suppliers stated that overreliance on single suppliers weakens the general supply chain.

“We cannot be locked in on only one supplier in every category [...] steel, machining, welding, or any other type of supplier needs to be part of the next supply chain step.” (R 2)

The interviewees that engaged in these practices often stated that this resilience strategy was primarily focused on ensuring continuity of supply.

4.3.2.4. Collaboration and Communication

Interviewees also placed emphasis on collaborating with their suppliers through information sharing and hands on processes.

“We like to be collaborative [...] to be part of their company effectively.” (R 16)

Others described similar efforts to coordinate across their networks, with one respondent explaining that “we’re working together with everyone, kind of setting the strategies [...] and just trying to coordinate ourselves as a group.” (R 14).

In some cases, collaboration also involved negotiating and redefining customer expectations. One interviewee noted that under current market conditions, their company can now “dictate requirements to the customer” (R 12). This illustrated that collaboration and actions in the market are not explicitly related to negotiations, but certain suppliers can set demands on the customer.

4.3.2.5. Redundancy Practices

Interviewees also described concrete buffering strategies aimed at mitigating the risks of supply shortages and delivery delays.

“We now try to have the suppliers produce and hold a certain buffer in stock, from which we can make rolling call-offs. This project should lead to lower capital binding and faster delivery.” (R 7)

Others indicated that maintaining their internal inventories was a key layer of security: “The materials [...] are probably in stock, so it's fairly easy to swap.” (R 16). Similarly, another supplier shared: “We are also expanding our production facility with the storage capability to have some stock.” (R 11). These accounts highlight a departure from just-in-time practices toward anticipatory approaches.

A few interviewees referred to internal redundancy measures designed to sustain operations under stress. This included maintaining parallel production lines or duplicated capacities to minimize vulnerabilities. One interviewee explained their strategy “to upgrade machinery, [...] to have twin lines everywhere.” (R 16).

4.4. Market Actors’ Shaping Intent and Ability

Interviewees were largely uncertain as to where resilience strategies expectations within the defense market emerged from. Some suppliers viewed resilience as an emerging but not yet solidified expectation.

“It probably will become more [important] as we are more getting into becoming a supplier of volume [...] our customers will be expecting it.” (R 1)

4.4.1. Driven by Incentives

Many interviewees said that their resilience strategies are dependent on what is willing to be paid for by their customer, either a higher tier supplier or FMV. As one noted, “It always depends on what level of security of supply the customer needs and what they are willing to pay for [...] if you want security of supply from a strategic point of view, you need to pay for it.” (R 8). Participants frequently linked these difficulties to the short-term mentality of the government as the end consumer, with one respondent noting that “politicians and governments are placing too small orders, too short orders [...] it’s not enough for companies to make investments.” (R 2).

Several respondents highlighted that their distance from the end customer structurally limits their ability to shape market expectations around resilience. Instead, they see resilience norms as largely being set by higher-tier actors who control access to future contracts.

“What if the prime contractor starts to dislike us as a supplier? Then we will be kicked out.” (R 15)

This reflects how concentrated power at the top of the supply chain restricts smaller suppliers from influencing how resilience strategies are defined or prioritized, reinforcing a dynamic in which they must adapt to externally imposed expectations rather than contribute to shaping them.

4.4.2. Reactive vs. Proactive Culture

Building on 4.3.1, it was stated on multiple occasions that the European military procurement mentality was perceived as reactive rather than proactive: “Everything that’s happening now is a reaction [...] not many countries are proactive.” (R 2). Several respondents linked this reactive orientation to limited visibility across the supply chain, noting that actors rarely receive timely information that would allow them to anticipate future requirements. As one interviewee explained, “We need to be able to have some sort of feedback from everybody in the chain [...] but in defense, we don’t receive that.” (R 15). From suppliers’ perspective this lack of systematic feedback reinforces a market environment where they respond to emerging pressures rather than contributing to shaping long-term resilience expectations.

Respondents also described the FMV and other institutional actors as key for dictating market norms, and expectations for resilience. This dependency on institutions reveals further reactive resilience strategy behavior.

“So, the FMV’s, the governments that we are working with, they are dictating requirements, rules to us that we then in our turn dictate to our suppliers.” (R 12)

4.4.3. Influencing the Markets’ Supply Chain Resilience

“We are actively pushing, talking with our suppliers about this change in the market.” (R 12)

Although we saw many structural constraints limiting actors’ ability to act freely in the market or to engage in actions to shape the market, there were interviewees that described efforts to influence and engage in actions to alter market norms, up- and downstream market actors and supply chain resilience in a proactive manner.

“[...] Then we agree, in a collaborative way, a minimum stock level the company (supplier) will hold [...]. We also set a maximum so they’re not over-stocked. This tool has helped ensure that major programs avoid production stops.” (R 16)

5. Analysis

In the following we will conduct our analysis, structured by and aimed to answer the research questions.

5.1. Product-Level Resilience Strategies (RQ 1)

This section connects the empirical findings on the resilience strategies employed at the product level by the interviewed suppliers with the seven resilience bundles identified in the literature (e.g. Dubey et al., 2021; Namdar et al., 2022; Pfeiffer et al., 2017).

5.1.1. Defense Supplier's Resilience Strategies

As the strategies exemplified in the interviews have already been presented in the Empirical Findings section, the following section will aim to categorize, synthesize, and interpret these strategies and relate them to the bundles developed in this study.

5.1.1.1 Core Strategy Themes

The emphasis placed by respondents on Planning, Intelligence, and Category Management (Bundle 4) highlights its role as one of the most important strategy bundles and aligns with the frameworks proposed by Altay and Pal (2023), Namdar et al. (2022), and Pfeiffer et al. (2017). The proactive communication was viewed as instrumental to anticipate disruptions and align expectations across normative organizational culture and boundaries.

The prominence of risk-management activities suggests that suppliers view resilience primarily as a capability embedded in existing operational routines rather than as a standalone strategic initiative (Yoho et al., 2013). According to the respondents, broad applicability and ease of integration into procurement and planning processes likely explain why they recur across suppliers. Risk management manifestations came primarily in the form of supplier risk analysis, ongoing performance monitoring, and internal analysis of operational vulnerabilities.

This approach to risk indicates a proactive mindset toward resilience as categorized by Ekström (2025). Specifically relating it to the strategy of Continuous and Upstream Due Diligence as exemplified by Ivanov et al. (2014), who frame the capability to sense and respond as a key resilience strategy.

Supplier diversification and collaborative supplier relationships observed in the interviews reflect a deliberate structuring of the downstream network. These practices align closely with the Sourcing Structure and Network Flexibility bundle demonstrating how firms translate resilience into concrete actions such as diversification, local sourcing, and the creation of backup supply options (Hellberg et al., 2025; Melnyk et al., 2014). This suggests that the interviewees' risk practices serve as both monitoring and decision-shaping mechanisms within their broader resilience configuration.

5.1.1.2 Additional or Supporting Strategies

The limited reliance on own resource stockpiling among respondents suggests that slack is used selectively rather than as a routine resilience practice. When applied, buffering serves as a targeted means of creating resource redundancy to absorb variability. These behaviors illustrate how firms operationalize slack and resource redundancy in their operations, aligning closely with the Buffers and Circularity resilience bundle (Dolgui & Ivanov, 2021; Hellberg et al., 2025; Macdonald & Corsi, 2013).

Other strategies observed consisted primarily of production-based resilience. These strategies were primarily employed on two fronts. The first is through technological advancement such as plants that can produce multiple different products allowing for increased production capacity in times of extreme demand. The second method for achieving production resilience that was visible through the adoption of alternative contractual frameworks. These contracts often included backup suppliers or supply reservations. According to the literature these production-based resilience strategies most tightly align with the bundles of Capacity, Redundancy and Technology Enablers as well as Contract and Risk Sharing (Glas et al., 2013; Hellberg et al., 2025; Rice, 2025).

5.1.2. Resilience Strategy Configurations

The purpose of this section is to identify coexisting strategies (strategy configurations) that signal a broader mindset among interviewees which will be further assessed in section 5.2.

One dominant configuration identified in the interviews combined elements from the bundles Buffers and Circularity (Bundle 1) and Sourcing Structure and Network Flexibility (Bundle 2). Together, these strategies enable firms to maintain delivery commitments even when disruptions occur in the supply chain (Glas et al., 2013; Hellberg et al., 2025; Hutchings & Wilding, 2022; Macdonald & Corsi, 2013). Rather than representing isolated actions, this configuration reflects an underlying performance-oriented mindset focused on continuity under disruption. Exemplary interviewees combine product facility expansions, with stockpiling actions (including external and finished product stockpiling) and multi-sourcing to be able to manage potential future disruptions.

Another recurring configuration that was identified was employing a mix of due diligence planning and specialized contracts. Suppliers emphasize a close relationship with their customers and on top of that also have special contracts with their suppliers ensuring a more tightly linked supply chain (Hellberg, 2023). This configuration reflects a strong commitment to futureproofing the supply chain by identifying vulnerabilities early and maintaining visibility and collaboration across both upstream and downstream partners.

These configurations illustrate that resilience among defense suppliers is not solely constructed through singular strategies but through broader, integrated configurations. Notably, it was uncommon for interviewees to explicitly frame their actions as part of a coherent set of resilience strategies. Instead, the measures described were often presented as isolated initiatives, which only when viewed together reveal underlying orientations toward bundled configurations.

5.2. Contextual Drivers of Resilience Strategy Choices (RQ 2)

Following the identified resilience strategies and configurations applied, the following subsection aims to explain why said specific strategies and strategic configurations are selected in relation to product characteristics and market dynamics. The analysis is structured by identifying the underlying conditions that affect the decision-making chains. Starting with the suppliers' perceptions of geopolitical and market developments and further differentiating by their interpretation of resilience, their product categorizations (Product orientation & Kraljic category (Ekström et al., 2021) and broader influences (company size & level in the supply chain).

5.2.1. Supplier Perception of the Market Environment

As the European defense markets have been objects to heavy restructuring following the COVID Pandemic and the ongoing Ukrainian war (Hellberg et al., 2025; Melnyk et al., 2014), supplier perceptions of these shifts strongly influence how they define and apply resilience. Across interviews, suppliers consistently reported the literature-aligned increase in defense demand (Hellberg & Lundmark, 2025; Sani et al., 2022) that they need to respond to. The main observed difference lies in how long they expect this increase to last, with perceptions ranging from a near-term decline to continued growth over the next decade.

These future market expectations are central to how suppliers approach resilience. Firms anticipating continued growth in demand focus on proactive actions and are willing to invest, for instance by securing new production lines or entering long-term supplier and production contracts. Firms expecting a downturn are more hesitant to commit capital and emphasize reactive, short-term measures such as scenario planning or re-routing alternatives. This suggests that suppliers' short- versus long-term perspectives influence their resilience decisions, which then translate into corresponding practices based on their individual interpretations, adding to the defense supplier evaluations of Hellberg et al. (2025). In addition, it helps explain why some firms emphasize the more investment-heavy strategies identified in Section 5.1, while others rely mainly on planning-oriented and sourcing configurations.

Aligning with the literature (Ekström, 2025; Hellberg & Lundmark, 2025; Sani et al., 2022), many interviewees stressed the growing need for agility and flexibility in the defense market. Depending on their willingness to sacrifice other factors such as quality, their resilience applications towards agility and flexibility differ. When agility and flexibility are prioritized, suppliers accept quality trade-offs to meet lead-time and volume demands. These activities are reinforced by the perception that defense agencies increasingly prioritize obtaining required products in the volumes and at the speed they need, leading some suppliers to assume that the government is willing to accept quality (specifically specializations) trade-offs to receive products faster.

5.2.2. Supplier Perception of the Geopolitical Environment

Europe and specifically Sweden has not yet reached the intended stage of modern defense systems with resilient supply chains and a cultural shift towards agility and flexibility (Hellberg & Lundmark, 2025; Loska et al., 2025; Sani et al., 2022). Interviewed suppliers mainly see the slow governmental processes as the main constraint blocking this development.

A major distinction between suppliers lies in how they view their responsibility to build resilience. Some interpret the governmental slowness as reason to increase their own responsibility, while others see building resilience as the government's task. These perceptions of responsibility and accountability influence how highly suppliers prioritize resilience and how they apply resilience practices (see 5.2.3).

Further concretizing the findings of Nguyen et al. (2023) that governmental contracts and their design are also crucial for suppliers' willingness and ability to invest in resilience. Several interviewees proactively choose local and multi-sourcing approaches to reduce global dependencies as identified in Section 5.1, but in absence of contractual incentives and given the associated cost, many others lack motivation to pursue those options as indicated in 5.2.1. Extending the importance of motivation in managing disruptions illustrated by Altay & Pal (2022) to the supplier side in the defense market, those findings amplify that internal and external motivation as well as money are key determinants for suppliers on how to take actions towards resilience.

Several suppliers may be willing to take on bigger investments, but only if they get the necessary long-term commitments. Resulting from those missing commitments the suppliers have depending on their responsibility mindset and their financial stability different abilities and willingness to invest in resilience. Suppliers with limited investment capacity tend to rely on information- and relationship-focused bundles (2 & 4), whereas those with stronger financial resources adopt more capital-intensive capacity and technology bundles (1 & 6).

The combination of mindset, responsibility to act, and capabilities is essential for how the suppliers apply their resilience strategies. We acknowledge that the power dynamics in the Swedish defense market play an essential role in shaping suppliers' mindsets (Ministry for Foreign Affairs, 2024) and those will be further addressed in 5.2.5.

5.2.3. Priority and Definition of Resilience

As mentioned above, additional factors shaping suppliers' mindsets and actions are their internal prioritization and definition of resilience. Interviewees view resilience partly as proactive and partly as reactive, and their strategic approaches differ accordingly (Ekström, 2025; Hutchings & Wilding, 2022). Suppliers with reactive mindsets emphasize more short-term, response-oriented bundles (e.g. backup capacity) building operational configurations to be able to respond to e.g. demand surges. Contrary suppliers with proactive mindsets emphasize information focused configurations relying on planning and collaboration bundles (e.g. information sharing, transparency, scenario planning) to build knowledge about future possibilities. We are aware that being able to react and being prepared are both approaches to handle uncertainties ahead, but as we have seen different concrete resilience configurations linked to those concrete mindsets in the interviews, this distinction provided deeper knowledge about the importance of supplier resilience mindsets.

All interviewed suppliers viewed resilience as highly important, mirroring defense agencies' growing emphasis on resilience in the current geopolitical environment (Hutchings & Wilding, 2022; Macdonald & Corsi, 2013). However, they differ in how they define it. Most align with the notion that resilience enables suppliers to prepare for, absorb and adapt to disruptions while maintaining performance in cost, quality and delivery (Ekström, 2025; Glas et al., 2013).

Some, however, adopt a broader view that extends beyond supply to include the support phase, such as maintenance and spare parts, complementing Ekström (2025) that there still is no

universally agreed definition of supply chain resilience. Differing definitions therefore lead identified suppliers to divide their efforts between ensuring delivery and securing post-delivery support.

5.2.4. Influence of Product Categorizations

Diving into the influences of the suppliers' product categorizations and their influences on the applied resilience strategies, we analyze the implications of the suppliers being dual-use or pure-defense focused and their product categorization according to the Kraljic Matrix on their resilience approaches (Ekström et al., 2021; Jiang et al., 2025).

5.2.4.1 Implications of dual-use vs. pure-defense focus

Building on the assumption that the products' market orientation significantly influences the organizational capabilities to build and apply resilience strategies (Rutner et al., 2012), the empirical data shows both convergence and divergence between dual-use and pure-defense suppliers. As identified in Section 5.1, most firms from both groups rely on multi- and local sourcing, supplier diversification, scenario and risk analysis, and closer collaboration with key sub-suppliers. Concluding that suppliers from both categories employ partly similar singular strategies but with different focuses and in different configurations.

For dual-use suppliers, resilience is strongly tied to managing the tension between civilian and military markets (Jiang et al., 2025) which requires maintaining resilience in both market logics simultaneously. In practice, dual-use firms therefore lean towards internal flexibility and structural options including producing on stock, outsourcing to licensed partners, broadening supplier portfolios, and creating options to re-route or replicate production. Moreover, theoretically expected advantages such as significantly broader supplier networks or more flexible financing options (Jiang et al., 2025; Rutner et al., 2012) are only partly realized, as all military-relevant suppliers, dual-use or pure-defense, remain bound by similar compliance and security requirements.

Pure-defense suppliers, by contrast, increasingly anchor resilience in dedicated defense capabilities and active influencing of their up- and downstream networks. In the current context of continuing rising defense demand and expanded public funding (Hellberg & Lundmark, 2025; Sani et al., 2022), they see the defense market as the primary opportunity space, and frame dual-use applications more as a burden than as a strategic asset. Their resilience strategies combine conventional buffers (e.g. stockpiling, long-term contracts) with investment in resilience-enabling organizational foundations and with deliberate steering of critical sub-suppliers through trust-based relationships, information sharing and pressure on sub-suppliers to hold their own inventories.

Overall, the findings suggest that dual-use and pure-defense companies do not differ in whether they apply resilience strategies, but in how they configure and locate them, with market orientation and perception acting as key differentiating mechanisms.

5.2.4.2 Product Importance for the Military

Besides between the elaborated product orientations, we found that there are also evident differences in how the suppliers' approach and apply resilience according to their Kraljic Matrix categorization (Ekström et al., 2021).

From the interviews it is evident that the suppliers for routine supplies show generally less own initiative in resilience strategies. They build on the mindset that building resilience is the government's responsibility and as they see their product as not critical to the military, their resilience efforts are limited to supplier diversification and supplier network flexibility but only to a lower extent as they do not see the necessity to invest heavily.

Suppliers for operational risk supplies acknowledge their importance for the military and the corresponding responsibility and focus their efforts on interaction and transparency in their supplier interactions to build trustful relationships besides the identified common strategies like supplier diversification and local sourcing. But especially those suppliers see limitations in their ability to further apply resilience strategies as they are highly influenced by the terms and conditions pushed down from the government or upstream suppliers.

As the ability to deliver supplies on time is essential for the suppliers of delivery risk supplies, this is where they focus their resilience efforts and their priorities. The corresponding applied resilience strategies focus on timely delivery, relying on targeted buffers, multi-sourcing where possible and licensed partnerships to ensure capacity to deliver.

The suppliers for strategic supplies further extend the prioritization and the application of resilience strategies. Their resilience approaches focus on building internal and external capabilities to generate knowledge and information to deal with uncertainties. Besides the mentioned common resilience strategies, they emphasize thorough market analysis and continuous supplier mapping to identify bottlenecks and risks in their own supply chain. They position themselves as a collaborative and proactive partner in the supply chain emphasizing transparency and information exchange. Their ability to shape their sub-suppliers and the market by doing so will be further analyzed in Section 5.3.

The identified patterns suggest that the higher the perceived criticality of the suppliers' product to the military, the more proactive, structured, and collaborative their resilience approaches become, with critical Kraljic category suppliers showing broader multi-bundle configurations outlined in 5.1.

5.2.5. Role of Company Size and Supply Chain Level

Overarchingly the company size was a decisive factor in terms of the suppliers' abilities to apply resilience strategies across the conducted interviews (Altay & Pal, 2023). Smaller and medium-sized companies emphasized agility and fast decision-making, which allows them to operationalize planning-oriented resilience strategies more quickly than larger organizations.

The interviewees emphasized that bargaining power is an essential factor determining the suppliers' abilities to apply resilience strategies. As the Swedish defense market is primarily controlled by a few large 1st tier suppliers (Ministry for Foreign Affairs, 2024) the interviewees unanimously agreed that those large organizations hold major bargaining power in the Swedish defense market. By being in that position larger organizations see themselves able to push for change in the market and to put demands on the customer and their lower tier sub-suppliers.

Taken together, company size and supply chain level intersect with product orientation and Kraljic categorizations (Ekström et al., 2021) as guiding factors that frame how suppliers interpret resilience and which of the in 5.1 identified strategies they can realistically pursue. These cross-cutting conditions set the scene for the next section, which examines whether and

if through which mechanisms suppliers can move beyond adaptation to actively shape the Swedish defense market with their actions.

5.3. Adaptive vs. Market-Shaping Resilience Efforts (RQ 3)

In the following we examine whether suppliers' decisions to engage in resilience strategies and the types of resilience strategies that they engage in are primarily adapted to existing market conditions or attempt to shape them. Further we connect the identified efforts to the influenceable elements of market shaping according to Nenonen, Storbacka, Sklyar and Kjellberg (2024).

This analysis is built on the intent to shape as the key criterion for defining market-shaping behavior, as deliberate intention distinguishes purposeful shaping from incidental market effects. We also examine concrete enablers and link them to the various identified product/market/organization characteristics as determining factors for willingness or ability to shape the market.

5.3.1. Defense Suppliers' Intent to Shape

Across the interviews, the intent to shape varied drastically between interviewees and between organizations. Most SMEs showed a willingness to adapt to the established norms regarding the resilience strategies they adopted. According to the interviewees, this came from a perspective of trying to fulfill current customer requirements, comply with existing regulations, and secure contracts to ensure long-term stability. This reflects a reactive market orientation, where firms prioritize alignment with established expectations over actively shaping new market or supply chain dynamics.

The findings indicate that suppliers see resilience as something that the customers need to pay for. If they engage in a specific resilience strategy it is at heart a customer driven approach, following demand, but not intending to proactively shape.

Contrary to that the in 5.2.4.2 identified patterns suggest that the higher the perceived criticality of the suppliers' product to the military, the more proactive, structured, and collaborative their resilience approaches become. Of those suppliers, some indicated that they had the intent to shape the market. Suppliers actively work to influence upstream practices by imposing requirements related to sanctions compliance, human rights, and supplier monitoring, to pressure partners to improve their processes and thereby shaping supply-side norms. This is a form of supplier-side features market shaping, where the organization in focus is intending to shape the work-division between the two parties according to Nenonen, Storbacka, Sklyar and Kjellberg (2024).

Another form of market shaping emerged, where the supplier actively renegotiated contractual requirements by demonstrating the lead-time consequences of certain ethical and sustainability demands. This shows market shaping in the forms of Norms and Customer side features as this market shaping is addressing standards and patterns of interactions with customers (Nenonen et al., 2024).

The findings indicate that besides higher bargaining power and larger company size, also the product's criticality to the military is a decisive factor determining suppliers' intent and ability to shape the defense market in their resilience applications.

5.3.2. Enablers to be a Market Shaper in the Defense Market

After having analyzed the intent towards market shaping in the market, we need to analyze the subset of suppliers that possess the correct enablers to shape. Market-shaping literature explains that firms need both the triggering capabilities to initiate change and the facilitating capabilities to mobilize others (Nenonen et al., 2019). Our findings prove that these capabilities matter, however, in the military defense industry they only matter when in the presence of other institutional and structural support.

5.3.2.1. Firm Level Enablers

Certain capabilities, resources or institutional legitimacy are prerequisites to enable suppliers in challenging or shaping resilience expectations. Larger firms who are supplying products that are perceived as critical to the military, have larger bargaining power relative to their smaller, less critical counterparts. Established relationships also allow them to influence contracting, supplier monitoring, and information flows, aligning with Liljenberg (2022). SMEs may recognize an opportunity to shape the market (intent) but lack leverage, reinforcing Nenonen, Storbacka and Windahl's (2019) point that possessing capabilities does not guarantee shaping.

5.3.2.2. Market Enablers

Shaping becomes easier and more feasible, when multiple market actors collaborate or share incentives. These findings align with Beninger and Francis (2021), who say coordinated market shaping requires collective alignment. However, Sweden has a hierarchical structure in the military supply chain as identified in the empirical findings section 4.1, jeopardizing a collective alignment.

5.3.2.3. Contextual Enablers

Pedersen and Ritter's (2022) view that crises expand upon market shaping opportunity and potential was found to be shared by the respondents in the study. Where, bargaining power and demand patterns shift, suppliers gain power to shape various fundamental features of the market. Yet, regulatory rigidity is strong in the defense sector, implying that compared to the literature, turbulence is not enough, institutional flexibility is key, which in turn is dependent on the identified mindset shift (5.2.2).

5.3.3. What Defense Suppliers are Shaping

Following the identified intent and enablers to shape, we build on Nenonen, Storbacka, Sklyar and Kjellberg (2024) by examining how defense-sector regulations constrain market shaping and what conditions are necessary to enable suppliers to shape the market. Although Nenonen et al. identify six potential elements of market shaping, the interviews show that shaping in the defense context is concentrated primarily on three areas: supply-side features, customer-side features, and norms. The remaining market-shaping elements received little attention in the interviews, largely because suppliers perceived them as outside their sphere of influence. These elements were described as being primarily determined by governmental policy or international defense structures rather than by supplier actions.

5.3.3.1. Supply Side Features

Market shaping through supply-side features (Nenonen et al., 2024) was one of the more explicitly discussed elements by the respondents. In practice, shaping efforts must align with revenue logic and contractual incentives, meaning firms require sufficient capital and commercial justification before attempting to shape suppliers or broader market practices.

This view was, however, not unanimously shared, as some suppliers shape their suppliers through actively asking questions and making demands. The interviews indicate that such capabilities are primarily exercised by large downstream actors, who possess the capital for long-term contracts and the bargaining power that comes with being one of only a few key customers (Porter, 1989).

5.3.3.2. Customer Side Features

Customer-side market shaping involves influencing how customers access offerings or make purchasing decisions (Nenonen et al., 2024). In the defense sector, such influence is limited by rigid procurement and political oversight and lack of substantial customer bases. Most suppliers described resilience as reactive, and demand/customer driven. Highlighting that both markets and governments remain largely reactive. Some larger firms, however, engaged in collaborative shaping, using long-term partnerships and joint risk discussions to align expectations and contract structures.

5.3.3.3. Norms

Market shaping through norms involves influencing the rules, standards, and conventions that guide market behavior (Nenonen et al., 2024). In the defense sector, these norms commonly concern sustainability, human rights, and security of supply. SMEs noted that regulations, security restrictions, and degree in supply chain constrain who can influence such processes. These limits mean that normative shaping is primarily exercised by large, established firms with institutional legitimacy, reinforcing rather than redistributing influence over how resilience and ethical standards are defined.

5.4. Conclusion

The purpose of this study was to further develop upon the knowledge base of resilience strategies of suppliers within a military context, following the overarching research question:

How do Swedish defense suppliers employ resilience strategies at the product level to manage demand pressures and navigate their market environment under geopolitical uncertainty?

To answer this overarching research question, three sub-questions were examined.

The findings for RQ1 – *Which resilience strategies and configurations are employed by Swedish defense suppliers at the product level?* – indicate that many different resilience strategies are used by market actors and largely align with the existing literature, with no clear strategies identified outside the bundles outlined in the literature review. The most prevalent resilience bundle presented in the interviews is Planning, Intelligence and Category Management, treated as an integrated, operational practice rather than a set of standalone initiatives. Suppliers additionally adopt sourcing-related strategies such as supplier

diversification, local sourcing and backup supply options, complemented by selective use of buffers, redundancy and technology-enabled capacity flexibility. Rather than using these strategies in isolation, suppliers often combine them into broader strategy configurations that are primarily mindset oriented rather than process oriented. While interviewees didn't describe their efforts as coherent configurations, the analysis reveals that resilience emerges from implicit strategic orientations rather than explicit resilience programs.

Building on this, the findings for RQ2 – *Why are particular strategies selected or not selected by Swedish defense suppliers under given product and market conditions?* – reveal that resilience choices are shaped by a dynamic set of factors, besides the focus fields of dual-use and product criticality. This research indicates that dual-use suppliers emphasize internal flexibility, while pure-defense suppliers focus on tighter collaboration and supplier steering, and that higher product criticality is consistently associated with more proactive resilience approaches. Market perceptions, geopolitical expectations, product characteristics, company size and supply chain position were additional central factors identified in our research. Firms expecting sustained market growth tend to invest proactively in capacity, technology and long-term contracts, whereas those anticipating volatility rely more on reactive measures such as scenario planning and multi-sourcing. Firm size and supply chain level influence bargaining power and the ability to shape upstream networks, with smaller firms leveraging agility and larger firms near the customer implementing more structural and preparatory measures.

Finally, for RQ3 - *How do these strategy-configurations reflect adaptive vs. market-shaping intent, and which concrete shaping-enablers do Swedish defense suppliers need to possess to engage in market shaping?* - this thesis shows that while some firms express an intent to influence market structures, shaping occurs only when organizations capabilities align with market and product positioning. Also revealed was that most defense suppliers primarily adapt to existing market conditions rather than actively shape them. High regulation and rigid procurement procedures limit actors' ability to engage in market shaping practices related to resilience. As a result, many firms adopt a reactive, demand-driven approach in which resilience measures are implemented only when incentivized or required by customers. This dynamic reinforces the industry's asymmetry that only a few large suppliers close to the customer possess the capabilities and bargaining power to shape upstream or downstream practices, with a focus on norms, supply- and customer-side features. While smaller actors remain structurally constrained and focus on compliance-oriented strategies. Thus, market shaping arises in limited isolated occasions, and only when intent, capabilities, and position converge, rather than as a widespread feature of the defense market. As a result, our findings present large market actors as key market shapers from the supplier side of the industry.

Therefore, answering the overarching RQ, Swedish defense suppliers manage demand pressures and navigate their market environment through broad but uneven portfolios of resilience strategies. Those are configured implicitly rather than through formal resilience programs, and are strongly shaped by product criticality, dual-use vs. pure-defense orientation, firm size, supply chain position and perceived responsibility for resilience. Overall, most suppliers remain mainly adaptive to existing rules and incentives, with only a few powerful actors occasionally using resilience strategically to influence the structure and governance of the defense market.

6. Discussion

Lastly this study concludes by evaluating our (6.1) theoretical contributions and (6.2) managerial implications, followed by outlining (6.3) limitations of the study and (6.4) suggestions for future research.

6.1. Theoretical Contributions

This thesis advances resilience literature, especially in the defense context, by explaining how Swedish defense suppliers configure product-level resilience strategies to manage demand pressures under geopolitical uncertainty. It clarifies why suppliers make certain strategic choices and how these are shaped by concrete product and market conditions, thereby responding to the current literature focusing mainly on suppliers' adaptability to disruptions and market shifts in general, rather than on how specific resilience strategy portfolios are configured and used at the product level (Nguyen et al., 2023; Paul & Saha, 2025; Salim et al., 2022).

First, this study extends supply chain resilience research by introducing a supplier- and product-level perspective in a highly regulated military context. Whereas prior research largely focuses on consolidating resilience capabilities, practices and performance outcomes across industries, research on which practices or configurations are applied under what product and market conditions remained fragmented, especially in military settings (Ekström, 2025; Ekström et al., 2021; Loska et al., 2025; Sani et al., 2022). This research provides an empirically grounded mapping between specific product and market characteristics and resilience strategies in the Swedish defense market. Specifying how those characteristics influence supplier-side resilience configurations at the product level.

Second, by foregrounding how suppliers themselves interpret resilience, constraints, and room for maneuvering, the thesis responds to the observation that resilience research in the defense sector remains largely buyer-centric and that insights into how suppliers view market developments and apply resilience at the product level remains limited (Glas & Essig, 2017; Glas et al., 2013; Pedersen et al., 2025). Our findings complement prior studies with a systematic supplier-side view of resilience and its application in the Swedish defense market.

Finally, this research contributes to the emerging but still thin stream of research linking micro-level design to market-shaping outcomes by connecting supplier resilience configurations to broader market structures and governance in a sole-buyer defense context (Nenonen et al., 2024; Storbacka et al., 2022). Interpreting the identified configurations through an adaptive versus market-shaping lens, this research shows how applied resilience strategies influence broader market elements, adding to the research of Nenonen, Storbacka, Sklyar and Kjellberg (2024). In this way, the thesis extends conceptual tools for analyzing how suppliers' resilience practices can both respond to and gradually reshape highly concentrated and institutionally constrained defense markets.

6.2. Managerial Implications

From the findings of this thesis, we derive managerial implications for both the Swedish governmental institutions (especially FMV), European/NATO-wide governmental institutions on a broader scale and defense suppliers directly.

The findings provide insights to the governmental institutions to further understand drivers and constraints of the supplier-side in the defense market. They underscore the need to move from generic calls for more resilience to concrete actions enabling the suppliers to move further towards resilience and apply a wider variety of resilience configurations, to leverage enablers and avoid barriers outlined by Ekström (2025). Suppliers and the government require a general mindset shift in the governmental processes towards faster speed, collaboration and shared accountability to be able to address the need for more agility and flexibility in the defense market. Additionally, a successful move towards agility and flexibility and therefore towards market resilience in the Swedish defense market might require differentiated actions that align incentives, contracts, and information architectures with product characteristics and supplier context. FMV could explicitly consider and articulate acceptable trade-offs between quality, lead-time, and volume for different product categories. Especially but not exclusively for strategic and delivery-critical supplies, this could mean designing contracts that combine clear performance priorities with instruments that make wider resilience portfolios feasible. Those may include long-term commitments, co-investments in capacity and technology, support and incentives for local and multi-sourcing, and streamlined approval processes. Generally, this research indicates that the defense suppliers share the necessity and importance of resilience, but they require institutional adjustments to be able to take on higher investments of specifically time and money to apply further resilience practices.

In a broader picture the study provides insights about how Europe and NATO should change their current behaviors towards a collaborative resilience focus, rather than a national resilience focus. This implication is subject to further future research but relevant to the Swedish context as Swedish defense suppliers see the current national focus jeopardizing their resilience efforts.

For suppliers directly, the study highlights the importance of explicitly positioning their resilience approach in relation to product and market characteristics and of recognizing how their own responsibility perceptions and capabilities interact. Being aware of their position in evaluated aspects of this study and the benefits and constraints that those positions may bear improves their ability to successfully apply resilience strategies in the current geopolitical and market environment. By knowing where they stand and adopting a collaborative mindset with sub-suppliers and FMV, defense suppliers are better positioned not only to strengthen their own resilience, but also to jointly shape how resilience is practiced and rewarded in the Swedish defense market.

6.3. Limitations of the Study

This study has several limitations that leave room for future research. First, the empirics of this study are based on a limited number of interviews focusing exclusively on Swedish suppliers. While this offers depth in a Swedish institutional setting, it constrains the transferability of findings to the wider European or NATO defense landscape, where similar dynamics may play out differently.

Second, some respondents may have refrained from giving in depth insights due to the confidential nature, and security sensitivity of the field. This is further enhanced by self-reporting and classification restrictions.

Third, although the sample covers a diverse set of suppliers, this breadth comes at the cost of limited within-category depth for some product and supplier types, suggesting a need for follow-up studies targeting specific product categories or tiers in the supply chain. Moreover, our qualitative design limits our ability to make claims about correlation or causality. For example, while we observe that suppliers handling more critical supplies as shown by the Kraljic categorization tend to apply broader resilience portfolios, we can only indicate potential relationships rather than establish robust correlations or causal connections, not at least because our category-allocation may not be factual. Relatedly, the interview material is shaped by subjective perceptions, which may bias how strategies and outcomes are presented.

Finally, the study provides a cross-sectional snapshot of a rapidly evolving geopolitical and market environment, meaning that changing regulations, European- or national-level initiatives, and shifting power relations may alter both suppliers' resilience options and their scope to shape the defense market over time.

6.4. Suggestions for Future Research

Following the contributions and limitations of this study, it leaves room for a variety of future research focuses. First, the limited number of interviews and the Swedish focus call for comparative work across European and NATO contexts. Future studies could conduct multi-country comparisons of supplier-side resilience configurations and examine how different national and international environments shape suppliers' abilities to apply resilience strategies and their market-shaping potential.

Second, the limited within-category depth suggests the need for more research on specific product families, Kraljic categories, or supply chain levels. Future studies could therefore, for example, focus on one product category or supply chain level specifically and systematically map resilience configurations and outcomes in that focus field.

Third, the correlation-causation challenge and subjective bias in the data call for quantitative or mixed-method designs to verify the found indications. Future research could therefore e.g. test whether suppliers of more critical Kraljic categories systematically apply broader resilience portfolios and enact more market shaping intent and actions.

Fourth, further studies should investigate the durability of identified shaping effects and clarify the extent to which suppliers' influences remain stable over time, as the defense market environment is subject to continuous changes.

Finally, the cross-sectional nature of our study highlights the need for broader long-term analyses. Future studies could track how resilience strategies, responsibility perceptions, and collaborative practices evolve as regulations, EU/NATO initiatives, and power relations shift. Furthermore, such studies could identify the conditions under which suppliers move from primarily adaptive behavior towards genuine market-shaping roles.

7. References

- Altay, N., & Pal, R. (2023). Coping in supply chains: A conceptual framework for disruption management. *The International Journal of Logistics Management*, 34(2), 261–279. <https://doi.org/10.1108/IJLM-05-2021-0305>
- Antai, I., & Hellberg, R. (2025). Surge complexities in defense industry supply chains: Evidence from multiple case studies. *The International Journal of Logistics Management*, 36(7), 242–261. <https://doi.org/10.1108/IJLM-07-2024-0458>
- Beninger, S., & Francis, J. N. P. (2021). Collective market shaping by competitors and its contribution to market resilience. *Journal of Business Research*, 122, 293–303. <https://doi.org/10.1016/j.jbusres.2020.09.005>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE.
- Dolgui, A., & Ivanov, D. (2021). Ripple effect and supply chain disruption management: New trends and research directions. *International Journal of Production Research*, 59(1), 102–109. <https://doi.org/10.1080/00207543.2021.1840148>
- Dubey, R., Gunasekaran, A., Childe, S. J., Fosso Wamba, S., Roubaud, D., & Foropon, C. (2021). Empirical investigation of data analytics capability and organizational flexibility as complements to supply chain resilience. *International Journal of Production Research*, 59(1), 110–128. <https://doi.org/10.1080/00207543.2019.1582820>

- Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, 32(4), 1246–1264. <https://doi.org/10.5465/amr.2007.26586086>
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532–550. <https://doi.org/10.2307/258557>
- Ekström, T. (2025). Supply chain resilience: An empirical exploration of barriers and enablers in Military Settings. *Scandinavian Journal of Military Studies*, 8(1), 119–136. <https://doi.org/10.31374/sjms.350>
- Ekström, T., Hilletofth, P., & Skoglund, P. (2021). Towards a purchasing portfolio model for defence procurement: A Delphi study of Swedish defence authorities. *International Journal of Production Economics*, 233, 107996. <https://doi.org/10.1016/j.ijpe.2020.107996>
- Elvemo, L. (2025). Supply chain resilience in military operations: A case study exploring command and control. *Scandinavian Journal of Military Studies*, 8(1), 178–199. <https://doi.org/10.31374/sjms.356>
- Esbjerg, L., Laursen, K. B., & Olsen, J. V. (2024). Great expectations: Intersecting markets, conflicting temporalities and the difficulty of shaping markets. *Journal of Marketing Management*, 40(17–18), 1740–1770. <https://doi.org/10.1080/0267257X.2024.2435473>
- Flaig, A., Kindström, D., & Ottosson, M. (2021a). Market-shaping phases: A qualitative meta-analysis and conceptual framework. *AMS Review*, 11(3–4), 354–374. <https://doi.org/10.1007/s13162-021-00213-z>

- Flaig, A., Kindström, D., & Ottosson, M. (2021b). Market-shaping strategies: A conceptual framework for generating market outcomes. *Industrial Marketing Management*, 96, 254–266. <https://doi.org/10.1016/j.indmarman.2021.06.004>
- Glas, A. H., & Essig, M. (2017). Building a conceptual framework for defense acquisition management based on service dominant logic theory. In B. Stensrud (Eds.), *Emerging strategies in defense acquisitions and military procurement* (pp. 93-108). IGI Global. <https://doi.org/10.4018/978-1-5225-0599-0>
- Glas, A., Hofmann, E., & Essig, M. (2013). Performance-based logistics: A portfolio for contracting military supply. *International Journal of Physical Distribution & Logistics Management*, 43(2), 97–115. <https://doi.org/10.1108/IJPDLM-12-2011-0229>
- Hellberg, R. (2023). Swedish public procurement and the defence industry: Obstacles and opportunities. *Journal of Defense Analytics and Logistics*, 7(2), 103–137. <https://doi.org/10.1108/JDAL-12-2022-0015>
- Hellberg, R., & Lundmark, M. (2025). Transformation in European defence supply chains as Ukraine conflict fuels demand. *Scandinavian Journal of Military Studies*, 8(1), 17–39. <https://doi.org/10.31374/sjms.303>
- Hellberg, R., Sprängare, D., Candell, O., Carpenfelt, C., Lundberg, K., Samuelsson, P., Antai, I., Andersson, P., & Backlund, L. (2025). Performance constraints in defence industry supply chains: Evidence from case studies. *Defence and Peace Economics*, 36(8), 1078–1113. <https://doi.org/10.1080/10242694.2025.2500362>
- Hennink, M. M., Hutter, I., & Bailey, A. (2020). *Qualitative research methods* (2nd ed.) SAGE.

- Hennink, M. M., Kaiser, B. N., & Marconi, V. C. (2017). Code saturation versus meaning saturation: How many interviews are enough? *Qualitative Health Research*, 27(4), 591–608. <https://doi.org/10.1177/1049732316665344>
- Hjelmstrand, J. (2024, September 17). *Major investments in Sweden's military defence expansion*. Government Offices of Sweden. <https://www.government.se/press-releases/2024/09/major-investments-in-swedens-military-defence-expansion/>
- Hutchings, S., & Wilding, R. (2022, November 17). *Defence supply chain strategy (Strategic Command Defense Support No. 1)*. UK Strategic Command, Ministry of Defence. https://assets.publishing.service.gov.uk/media/6373ae27d3bf7f72115a8268/Defence_Supply_Chain_Strategy_Executive_Summary_2022.pdf
- Hüther, M. (2025). Industriepolitik für Transformation und Resilienz. *Wirtschaftsdienst*, 105(8), 566–571. <https://doi.org/10.2478/wd-2025-0146>
- Ivanov, D., Sokolov, B., & Dolgui, A. (2014). The Ripple effect in supply chains: Trade-off 'efficiency-flexibility-resilience' in disruption management. *International Journal of Production Research*, 52(7), 2154–2172. <https://doi.org/10.1080/00207543.2013.858836>
- Jiang, B., Lu, Y., Li, S., & Zhao, T. (2025). Does state ownership enhance corporate resilience? Evidence from the COVID-19 pandemic. *Applied Economics Letters*, 32(12), 1789–1795. <https://doi.org/10.1080/13504851.2024.2324147>

- Jiang, W., Huang, T., Shi, K., & Martek, I. (2025). Pricing, crashing and coordination for prefabricated construction supply chain with the lead-time incentive: A power perspective. *Humanities and Social Sciences Communications*, 12(1), 431. <https://doi.org/10.1057/s41599-025-04534-3>
- Kallio, H., Pietilä, A., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954–2965. <https://doi.org/10.1111/jan.13031>
- Kancs, D'A. (2024). Enhancing resilience: Model-based simulations. *Journal of Defense Analytics and Logistics*, 8(1), 105–120. <https://doi.org/10.1108/JDAL-01-2023-0001>
- Kapletia, D., & Probert, D. (2010). Migrating from products to solutions: An exploration of system support in the UK defense industry. *Industrial Marketing Management*, 39(4), 582–592. <https://doi.org/10.1016/j.indmarman.2009.03.013>
- Karbovska, L., Kalina, I., Voroshnov, S., Mazur, Y., Zhelezniak, K., & Kozlova, A. (2025). Increasing the role of military logistics in the context of growing geopolitical instability based on strategic management. *Technology Audit and Production Reserves*, 4(4(84)), 24–29. <https://doi.org/10.15587/2706-5448.2025.336198>
- Kraljic, P. (1983). Purchasing must become supply management. *Harvard Business Review*, 61(5), 109–117.
- Liang, X., Tian, N., Lopes Da Silva, D., Scarazzato, L., Karim, Z., & Guiberteau Richard, J. (2025, April 28). *Trends in world military expenditure, 2024*. Stockholm International Peace Research Institute. https://www.sipri.org/sites/default/files/2025-04/2504_fs_milex_2024.pdf

- Liljenberg, A. (2022). Contextual agility informing market shaping. *Industrial Marketing Management*, 102, 229–239. <https://doi.org/10.1016/j.indmarman.2022.01.013>
- Loska, D., Hazen, B., Rich, N., Genchev, S., & Malik, T. (2025). Military supply chain logistics and dynamic capabilities: A literature review and synthesis. *Transportation Journal*, 64(2), e70002. <https://doi.org/10.1002/tjo3.70002>
- Lundberg, A., Björk, A., & Lougui, M. (2025, June 18). *Svensk konkurrenskraft på försvarsmarknaden*. Totalförsvarets forskningsinstitut (FOI). <https://www.foi.se/rapportsammanfattning?reportNo=FOI-R--5741--SE>
- Macdonald, J. R., & Corsi, T. M. (2013). Supply chain disruption management: Severe events, recovery, and performance. *Journal of Business Logistics*, 34(4), 270–288. <https://doi.org/10.1111/jbl.12026>
- Mazzucato, M. (2024). Governing the economics of the common good: From correcting market failures to shaping collective goals. *Journal of Economic Policy Reform*, 27(1), 1–24. <https://doi.org/10.1080/17487870.2023.2280969>
- Melnyk, S. A., Narasimhan, R., & DeCampos, H. A. (2014). Supply chain design: Issues, challenges, frameworks and solutions. *International Journal of Production Research*, 52(7), 1887–1896. <https://doi.org/10.1080/00207543.2013.787175>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE.

- Ministry for Foreign Affairs. (2024, March 27). Strategic export control in 2023 – *Military equipment and dual-use items* (Government Communication No. 2023/24:114). Government Offices of Sweden (Regeringskansliet). <https://www.regeringen.se/contentassets/8c57a4a527a14313836546568d3113c3/strategic-export-control-in-2023--military-equipment-and-dual-use-items.pdf>
- Naderifar, M., Goli, H., & Ghaljaie, F. (2017). Snowball sampling: A purposeful method of sampling in qualitative research. *Strides in Development of Medical Education*, 14(3). <https://doi.org/10.5812/sdme.67670>
- Namdar, J., Blackhurst, J., & Azadegan, A. (2022). On synergistic effects of resilience strategies: Developing a layered defense approach. *International Journal of Production Research*, 60(2), 661–685. <https://doi.org/10.1080/00207543.2021.2013561>
- Nenonen, S., Storbacka, K., Sklyar, A., & Kjellberg, H. (2024). Identifying effective market-shaping strategies: A fuzzy-set qualitative comparative analysis approach. *Industrial Marketing Management*, 123, 12–30. <https://doi.org/10.1016/j.indmarman.2024.09.003>
- Nenonen, S., Storbacka, K., & Windahl, C. (2019). Capabilities for market-shaping: triggering and facilitating increased value creation. *Journal of the Academy of Marketing Science*, 47(4), 617–639. <https://link.springer.com/article/10.1007/s11747-019-00643-z>
- Nguyen, H., Pham, A. V., Pham, M. D. (Marty), & Pham, M. H. (2023). Business resilience: Lessons from government responses to the global COVID-19 crisis. *International Business Review*, 32(5), 102166. <https://doi.org/10.1016/j.ibusrev.2023.102166>

- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1609406917733847. <https://doi.org/10.1177/1609406917733847>
- OECD. (2025). *OECD integrity review of Sweden*. OECD Publishing. <https://doi.org/10.1787/648d3988-en>
- Olsson, P. (2021, December 1). *The European defence market - unevenly fragmented*. Totalförsvarets forskningsinstitut (FOI). <https://www.foi.se/rest-api/report/FOI%20Memo%207730>
- Padovano, A., & Ivanov, D. (2025). Towards resilient and viable supply chains: A multidimensional model and empirical analysis. *International Journal of Production Research*, 63(17), 6252–6290. <https://doi.org/10.1080/00207543.2025.2470350>
- Paul, A., & Saha, S. C. (2025). A systematic literature review on flexible strategies and performance indicators for supply chain resilience. *Global Journal of Flexible Systems Management*, 26(S1), 207–231. <https://doi.org/10.1007/s40171-024-00415-x>
- Payne, T., & Peters, M. J. (2004). What is the right supply chain for your product? *The International Journal of Logistics Management*, 15(2), 77–92. <https://doi.org/10.1108/09574090410700310>
- Pedersen, C. L., & Ritter, T. (2022). The market-shaping potential of a crisis. *Industrial Marketing Management*, 103, 146–153. <https://doi.org/10.1016/j.indmarman.2022.03.008>

- Pedersen, O., Jahre, M., & Norrman, A. (2025). A balancing act: Towards a conceptual framework for the governance of buyer-supplier relationships in defence supply chains. *Scandinavian Journal of Military Studies*, 8(1), 152–177. <https://doi.org/10.31374/sjms.354>
- Peltz, E., Cox, A. G., Chan, E. W., Hart, G. E., Sommerhauser, D., Hawkins, C., & Connor, K. (2015). *Improving DLA supply chain agility: Lead times, order quantities, and information flow*. RAND Corporation.
- Pfeiffer, K. B., Burdi, C., & Schlueter, S. (2017). Local supply chains: The disaster management perspective. *International Journal of Safety and Security Engineering*, 7(3), 399–405. <https://doi.org/10.2495/SAFE-V7-N3-399-405>
- Pollard, N., & Jacobsen, S. (2025, March 26). *Sweden eyes rise in defence spending to 3.5% of GDP by 2030*. Reuters. <https://www.reuters.com/world/europe/sweden-eyes-defence-spending-35-gdp-2030-prime-minister-says-2025-03-26/>
- Porter, M. E. (1989). How competitive forces shape strategy. In D. Asch & C. Bowman (Eds.), *Readings in Strategic Management* (pp. 133–143). Macmillan Education UK. https://doi.org/10.1007/978-1-349-20317-8_10
- Rice, S. (2025, March 13). *Why the UK defence supply chain needs procurement reform*. Supply Chain Magazine. <https://procurementmag.com/procurement-strategy/uk-defence-leaders-urge-for-procurement-nato-cooperation>
- Rutner, S. M., Aviles, M., & Cox, S. (2012). Logistics evolution: A comparison of military and commercial logistics thought. *The International Journal of Logistics Management*, 23(1), 96–118. <https://doi.org/10.1108/09574091211226948>

- Salim, H., Sahin, O., Elsayah, S., Turan, H., & Stewart, R. A. (2022). A critical review on tackling complex rare earth supply security problem. *Resources Policy*, 77, 102697. <https://doi.org/10.1016/j.resourpol.2022.102697>
- Sani, S., Schaefer, D., & Milisavljevic-Syed, J. (2022). Strategies for achieving pre-emptive resilience in military supply chains. *Procedia CIRP*, 107, 1526–1532. <https://doi.org/10.1016/j.procir.2022.05.186>
- Schulman, P. R. (2023). Problems and paradoxes of reliability and resilience in organizational networks. *Safety Science*, 167, 106279. <https://doi.org/10.1016/j.ssci.2023.106279>
- Singleton, J. (2024). Supply chain leadership in crisis: The military model for resilience. *Scientific Bulletin*, 29(1), 139–150. <https://doi.org/10.2478/bsaft-2024-0015>
- Sokri, A. (2014). Military supply chain flexibility measures. *Journal of Modelling in Management*, 9(1), 78–86. <https://doi.org/10.1108/JM2-10-2011-0050>
- Statsenko, L., Scholten, K., & Stevenson, M. (2025). The influence of global value chain governance on supply network resilience. *Supply Chain Management: An International Journal*, 30(2), 161–177. <https://doi.org/10.1108/SCM-05-2024-0328>
- Storbacka, K., Nenonen, S., Peters, L. D., & Brodie, R. J. (2022). Taking stock of shaping strategies: From firms driving markets for business performance to diverse actors shaping systems for sustainability. *Industrial Marketing Management*, 107, A1–A10. <https://doi.org/10.1016/j.indmarman.2022.09.028>
- Swedish Defence Materiel Administration (FMV). (2025, November 18). *About FMV*. Swedish Defence Materiel Administration (FMV). <https://www.fmv.se/english/about-fmv/>

- Swedish Security & Defence Industry Association. (2025). *The Swedish defence market*.
<https://soff.se/en/how-the-swedish-market-works-2/>
- Thompson, J. (2022). A guide to abductive thematic analysis. *The Qualitative Report*, 27(5), 1410-1421. <https://doi.org/10.46743/2160-3715/2022.5340>
- Urmston, A., Song, D., & Lyons, A. (2024). The development of risk assessments and supplier resilience models for military industrial supply chains considering rare disruptions. *Logistics*, 8(2), 57. <https://doi.org/10.3390/logistics8020057>
- Voss, C., Tsikriktsis, N., & Frohlich, M. (2002). Case research in operations management. *International Journal of Operations & Production Management*, 22(2), 195–219. <https://doi.org/10.1108/01443570210414329>
- Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). SAGE.
- Yoho, K. D., Rietjens, S., & Tatham, P. (2013). Defence logistics: An important research field in need of researchers. *International Journal of Physical Distribution & Logistics Management*, 43(2), 80–96. <https://doi.org/10.1108/IJPDLM-03-2012-0079>

8. Appendices

8.1. Reach-Out Mail Templates – Individual Outreach

Hi _____

My name is Fynn Thilow, and together with my thesis partner William Belanger, I am writing my Master's thesis at the Stockholm School of Economics. Our research focuses on how Swedish defence suppliers adapt their supply chains and operations in times of geopolitical uncertainty — with a particular interest in resilience strategies such as lead-time flexibility, dual-use product orientation, and volume adjustment.

We are not looking for sensitive or contract-specific information. Instead, our aim is to understand general approaches to resilience at the company and product level.

We would be very grateful if you could take part in a 30–45 minute interview (digital or in person, whichever is more convenient). All information will be handled confidentially and will of course be anonymized.

As a thank you, we will share a short summary of our aggregated findings with participants once the study is complete and we are more than happy to invite you to our focus group event, where we will present our findings.

If you are not the right person to speak with, we would highly appreciate it if you could point us to a colleague who may be more suitable.

Would you be open to participating? We are happy to suggest times or adapt to your schedule.

Thank you for considering our request - your insights would make an important contribution to this research.

Best regards,

Fynn Thilow & William Belanger

Master's Students, Stockholm School of Economics

8.2. Reach-Out Mail Templates – Company Outreach

Hi,

My name is Fynn Thilow, and together with my thesis partner, William Belanger, I am writing my Master's thesis at the Stockholm School of Economics. Our research focuses on how Swedish defence suppliers adapt their supply chains and operations under current geopolitical uncertainty, with a special focus on resilience strategies.

We are not looking for sensitive or contract-specific details. Instead, we are studying general approaches to resilience (e.g. lead-time flexibility, dual-use orientation, volume adjustments).

We would be very grateful if you could connect us with the most suitable person(s) in your organization who could participate in a 30–45 minute interview. The interview can be digital or in person, at their convenience, and all information will be treated confidentially and will of course be anonymized.

If there are several colleagues with relevant experience, introductions to more than one would also be highly appreciated. We will of course give you access to the Thesis and the possibility to read over the interview transcript for anything you would like to adjust afterwards. Additionally, we would love to invite all participants to our planned focus group where we will present our findings.

Thank you very much for your time and support, and we look forward to your guidance.

Best regards,

William Belanger & Fynn Thilow

Master's Students, Stockholm School of Economics

8.3. Interview Overview

Interview Nr.	Job Position	Company Category	Supplier Type	Interview Date	Interview Duration	Company Turnover
1.	CEO	SME	Dual-Use	25.09.2025	59 min	< 100 MSEK
2.	CEO	SME	Dual-Use	30.09.2025	1 hr 2 min	< 100 MSEK
3.	Defense/Resilience Researcher	-	-	30.09.2025	36 min	-
4.	CEO	SME	Dual-Use	01.10.2025	55 min	< 100 MSEK
5.	CEO	SME	Pure-Defense	01.10.2025	1 hr 1 min	< 100 MSEK
6.	Defense Network Executive	-	-	02.10.2025	1 hr 2 min	-
7.	CEO	SME	Dual-Use	02.10.2025	44 min	< 100 MSEK
8.	CEO	SME	Pure-Defense	06.10.2025	59 min	100 – 500 MSEK
9.	CEO & Supply Chain Manager	Large	Pure-Defense	07.10.2025	1 hr 9 min	> 500 MSEK
10.	Governmental Supply Chain Manager	-	-	09.10.2025	58 min	-
11.	Head of Defense/Security Department	SME	Dual-use	14.10.2025	58 min	100 – 500 MSEK
12.	Head of Procurement	Large	Pure-Defense	14.10.2025	58 min	> 500 MSEK
13.	Executive VP	SME	Pure-Defense	16.10.2025	58 min	100 – 500 MSEK
14.	CPO & Head of Procurement	Large	Pure-Defense	16.10.2025	51 min	> 500 MSEK
15.	Head of Marketing / Sales	Large	Pure-Defense	21.10.2025	1 hr 2 min	> 500 MSEK
16.	Account Manager	Large	Dual-Use	23.10.2025	1 hr 5 min	> 500 MSEK
17.	Head of Procurement	Large	Dual-Use	05.11.2025	31 min	> 500 MSEK

Minimum duration: 31 Minutes

Maximum duration: 1 Hour and 9 Minutes

Average duration: 56 Minutes

Total duration of interviews: 15 Hours and 48 Minutes

All interviews were conducted in English via Microsoft Teams and 16 of the 17 interviews were also transcribed in Microsoft Teams.

All interviewees responded to every question, and in cases where they could not speak directly to a topic, they stated this explicitly and provided the most accurate and informed response available for them to give.

8.4. Interview Guide

Prior Clarifications:

Record: Is it okay to record this interview for transcription purposes? The recording will be deleted after the transcription is done!

Outcome: We will provide you with the transcript of this interview afterwards, so you are able to double-check the content & of course every interview will be anonymized (No Interviewee or company names)! But to be clear - we will use this interview and its content in our thesis.

Answer Phrasing: We understand you can't share sensitive or classified details. Please feel free to answer in broad terms - even general impressions and trends are very valuable. If any question feels too detailed, you can always answer at a general level or skip it - we completely understand.

Background: As introduced via Mail, we are currently writing our master's Thesis at SSE with the purpose of answering the RQ: How do Swedish defense suppliers employ resilience strategies to manage demand fluctuations and lead-time pressures under geopolitical uncertainty?

Interview Type: This will be a semi-structured interview, meaning we have prepared guiding questions, but the conversation is flexible, and we may follow the direction of your answers. Later, we will do an inductive thematic analysis of the collected interviews.

Focus: We are focusing on specific products / product types and analyze their specific resilience strategies especially in the face of the current and expected future market developments and the geopolitical uncertainty.

1) Personal & Company Context

Personal Questions:

- What is your background and what is your role in the company / your focus?

General company questions:

- In broad terms how would you characterize demand for your product since 2022 (Start of Ukraine War) to today of your products or your business in general?
- What are the core products that you supply to the defense agency and are where are you located in the military supply chain?
- Who would you identify as your main competitors?
- How long have you been partnering with the military for?

2) Product Characterizations

Product Characterization (Kraljic Matrix):

- How important the product is for the buyer (in this case, the military - how much it impacts operations and costs).
- How risky it is to get hold of the product (are there many suppliers or very few, is it hard to replace, does it depend on rare materials, etc.)?
- How do you see the ability of the market to deliver your product on time?
- How critical do you evaluate your product for the military / Do you see limitations in the Armed Forces operational capability if the market does not deliver your product on time?

Dual Use vs. Pure-Defense:

- For the mentioned core products, is the supply focused on the military or is it a split share between military and commercial?
- Are defense vs. non-defense orders treated differently in any way (diff. priorities, specializations, compliance, etc.) and if so in what ways?
- Do you think the fact that the product in focus is dual-use or pure-defense limits or enables you to be able to better react to market changes?

Delivery Capabilities:

- Lead Time:
 - What are the main lead time drivers for that product (long-lead parts, machining/test queues, certification, supplier bottlenecks, transport, security/clearances)?
 - If demand suddenly increased, do you feel you could shorten lead times a lot, somewhat, or only very little? How and why?
- Volume flexibility:
 - How does your current volume flexibility look like for the specific product? Alternatively: When demand rises, is it generally easy, moderately challenging, or difficult for you to increase output? How and why?
- What kinds of challenges usually make it harder to scale volume (e.g., materials, testing, financing, staffing)?

3) Definition, Application & Intentions of Resilience (Strategies)

Defining & Measuring Resilience:

Our definition: The ability of suppliers to adapt to sudden or extreme changes in demand, speed, and uncertainty in their operating environment.

Do you see resilience more as proactive or as reactive and why?

- What priority (Scale 1-10) does resilience have in your company? Does this priority differ for pure-defense and dual-use products?

Resilience strategies today:

- For the focal product, which resilience strategies are you applying (same strategy for all products or does it differ per product, why?)?
- What is your interpretation of each strategy in place and how is it applied to the specific product in focus / for different products of the company?
- Are the strategies applied chosen by you or forced because of internal / external pressures?
- What is the broader intent of those resilience strategies & strategy configurations? Adapt to the market or shape the market in some way?

Impact on Sub-Suppliers

- When you change your own supply strategies, how are your sub-suppliers affected?
- Do you see any broader consequences for sub-supplier markets?

Resilience 2.0 & Market Effects:

- Identified how you work with resilience today, how do you see that approach shift in the near future?
- Do your strategies influence broader market outcomes (supplier consolidation, standard setting, price/lead-time norms, entry barriers, geographic clustering)? How?

4) Perception and Expectation of Geopolitical / Market Developments

View on Market Developments

- How do you view the market dynamics currently and looking at the next few years?
- What shifts are you expecting and what could they result in?

Market Shaping & Role of the Armed Forces/FMVs

- From your perspective, how do the Swedish Armed Forces and FMV prioritize, influence and/or support supplier resilience?
- How and where do you see the Market Shaping abilities in the (Swedish) defense market? To what extent are you as a defense supplier able to shape the market?

Broader Context:

- From your perspective, what role should government and policymakers play in supporting supplier resilience in times of uncertainty?

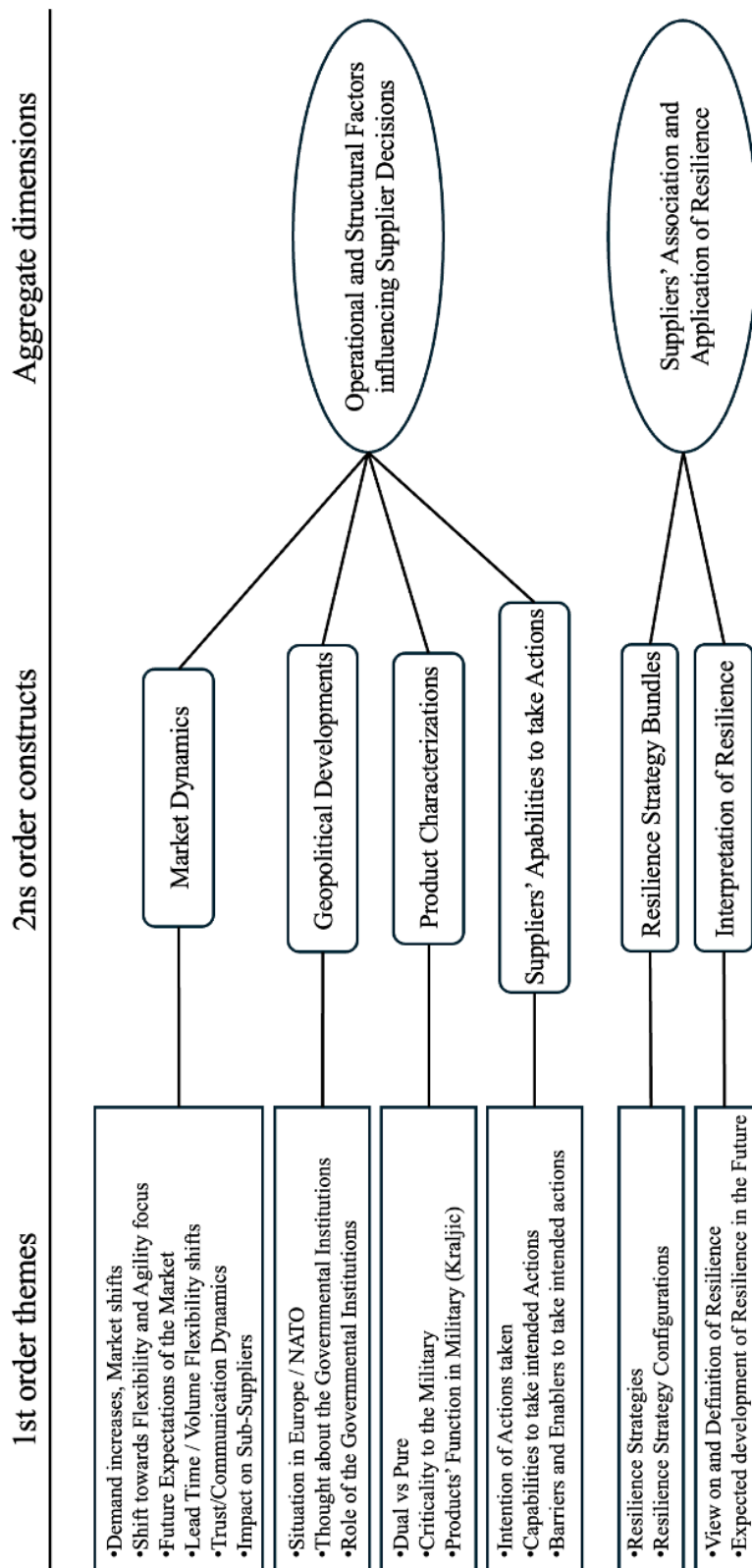
Closing Remarks:

- Is there anything we didn't ask that matters in that field from your perspective?
- Referrals: 1–2 colleagues we should talk to (procurement/ops/engineering)?

Offer to send them the final thesis when we have completed it.

Thank them for their time and effort and say that we hope that the thesis will be interesting for them to read when we have finished.

8.5. Data Structure



8.6. Exemplary Coding Process

All right, then here are the requirements. You need to buy an already developed vehicle. Don't come with industrial cooperation requirements because that adds risk and time. So, we see a shift to we can put demands to the customer. We never had the possibility to do that before, so we have the opportunity not to now say no to industrial cooperation requirements.

But to your point, we need to be resilient. We need to make sure that capacity is available. We need to make sure that no restrictions will strike us from an embargo perspective or anything else. So that's why we are still sourcing within the build to print area in different countries, different supply chains. So, there's no limitation. Of course, the requirements are tougher than the civil industry. So, for example, export control is huge within a military industry, so we cannot work with any random supplier. Because they need to be willing to be compliant on this export control side of it, which requires licenses, which requires investments, and that makes the funnel a little bit. Narrower, so to say. So, we cannot choose from 1000 suppliers, we can choose from A from 50 suppliers.

Codes:

Product Characterization: Dual-Use vs Pure-Defense Focus

Market Dynamics: Lead Time / Volume Flexibility issues / shifts

Market Dynamics: Trust/Communication dynamics shift

Interpretation of Resilience: View on and Definition of Resilience (Resilience as being proactive or reactive / Priority of Resilience)

Resilience Strategy Bundles: Resilience Strategies

8.7. AI Usage Report

Throughout the development process of this thesis, AI tools were used in selected parts. The focus was thereby on translations and language formatting. Additionally, AI was partly used for administrative tasks, but in any case, with following critical human oversight.

The use of AI was at any time in accordance with the AI guidelines of the Stockholm School of Economics and AI always served as an aid rather than a substitute.

During the writing process, AI Tools like ChatGPT and Grammarly were used cautiously to correct grammar, refine academic tone, structure, and readability of the text. We acknowledge that the use of AI implies risks to the content of the thesis. Therefore, we ensured at any point that suggestions produced by AI were critically reviewed and manually edited to ensure that meaning, argumentation, and academic standards were preserved.

Prompt examples include:

“Please correct the grammar of the following sentence and suggest synonyms or changes for a more academic and formal tone, while preserving the original meaning.”

“Review the following text and identify any sections that could be shortened due to redundancy, repetition, or non-academic wording. Explain the rationale of decisions made.”

Throughout the process we made sure at any point that AI is only used as a support rather than decisive in the research and writing process. The used AI tools offered meaningful help with administrative tasks and improving the language in the thesis, but all core academic work including constructing the research design, reviewing literature and building a theoretical framework, interpreting the results, analysis, and conclusions were conducted independently by the authors.