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Redesigning the ICT Device Chain through Joint Value Creation among Employees, Service Providers, and Policymakers within the Dutch Central Government

Strategic Product Design
MSc Thesis



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Management Summary

My thesis develops a strategic approach to making the ICT device lifecycle within the Dutch central government more sustainable. The research focuses on SSC-ICT, the largest government ICT service provider, which manages around 100,000 laptops, smartphones, and tablets. High device turnover, fragmented responsibilities, and limited cross-departmental coordination create financial strain, environmental impact, and missed opportunities to act on the government's own sustainability ambitions.

My research applies the Joint Value Creation to investigate how policymakers, service providers, and users—each with distinct value orientations of firmness, feasibility, and flexibility—can be engaged in collaborative decision-making. Extensive qualitative research, including observations, document analysis, context mapping, stakeholder mapping, and semi-structured interviews, revealed systemic tensions: inefficient logistics, limited user autonomy, and rigid policy frameworks. These tensions reinforce a linear, siloed device chain where responsibilities are diffuse and feedback loops are weak.

To address this, my research proposes governing fragmentation more effectively by clarifying stakeholder roles, enhancing ongoing dialogue, and creating structured spaces for value negotiation. The central design concept is a digital platform that combines technical features—such as Bring Your Own Device (BYOD) and eSIM requests, CO₂-impact tracking, and profile-based asset allocation—with integrated feedback mechanisms that allow employees to review policy documents, express preferences, and opt out of unnecessary assets. This shifts the system from a default “First-In, First-Out” model toward tailored, demand-driven allocation, aligning device lifespans with employment terms and extending their useful life. The approach aims to reduce procurement volumes, cut costs, enhance user convenience, and significantly lower environmental impact.

Inspired by Montesquieu's Trias Politica, the platform reframes policymakers as Legislative, service providers as Executive, and users as Judicial powers—each holding distinct responsibilities yet continuously renegotiating values in a circular governance model.

Beyond SSC-ICT, the findings offer an actionable roadmap for public-sector organisations seeking to integrate sustainability into ICT procurement and usage without compromising operational efficiency or user needs. By embedding joint value creation in processes and culture, fragmented responsibilities can be transformed into shared accountability, enabling circular and transparent ICT practices across the Dutch central government.

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1. Introduction

Governments worldwide increasingly rely on digital infrastructure to deliver public services effectively. This growing dependence also amplifies ICT's environmental footprint, with personal hardware—such as laptops, tablets, and smartphones—responsible for roughly 50% of global ICT-related CO₂ emissions (Belkhir & Elmeligi, 2018; Malmodin & Lundén, 2018).

The Dutch government, a major ICT device user, employs around 150,000 people across various departments and organizations (Ministerie van Algemene Zaken, 2024). Their work depends heavily on government-issued devices to access digital services and maintain operational integrity, especially in today's hybrid work environment—a trend accelerated by COVID-19. On average, Dutch employees work from home about 15 hours per week (CBS, 2024), mirrored by civil servants who spend roughly half their time remote (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2024). Many teams are also spread across different offices and cities, deepening the reliance on these devices for collaboration and service delivery.

Shared Service Center ICT (SSC-ICT), one of the main ICT service providers serving nine ministries and two other departments (SSC-ICT, 2025), currently manages around 100,000 devices. Each year, it replaces approximately 30,000 of these, while having even more in storage. This volume of hardware strains public finances, harms the environment, and undermines Europe's geopolitical independence—three key sustainability challenges. Most devices are produced abroad, often under unethical labour conditions and using critical raw materials like cobalt, extracted through harmful practices (Amnesty International, 2021; Das et al., 2024). Although such delicate goods require careful handling, little is known about how they are internally distributed across departments or disposed after use within the Dutch government. These practices appear to contradict the government's own principles of sustainability, ethics, and social inclusion.

The government aims to “make international production chains more sustainable by preventing or addressing abuses related to working conditions, human rights, and the environment,” as stated in the "Inkopen met Impact" report by The Minister of the Interior and Kingdom Relations and The State Secretary for Infrastructure and Water Management (Ollongren & van Veldhoven-van der Meer, 2022, p. 21).

1.1. Navigating Sustainability

Studies indicate that a substantial portion of the total CO₂ emissions associated with ICT devices arises during their production phase. For user devices like laptops and smartphones, most emissions occur before the devices are even put to use (Belkhir & Elmeligi, 2018; Ercan et al., 2016, p. 124; Viswanathan, 2009). Logically, frequent device replacement significantly amplifies overall emissions by repeatedly triggering this carbon-intensive production phase and should therefore be minimized wherever possible.

However, in complex, inter-organizational systems like government operations, procurement and replacement decisions are driven by multiple, often competing values—including security, operational continuity, and cost-efficiency—which frequently overshadow sustainability considerations. Some organizations have explored more sustainable alternatives. Internal evaluations, for example, revealed that using more sustainable devices, such as Fairphone, could substantially reduce CO₂ emissions (Government of Flanders, 2024). Yet despite these promising findings, large-scale adoption remains limited due to concerns about security, software compatibility, and established user habits—factors that continue to outweigh environmental priorities.

One potential alternative is to impose stricter sustainability conditions on manufacturers through framework agreements, ensuring that all tenders within this category align with established environmental goals. For example, suppliers can be required to offer reused or refurbished devices, guarantee spare parts, meet energy standards, and design for recycling per EU Green Public Procurement criteria (European Commission, Directorate-General for Logistics and Interpretation for Conferences, 2024).

While such agreements can steer the market, their design is carefully calibrated to ensure feasibility for market participants, maximizing their potential impact. As the category management team who formulates such contracts explains: “They actively engage with the market to identify which sustainability-related requirements can create additional impact and which are acceptable to implement. This acceptance is essential.” (Ministry of Economic Affairs and Climate Policy, 2025). Contracts can support sustainability goals; however, their influence is ultimately constrained by what the market can realistically absorb.

Furthermore, the global ICT devices market is valued at approximately USD 2.14 trillion (Zotig, 2025), while SSC-ICT invested only an insignificant amount of €50 million in laptops and mobile devices in 2023 (Auditdienst Rijk, Ministry of Finance, 2024). This illustrates that the Dutch government alone is too small a player to significantly influence manufacturers’ practices. In response to this limitation, several nations, including Canada, Sweden, Switzerland, and Belgium, have joined forces to form a unified and sustainable manufacturer agreement. Known as the Circular and Fair ICT Pact (CFIT), this partnership promotes four strategies: Buy Less, Buy Better, Use Better, Use Longer. Such shifts highlight the need to also examine how these changes can begin within internal systems (Design Research Society, 2018).

While CFIT promotes shared ambitions and international cohesion, the internal structure of the Dutch government seems fragmented. Beyond SSC-ICT, more than 24 ICT service providers (Rijksbrede Dienstverleners, n.d.) support roughly 160 government organizations (Ministerie van Algemene Zaken, n.d.). Ministries are frequently compartmentalized, resulting in limited information exchange and weak cross-departmental coordination (Mirzaei & De Busser, 2024). The ICT device chain is shaped by a wide array of departments and actors, each operating under distinct mandates, priorities, and often a matter of individual choice (Algemene Rekenkamer, 2025). This institutional fragmentation reflects a range of values that often remain unaligned across stakeholders, running in parallel rather than converging. My research explores how stakeholder values are coordinated, to what extent the current approach is truly sustainable and circular, and whether structural conflicts in goals support or hinder progress toward more sustainable practices.

1.2. Aligning Values

Given the significant sustainability and social impacts involved, it is important to question whether values like security and operational continuity are adequately balanced with broader circularity goals.

The continued reliance on new hardware, limited supply chain coordination, and high device turnover suggest missed opportunities to integrate sustainability more effectively. I see potential in aligning these values and goals more deliberately across departments and stakeholders, advancing not only environmental aims but also social inclusion and broader European ambitions. Such alignment could provide a foundation for a more coherent and future-oriented ICT landscape.

To address this challenge, my research draws on the concept of joint value creation (JVC), which highlights the importance of collaborative engagement among stakeholders to develop solutions that benefit all parties involved (Freeman, 2011; Toukola et al., 2023). By aligning interests, resources, and capabilities, JVC enables outcomes unattainable by individual actors alone.

This is particularly relevant given the rising political pressure for greater transparency in the ICT hardware lifecycle. Recently, Member of Parliament Kathmann (GroenLinks–PvdA) requested a detailed account of how devices are processed, how many are donated to social causes, and the related costs (Wingelaar & Boeve, 2025), underscoring political support for more transparent and collaborative practices. From a JVC perspective, bringing these key stakeholders together can generate solutions that not only serve shared interests but also strengthen internal efficiency and sustainability.

1.3. Problem Statement

The Dutch government relies heavily on personal ICT devices to support its operations, resulting in significant environmental, social, and financial impacts. Despite ambitions to contribute to broader societal transitions, little is known about how government-issued devices are procured, used, maintained, and disposed of across its fragmented departments. The system involves a wide range of actors operating under different mandates, with limited transparency into how internal practices align with these goals. This raises critical questions about whether existing structures and processes truly enable sustainable device management. Drawing on the concept of JVC, My research investigates the internal organization of the ICT device chain, with particular attention to how joint value is created among stakeholders, how responsibilities are distributed, and whether the final solutions can be collaborative.

1.3.1. Research Questions

“How is the ICT device chain currently organized within the Dutch central government?”

“What are the core values of the key stakeholders in the ICT device chain?”

“How can collaborative interventions support systemic change toward a more sustainable ICT device lifecycle within the Dutch government?”

1.4. Research Context

The Netherlands is a parliamentary constitutional monarchy, with executive power held by the cabinet led by the Prime Minister, a legislative authority vested in a bicameral parliament. This governance model is rooted in the principle of Trias Politica, which separates legislative, executive, and judicial powers to uphold democratic accountability (Raad voor het Openbaar Bestuur, 2020). The central government consists of twelve ministries, each headed by a minister and responsible for a specific policy area. Among these, the Ministry of the Interior and Kingdom Relations (BZK) plays a pivotal role in coordinating public administration (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2025). Within BZK, the Directorate-General for Digitalisation and Government Organisation (DGDOO) advances digital services, strengthens ICT governance, and supports organizational development across the public sector (Ministerie van Algemene Zaken, n.d.-b). In line with its commitment to innovation and sustainable workforce development, BZK collaborates closely with the A&O Fonds Rijk, which supports pilot projects and research to improve civil servant skills and working conditions (A+O Fonds Rijk, n.d.). My research is situated within this institutional context.

To access relevant information in this confidential and fragmented environment, I undertook a six-month internship at the Ministry of the Interior in The Hague. This allowed me to carry out my research within the ICT Impact initiative, part of the broader “Pilot Duurzame CAO Rijk” program (Pilot Duurzame CAO RIJK, n.d.). Established under the 2022–2024 collective labour agreement, this program promotes sustainability in public-sector employment through collaboration between government entities and labour unions. It brings together sustainability professionals from internal organizations to drive behavioural and systemic change. Of over 300 employee-submitted ideas, 14 were selected and grouped into seven themed impact projects, including ICT, where my device research is embedded.

2. Literature Review

To navigate the complex government system, the concept of JVC provides a valuable analytical lens. Rooted in stakeholder theory and collaborative governance, JVC examines how value is co-created through active engagement and negotiation among stakeholders pursuing shared or interdependent outcomes (Freeman et al., 2011; Toukola et al., 2023). Instead of presuming alignment, it highlights the need to surface divergent interests, build shared understanding, and structure collaboration for mutual benefit. This makes it especially relevant for embedding sustainability in institutional systems marked by distributed authority, differing values, and conflicting goals.

My literature review explores three foundational pillars of JVC that support collaboration in multi-actor systems: understanding values, defining clear boundaries, and enhancing ongoing dialogue. These build on insights from my earlier literature review (van Citters, de Meester, & Wang, 2024) and form a conceptual foundation for examining how collaborative interventions can drive more sustainable ICT device practices within the Dutch government. In doing so, this research aims to deepen understanding of collaborative innovation while offering practical guidance to stakeholders.

2.1. Understanding Values

JVC is particularly crucial for innovation in large-scale environments due to their complexity, scale, and the involvement of multi-disciplinary stakeholders like policymakers, product users, and system executors. In such contexts, collaboration supports alignment across fragmented structures, fosters shared understanding, and helps manage competing goals. This enables coordinated decision-making, reduces inefficiencies, and drives more sustainable, innovative outcomes.

As Edkins et al. (2013) note, value and risk largely emerge through stakeholder interactions, making joint efforts essential for navigating complexity. Similarly, Artto et al. (2016) stress that value is not simply created by launching new systems, but by integrating and aligning existing actors' perspectives across the system lifecycle, especially in operations where long-term value is realized through ongoing cooperation (Matinheikki et al., 2016).

JVC shifts focus from top-down implementation to an inclusive approach grounded in stakeholder values (Bridoux & Stoelhorst, 2022). It recognizes that value is co-created through engagement at all levels, where stakeholders shape refinements not by holding identical values but by articulating and negotiating diverse perspectives and goals. As Green and Sergeeva (2019) argue, these values are not fixed at the start but continuously evolve through interaction and contextual change. In complex settings like the ICT device chain, new actors and shifting circumstances continually redefine what stakeholders see as valuable.

This dynamic makes value co-creation less about alignment and more about managing tensions that arise when stakeholder values turn into conflicting goals (Kier et al., 2023). Niesten and Stefan (2019) highlight that this is inherently paradoxical: interorganizational collaboration demands simultaneously co-creating shared value and protecting individual interests. Overemphasizing one side—either collaboration or capture—can trigger vicious cycles that erode trust and performance. Embracing this paradox, however, fosters virtuous cycles that sustain long-term mutual benefits.

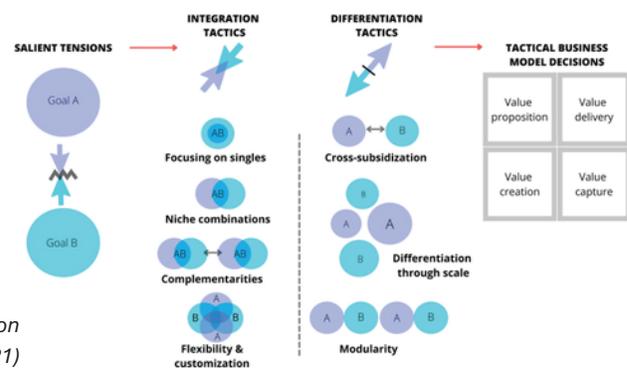


Figure 1: Conflicting goals tool integration and differentiation tactics (Rozentale and van Baalen, 2021)

For example, a shared commitment to inclusivity and user-centred design may still lead to competing operational goals—maximizing functionality, minimizing costs, or ensuring data security—which often pull in different directions. These frictions become especially apparent in trade-offs, like extending device lifespans for sustainability versus frequent upgrades for cybersecurity. Rozentale and van Baalen (2021) note that such conflicting goals aren't always resolvable. Instead, organizations can apply integration and differentiation tactics: blending demands into cohesive solutions or deliberately separating them across departments, processes, or timelines (figure 1).

This shows that conflicting goals can coexist when divergent values are acknowledged and used as design input. In the Dutch government's fragmented ICT device ecosystem, this reflects JVC thinking: system refinement is less about unifying values than enabling them to coexist—managing the paradox of sharing knowledge while securing individual gains (Niesten & Stefan, 2019).

Meadows' (1999) work on “leverage points” deepens this perspective by showing that true systemic change often requires altering goals, norms, and information flows—far beyond tweaking technical processes. In ICT sustainability, this means shifting organizational mindsets toward circularity, transparency, and stewardship.

Ultimately, a design strategy must be rooted in stakeholder values, recognizing not only shared but also conflicting interests (Bridoux & Stoelhorst, 2022; Kier et al., 2023). Effective systems are built by engaging with this diversity, not by prematurely resolving tensions or ignoring them. As Green and Sergeeva (2019) emphasize, values evolve over time, requiring stakeholder engagement to be ongoing, ensuring the design remains adaptive, context-sensitive, and capable of navigating the paradoxes inherent in complex multi-actor systems.

2.2. Clear Boundaries

Understanding JVC in multi-stakeholder networks requires careful attention to boundary conditions—the factors that set the limits for effective collaboration. Reypens et al. (2015) identify three main boundary conditions that shape co-creation processes like coordination, consultation, and compromise: (1) the number of stakeholders, (2) cultural diversity, and (3) divergent objectives. As the number of actors grows, it becomes harder to maintain oversight, align actions, and foster inclusive dialogue. Cultural differences—through language, working styles, or disciplinary norms—can further hamper mutual understanding. Meanwhile, stakeholders often pursue conflicting goals, from public accountability to innovation leadership, complicating efforts to reach consensus.

These conditions do not just constrain collaboration—they actively shape it by introducing tensions that must be navigated. Reypens et al. (2015) argue that making these explicit helps: coordination improves when roles and resources are clear, consultation deepens when cultural differences are acknowledged, and compromise becomes easier when motives are transparent. Larger differences may make co-creation harder but also more generative by surfacing value tensions.

Bridoux and Stoelhorst (2022) emphasize that governance structures are crucial for managing fragmentation. Their concepts of shared and lead role governance highlight the importance of collaborative rule-setting, mutual oversight, and distributed authority. Instead of depending on a central authority, these approaches show how structured decentralization can build trust and cooperation in systems marked by interdependence and differing values. This challenges the notion that fragmentation is inherently an obstacle to JVC.

The Trias Politica principle offers further insight. Traditionally about separating legislative, executive, and judicial powers, it highlights how fragmentation can act as a safeguard against concentrated power (Redish & Cisar, 1991). In *The Persian Letters* (1721), Montesquieu argued that liberty depends on “power checking power,” and that clear boundaries prevent dominance and abuse (Sanders, 2020). Applied to multi-stakeholder governance, this suggests that fragmentation, when transparently structured, can actually enable cooperation through defined responsibilities and mutual restraint. This is especially relevant in ICT governance, where unclear boundaries risk undermining accountability (Stronger Rule of Law, 2020).

Initially, I viewed this fragmentation as a barrier—leading to silos and poor communication. But this literature reshaped my perspective. When guided by shared rules and transparent governance, this fragmentation becomes a strength. It allows for diverse, tailored contributions, innovation, and shared ownership. Instead of eliminating the diverse internal organizations, subgroups, and departments—each with their own skills and capacities—this complexity should be viewed as an asset that, if properly governed, can enable inclusive and resilient value creation.

2.3. Enhancing Ongoing Dialogue

Ongoing dialogue is a foundational element of collaboration in complex, multi-stakeholder systems. It extends beyond terminology to encompass transparency, open access to information, and structured engagement. At its core is interactive communication between stakeholders, grounded in mutual respect (Pralhad & Ramaswamy, 2004). Such dialogue enables stakeholders to jointly define problems, co-develop solutions, and align across divergent perspectives.

Crucially, ongoing dialogue is not static. It evolves as stakeholders gain new knowledge, encounter fresh contexts, and engage in feedback loops. As Prahalad and Ramaswamy (2004) note, exposure to new insights shifts individual perceptions of value, which in turn influence others—creating a continuous, iterative cycle of change. This dynamism reinforces the need for systems that actively support and enhance interaction over time.

To sustain this process, organizations must invest in technological and organizational infrastructures. Communication should be decentralized, contextual, and experience-driven, supported by governance structures that maintain inclusivity and adaptability (Pralhad & Ramaswamy, 2004). In such settings, value is not fixed or predefined; it emerges through continuous interaction (Matinheikki et al., 2016). In complex projects, this requires repeated framing—developing shared interpretations of problems and goals—and reframing, where these interpretations adapt as conditions change. Ongoing dialogue supports this sensemaking, aided by transparent, accessible structures. Mechanisms such as joint workshops, recurring meetings, and communication tools create feedback loops that build collective understanding and adaptive capacity.

While much of the literature emphasizes interaction among institutional stakeholders, the customer also plays a critical role in value creation. Vargo and Lusch (2004) describe this as a shift toward service-dominant logic, where value is not embedded in goods but co-created through interaction. In this view, enterprises can only make value propositions; customers determine value through co-production. Knowledge—an operant resource—thus becomes the fundamental unit of exchange, underscoring the relational nature of co-creation and the importance of ongoing dialogue.

Bos-de Vos et al. (2022) further show that shared understanding in system transformation is actively cultivated, not passively formed. They identify three recurring practices—aligning, prioritizing, and adding contexts—that enable integration across diverse organizational and institutional settings. This is achieved not through top-down control, but through continuous interaction, iterative adaptation, and co-creation. These practices develop shared reference points and framing tools that help actors navigate divergent institutional logics.

Reflecting on this literature, enhancing ongoing dialogue is not about making all stakeholders adopt identical values or communication styles. Instead, it is about fostering meaningful, adaptive interaction among all actors in the system—those who create, facilitate, and manage products, as well as those who use, reuse, or dispose of them, including customers as active co-creators of value. In this way, ongoing dialogue becomes a strategic driver of collaboration, bridging divides and enabling more adaptive, inclusive interventions in dynamic systems.

2.4. Conclusion

Understanding stakeholder values is essential not just for fostering mutual alignment but also for crafting strategies that navigate conflicting goals. Instead of striving for full consensus, the literature underscores working with value tensions through integration and differentiation, allowing diverse priorities to coexist. Similarly, the analysis of boundary conditions shows how fragmentation—often viewed as a governance hurdle—can become a design strength. Transparent roles and shared governance enable distributed ownership, tailored contributions, and innovation, with the Trias Politica principle illustrating how clear, functionally separated roles uphold legitimacy and support co-creation across silos. Lastly, enhancing ongoing dialogue serves as a strategic enabler of collaboration. By fostering trust, iterative sensemaking, and continuous exchange, it helps stakeholders bridge divides, navigate complexity, and co-create interventions that are both adaptive and inclusive.

3. Methodology

To explore the complex dynamics of JVC, understand the diverse departments, and ICT device challenges within the system, my research uses a qualitative approach. Multiple data collection methods were employed to enable methodological triangulation, enhancing the reliability and validity of the findings (Youngs & Piggot-Irvine, 2011).

3.1. Design Journey

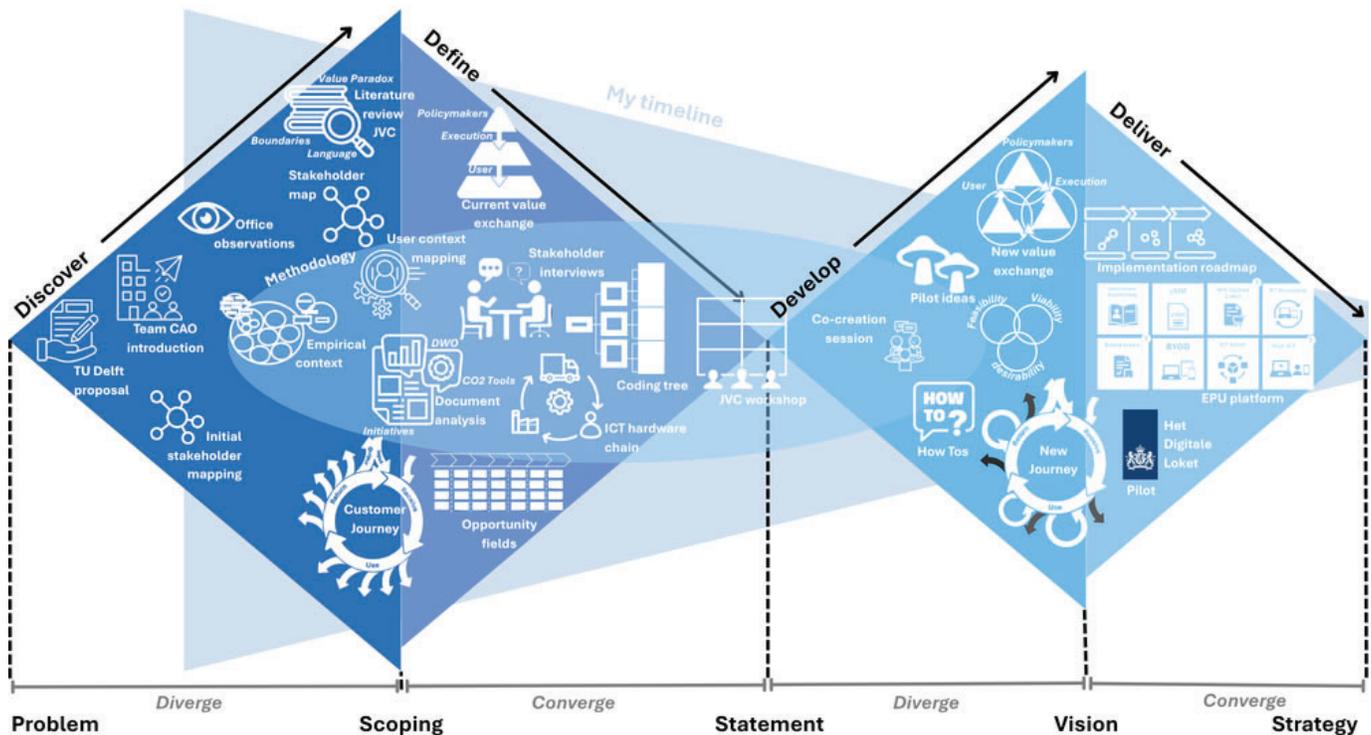


Figure 2: My Double Diamond approach

The Double Diamond, used to structure design processes through divergent and convergent phases, served as a flexible guiding framework for my research (Clune & Lockrey, 2014). However, in practice, my process consisted of multiple interconnected diamonds rather than a single linear sequence. Between each divergence and convergence, typical categorizations, reflections, or decisions occurred—often marking shifts in focus or revealing new directions. As such, the visual does not represent a strict chronological process (figure 2). Instead, my design process was circular and dynamic, continually iterated and revised based on both new and earlier research. Nevertheless, the visual captures all steps conducted throughout the design journey, illustrating the extent of triangulation, iteration, and the diversity of methods applied. It also shows how the Discover and Define phases began broadly, employing a wide range of methods, while the Develop and Deliver phases narrowed in scope. This narrowing resulted from an increasingly defined direction, practical constraints within the Dutch government, and intentional choices to prioritize early-stage exploration and problem framing.

3.2. Empirical Context

Given the complexity and fragmentation of the broader system, I narrowed my research scope to key stakeholders linear to the internal ICT device chain, focusing on a single ICT service provider: SSC-ICT. This allowed for deeper, practice-oriented insights that—though not directly transferable—may inform other ICT providers operating under different conditions. I selected SSC-ICT for its systemic impact potential as the government’s largest device provider, as well as for the direct access to its internal network facilitated by my company mentor.

This context is particularly relevant given SSC-ICT’s proactive sustainability efforts. The organization developed a service roadmap based on the six steps of the R-ladder which underpins its sustainable ICT strategy (van Aalst, 2024). SSC-ICT was also the first globally to introduce lease agreements with manufacturers, notably Apple, signaling a structural shift in its role in the ICT device chain (Al Haddad, 2020). These initiatives highlight SSC-ICT’s willingness to innovate and lead, making it a promising setting to identify actionable interventions toward a more sustainable ICT system.

My research was conducted across multiple government sites, with key activities taking place at BZK, the Beatrixpark offices, Koningskade 4 (home to SSC-ICT), the SSC-ICT logistics centre in Rijswijk, service desks at various ministries, and the DRZ disposal facility in Hoogeveen.

As part of the “Pilot Duurzame CAO Rijk” initiative, under the ICT project lead, I was given full responsibility for the hardware sub-project. This work involves mapping the internal ICT device chain—from procurement to disposal—and identifying scalable interventions to improve sustainability, with the goal of informing pilot projects by October 2025.

Throughout the project, I collaborated closely with stakeholders to ensure alignment with broader sustainability goals. I also engaged with colleagues running other pilots, such as initiatives to spread office attendance more evenly across the week (Meenhuis-Bosboom, 2025) and to promote biodiversity by distributing flower seeds at workplaces (Pilot Duurzame CAO Rijk, 2025), which provided valuable insights into feasibility and piloting.

Additionally, I participated in the inter-organizational working group “Verduurzaming ICT Rijk,” where representatives from departments such as DUO, Logius, I&W, Belastingdienst, DICTU, IWR, and RWS met biweekly to develop a sustainability-focused ICT advisory report for policymakers and ICT service providers, scheduled for release at the end of 2025. This network helped me connect with key stakeholders and understand diverse departmental perspectives, enriching my view on implementation beyond my immediate team. Overall, this provided a rich empirical setting to explore my research question and design interventions grounded in organizational realities (figure 3).

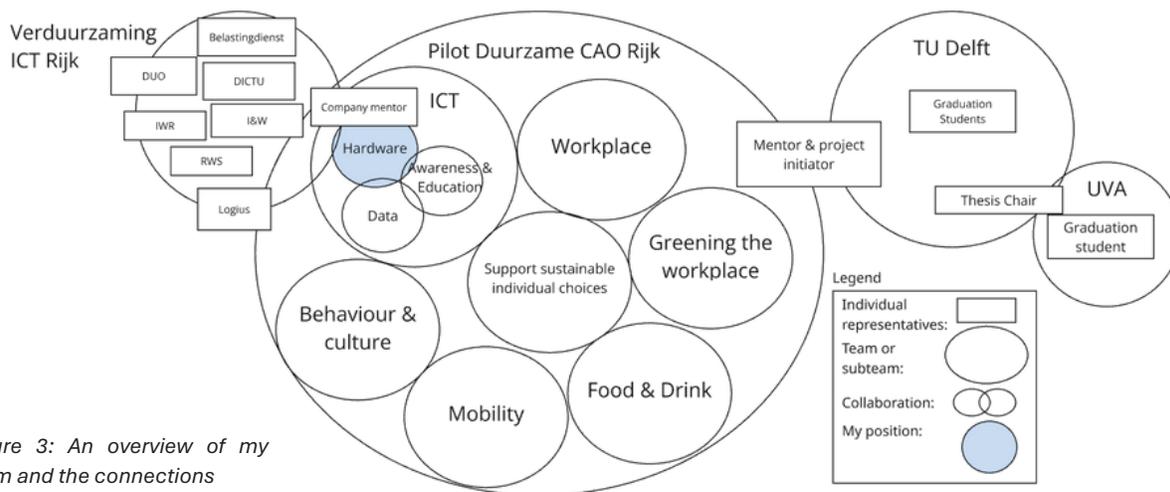


Figure 3: An overview of my team and the connections

3.3. Data Collection Methods

3.3.1. Observations

My research began with ongoing personal observations in the office to understand the device ordering process and employee behaviour. I documented both the steps taken and those missing from the procedure. By immersing myself in the user role, I identified tensions and inefficiencies around device use. Additionally, I spoke with five colleagues to see how they used their devices and to gather their views on the ordering and return process.

3.3.2. Expert Interviews

Alongside my observations, I conducted several expert interviews to deepen my understanding. For 16 consecutive weeks, I met weekly with the ICT project manager to refine the scope of my research. With his conceptual input, I developed stakeholder maps, the ICT device chain, and a customer journey, all of which were iteratively refined throughout the project. He also granted access to confidential documents, including contact lists, internal research reports, process specifications, and presentations.

In addition, I interviewed the senior sustainability advisor I&W—also a member of the “Verduurzaming ICT Rijk” working group—who shared over 15 years of experience with systemic ICT sustainability challenges. I also spoke with an SSC-ICT researcher focused on improving ordering process efficiency, and with the team manager of the User Support ICT Desk, who leads the “Goedhuisvaderschap” campaign promoting responsible device use. Finally, I held several meetings with an ICT coordinator to better understand their role in the lifecycle and to collaboratively shape one of the pilot interventions. These sessions served not only as moments for reflection to deepen findings and ensure relevance, but also as opportunities to validate emerging ideas.

3.3.3. Document Analysis

Complementing my qualitative approach, I conducted a comprehensive document analysis to gain historical context and understand the evolution of initiatives, partnerships, and stakeholder challenges, including communication efforts (Bowen, 2009). This involved reviewing a wide range of materials, such as government websites, previous reports (Ministry of Economic Affairs and Climate Policy, 2024), framework agreements from Category Management IWR (Rijksdienst voor Ondernemend Nederland, 2025), CIO Rijk advisory documents (Digitale Overheid, 2025), public articles, emails, and internal records on the ICT device chain. Throughout the entire research period, I conducted ongoing document analysis by revisiting earlier files and integrating newly emerging materials. Some sources were publicly accessible, while others—often confidential—were shared by stakeholders. This method also helped triangulate interview data, either confirming or challenging stakeholder claims, and provided crucial input for steering the research and shaping subsequent strategies.

3.3.4. Context Mapping

Beyond my personal experiences, I explored user perspectives through a context mapping approach. This method aims to reveal users’ tacit and latent experiences, needs, emotions, and aspirations within their real-world environments using generative techniques, creating rich insights that inform strategy (Stappers, n.d.; van Boeijen, Daalhuizen, & Zijlstra, 2020, p.83). I designed a framework with questions that challenged employees to reflect on their experiences and share their vision (Appendix A).

This exercise amplified the “Voice of the Customer,” a technique used to systematically uncover, structure, and prioritize user needs to shape strategies around what matters most (Griffin & Hauser, 1993). It took place during the “Dare to Share” conference, involving about 70 employees and stakeholders interested in sustainability (Pilot Duurzame CAO Rijk, 2025a). Empowering employees to voice their views is essential, aligning with the CAO Rijk’s goal of fostering fair and standardized employment conditions.

3.3.5. Stakeholder Map

I developed a stakeholder map identifying the key actors for the planned semi-structured interviews. The aim of this map was to assess stakeholders' power, interest, and predictability to better inform project strategy and manage expectations (Newcombe, 2003).

Notably, there is no existing ICT stakeholder map or lifecycle overview within the Dutch government. The only related document I found was outdated and did not specifically address the ICT landscape (Ministerie van Volkshuisvesting en Ruimtelijke Ordening & Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2024).

From this analysis, I identified four main stakeholder groups (figure 4):

1. Policy: CIO Rijk, DG DOO, ICBR, and IWR, which provide strategic direction and frameworks for category managers.
2. ICT Service Providers: Organizations like SSC-ICT and DICTU, responsible for sourcing, logistics, and user support across the device lifecycle.
3. Customer & User: Government departments placing device orders and the civil servants who use the devices.
4. Disposal: Domeinen Roerende Zaken (DRZ) and lease manufacturers handling data wiping, cleaning, resale, or destruction of decommissioned devices.

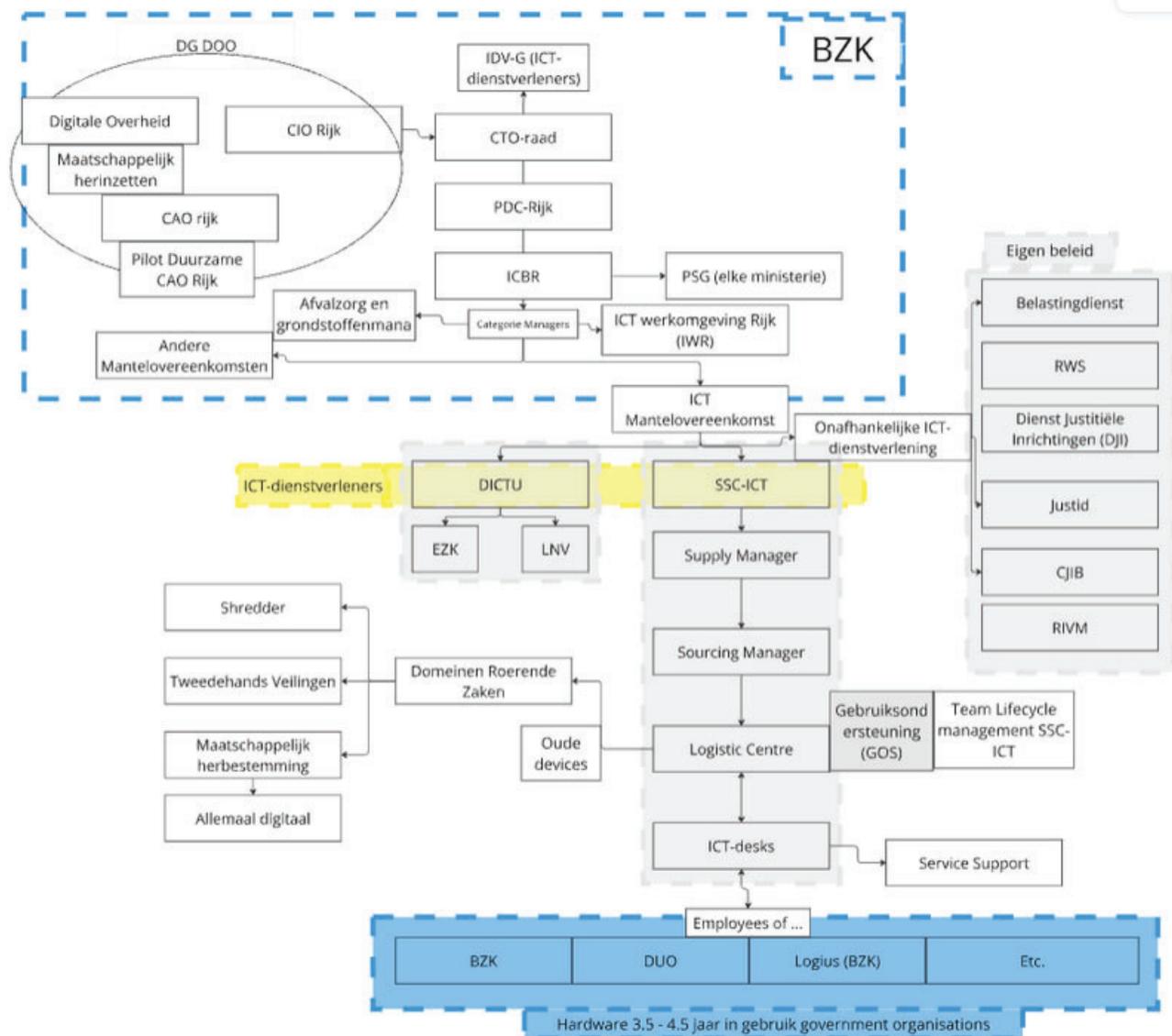


Figure 4: ICT device stakeholder map

3.2.6. Semi-Structured Interviews

These insights formed the basis for designing the interview protocol and conducting semi-structured interviews with individuals directly involved in the ICT device chain, distinct from the earlier expert interviews. This approach offered a flexible yet systematic way to engage a broader range of perspectives. Semi-structured interviews are well-suited for exploring context-specific, nuanced issues (Khan, 2023), allowing for independent viewpoints that enhanced the study’s robustness and credibility (Daigneault & Jacob, 2013).

Guided by the stakeholder map, I identified key organizations and contacted potential participants via email. From the responses, 10 individuals were selected based on their roles, responsibilities, and familiarity with ICT device challenges. While many stakeholders responded positively, access to others was more difficult. For instance, I was unable to secure an interview with a Director-General overseeing digital transformation due to the seniority of the role. Similarly DRZ proved hard to reach—an issue colleagues had also faced. These access challenges illustrate the system’s hierarchical and rigid communication structures, an observation that later emerged in the analysis.

Participant names were anonymized, but their roles were retained to contextualize insights within the ICT device chain (figure 5). Given the diverse roles, the semi-structured format allowed tailored discussions while maintaining a consistent framework to identify patterns relevant to my research.

Aimed to understand stakeholder relationships, uncover value tensions, and identify practical opportunities, questions were structured around three themes: (1) Behaviour—exploring roles and interactions; (2) Opinion—understanding values and perceived challenges; and (3) Knowledge—assessing awareness of processes and possibilities (IndianScribes, 2024).

Before each interview, participants received an informed consent form approved by the Human Research Ethics Committee (HREC), which included study details and notification that sessions would be audio recorded. Interviews began with a brief project introduction, then proceeded with questions around the three themes (Appendix B). All interviews were conducted in Dutch to minimize communication barriers and encourage open dialogue, and were held online for scheduling flexibility and to reduce logistical constraints (O’Connor & Madge, 2004; Deakin & Wakefield, 2014).

Chronological Order	Role	Department	Time
Person 1	Sustainability Coordinator	CIO Rijk	28 min
Person 2	Logistics Manager	SSC-ICT	57 min
Person 3	Category Management ICT Sustainability Advisor	ICT werkomgeving Rijk	35 min
Person 4	Sustainability Research	SSC-ICT	21 min
Person 5	Procurement	SSC-ICT	56 min
Person 6	Manager General Goods	Domeinen Roerende Zaken	43 min
Person 7	Sustainability Coordinator	RIVM	43 min
Person 8	ICT User Support	SSC-ICT	57 min
Person 9	Waste Treatment and Materials Management	RVO	39 min
Person 10	Category Management ICT	ICT werkomgeving Rijk	52 min

Figure 5: Overview of interviewed stakeholders, including their roles, departments, and interview durations.

3.2.7. Synthesis Methods: Joint Value Creation in Practice

Complementing the multiple data collection methods, I co-organized a JVC workshop with a fellow thesis student from Vrije Universiteit Amsterdam, who is testing a newly developed tool as part of the design-driven method by Bos-de Vos, De Jager, and Mulder (2025). This tool supports project teams in navigating value tensions within complex societal transitions. The aim was to make stakeholder values explicit—both in terms of what they sought to realize (worth) and the beliefs guiding their actions (values)—to foster mutual understanding and identify shared ambitions and future directions, thereby strengthening boundary conditions (Bos-de Vos, 2020).

The session took place at BZK, with ten stakeholders—some of whom I had previously interviewed (figure 6).

Previously Interviewed	Role	Department
Expert interview	Pilot Duurzame CAO ICT Team Manager	CIO Rijk
Semi-structured interview	Logistics Manager	SSC-ICT
Expert interview	Sustainability Coordinator	Logius
Expert interview	Sustainability Coordinator	Ministry of Infrastructure and Water Management
Semi-structured interview	Procurement	SSC-ICT
No	Logistics Manager	DRZ
Semi-structured interview	Sustainability Coordinator	RIVM
No	Sustainability advisor	I-Interim Rijk
Semi-structured interview	Waste Treatment and Materials Management	RVO
No	Intern ICT education	Logius
No-show		
	Logistics Manager Team	DRZ
	ICT User Support	SSC-ICT
	Category Management ICT Sustainability Advisor	ICT Werkomgeving Rijk

Figure 6: Participants in JVC Framework and Co-creation session

Notably, no policy representatives attended, limiting direct insight into deeper policy-level values. This absence may have skewed the discussion toward executional and user perspectives, narrowing institutional reflection. However, the open, reflective nature of the session still prompted participants to consider not only their own values but also those of their organizations and policymakers, providing meaningful insights into the broader value landscape.

The JVC framework supported this by encouraging reflection across individual, organizational, and systemic levels and time horizons from the present to fifty years ahead. This structured, interactive approach surfaced underlying value tensions and opened space for co-creating potential interventions (Appendix C).

Following the workshop, I facilitated a co-creation session with the same group, building on their heightened awareness of underlying values. We collaboratively explored system-wide challenges and opportunities for intervention. I presented findings from earlier observations, the mapped ICT device chain, and identified opportunity fields to guide the discussion.

This session served as a participatory forum where diverse stakeholders jointly developed actionable solutions grounded in mutual understanding, aligned values, and shared ownership (Ramaswamy & Özcan, 2016; van Boeijen, Daalhuizen, & Zijlstra, 2020, p.61). Stakeholders were encouraged to co-design transition strategies and propose pilot interventions that would be feasible, viable, and desirable across organizational boundaries. Designed to foster open dialogue, the session aimed to develop bottom-up strategies that could inform or complement existing top-down policies.

3.3. Data Analysis Approach

The analysis was highly iterative, with the ICT device chain, customer journey, opportunity fields, and coding tree continuously informing each other. Early opportunity fields shaped the coding, which in turn refined the device chain, constructed from observations, document analysis and interviews, and further evolved through feedback. Challenges were distilled into a simplified chain to highlight systemic frictions and guide pilot opportunities. These interactions are deeper demonstrated in figure 7.

Expert interviews

Expert interviews were conducted throughout the process, where possible, to confirm, nuance, or iterate upon findings from other analyses. All findings were initially documented or mapped in Miro in an abstract form, with few observable patterns. As new data emerged, it was integrated into the relevant visual frameworks and refined accordingly.

Customer journey

The customer journey was primarily identified through observations and context mapping, capturing user perspectives by structuring their opinions the framework. Tension fields—mainly derived from semi-structured interviews—were analysed using Braun and Clarke’s (2006) six-step thematic analysis. Ten interviews were coded in ATLAS.ti to extract core themes and subthemes, including multiple stakeholder quotes, forming the basis of the coding tree.

JVC Workshop

During the JVC workshop, the ICT device chain was presented as a discussion tool. As this session was highly dialogue-based values and opportunities were identified which were mapped in a value space. Combining insights from the coding tree, value map, and customer journey analysis led to the creation of a future customer journey and an iterated value map aligned with the future vision. These provided clear boundaries for the end design, guiding the formulation of solutions by answering the “how to” questions linked to the future journey.

Validation

The design was then validated through a pilot. Pilot results were compiled in an Excel sheet, cleaned, categorised, and analysed quantitatively for frequencies, proportions, and performance indicators, enabling comparison between expected and actual outcomes. This assessment addressed feasibility, viability, and desirability, complementing my qualitative findings. Additionally, a profile-based asset test was conducted with one participant, followed by a semi-structured interview for validation. Finally, a joint validation session with a policymaker and a service provider was held, from which key quotes were extracted to support, criticize, and contextualise the findings.

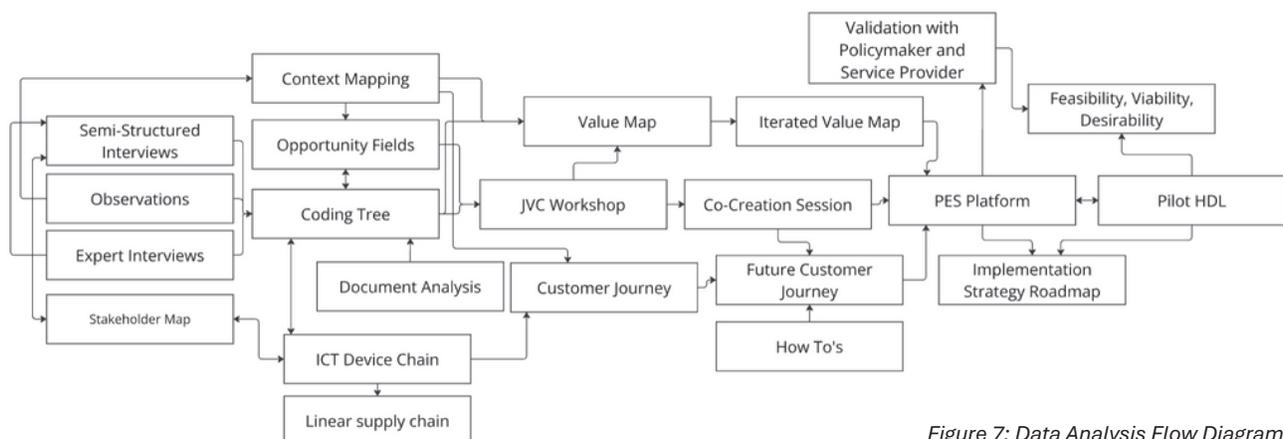


Figure 7: Data Analysis Flow Diagram

4. Context Analysis

4.1. Document Reviews

4.1.1. Internal Initiatives

Leasing Devices

Traditionally, devices were procured through suppliers. A key shift occurred when SSC-ICT introduced direct leasing from manufacturers, reducing the number of intermediaries. In 2020, it began leasing Apple devices, which now account for approximately 50% of all devices in use. This move aimed to extend product lifecycles and reduce waste (Al Haddad, 2020). Leasing is seen as more sustainable due to direct logistics, manufacturers' willingness to reclaim devices, and better terms for reuse and recycling (ICT werkomgeving, 2022, p.14). This was echoed in an email by the director of SSC-ICT, who highlighted 95% of the devices being reused and 5% dismantled by Apple's robot Daisy to recover up to 95% of raw materials—showcasing how leasing can support circularity through advanced recycling.

This is supported by studies (Intlekofer et al., 2010; Kang et al., 2020) showing that leasing can promote reuse and modular design. However, practical challenges remain: it concentrates control with manufacturers, poses risks of exporting critical materials outside the EU, and rigid contracts may hinder new circular initiatives.

Recovering valuable materials

To offset procurement impacts, the government once partnered with Closing the Loop, recycling a phone from Africa for each phone bought, recovering valuable materials and supporting local jobs (Rodenhuis, 2019). Over 17,000 phones were processed, though recent silence suggests the program may have ended, reflecting broader EU struggles with critical raw material recycling and dependence on imports (Council of the European Union, 2025).

Digital Inclusion

More recently, focus has shifted to refurbishing decommissioned laptops. DRZ securely wipes these devices, after which an independent foundation Allemaal Digitaal gives them to people in poverty providing digital access, aiming to distribute 10,000 laptops annually (Reijner, 2025). This initiative extends device lifespans while helping vulnerable individuals.

4.1.2. User Behaviour

SSC-ICT's Lifecycle Management and Communication teams are internally planning to educate users through the awareness campaign Goedhuisvaderschap (Responsible Stewardship). Among roughly 100,000 devices used by civil servants, over 500 are returned monthly due to damage—far above typical failure rates of 2–4% (Schischke et al., 2020). Only 20% are repaired, driving the annual purchase of about 5,000 replacements. This suggests deeper issues tied to user behaviour, limited accountability, or lack of preventive training.

Launched in September 2024, the campaign targets 43,000 employees across six ministries. Phase 1 promotes cleanliness and care for device exteriors via biweekly emails (van den Berg, 2023), without yet covering procedures for damage. Phase 2, starting mid-October, focuses on sustainable use—like avoiding sun exposure and using protective gear—communicated only through Serviceinfo-app (SIA) and QMS.

While a good first step, the initiative remains purely educational, focusing narrowly on end-user behaviour. It overlooks systemic factors like fragmented ownership and policy gaps that also drive high damage rates, risking an oversimplified narrative that blames individual carelessness.

4.1.3. Digitale Werkomgeving Rijk

To ensure consistency and digital interoperability, employees use Digitale Werkomgeving Rijk (DWO), a standardized workspace installed on most government devices. Hosted via Citrix, DWO offers secure, flexible access to work applications, data, and communication tools—anytime, anywhere. It supports collaboration through features like the Rijksadresgids, Microsoft Teams, Outlook, shared drives, and multifactor authentication (SSC-ICT, n.d.) (SSC-ICT, n.d.-a).

DWO also includes the TOPdesk Self-Service Portal (SPP), tailored for central government staff to view assigned devices, request app access, or add DWO to another device (Appendix D). However, the portal is not prominently placed, so employees must already know where to find it, which likely contributes to low usage.

Product and Services Catalogue

SSP also contains the Products and Services Catalogue, which lists all available ICT products that can be ordered by ICT coordinators selected by department managers. I have summarized the most relevant product options, specifications, and associated costs.

While Bring Your Own Device (BYOD) is formally allowed and cheaper (e.g., €784 for Citrix DWO vs. €1,090 for a managed laptop), few employees opt for it. In practice, most are simply issued standard managed laptops without being clearly offered a BYOD choice.

In addition accessories can be ordered via the TOPdesk Self-Service Portal, though some, like laptop bags, are automatically included and replaced every new order even if unnecessary.

Het Digitale Locket

Additionally, some ICT coordinators use Het Digitale Locket (HDL), which enables direct communication with employees—something SSP does not offer. However, it currently only collects basic administrative details like name, birthdate, and phone number, without addressing user preferences or needs (Appendix E).

4.1.4. User Agreement

Devices issued to employees remain the property of SSC-ICT and are provided solely for official duties. They are assigned personally, may not be shared, and must be returned with accessories when employment ends, roles change, or replacements are provided, with a return receipt as proof. Employees are expected to handle devices responsibly and can be held liable for loss or damage from misuse, though no formal fines were found. Maintenance is strictly done by SSC-ICT; personal modifications like stickers are not allowed.

4.1.5. Sustainability Calculation Tools

Several tools support sustainable procurement decision-making, such as the MVI Criteria Tool by PIANOo, which sets standardized environmental and social procurement criteria (Government of The Netherlands, 2025; PIANOo, n.d.).

Internationally, the government participates in the CFIT Buyer Group ICT platform (Circular & Fair ICTPact, 2023), which shares tools like Canada's RETScreen for energy assessments (Government of Canada, n.d.), Switzerland's GHG Protocol Calculation Tools for CO₂ hotspots (Greenhouse Gas Protocol, n.d.), and a new Norwegian tool comparing ICT emissions with other products. While these tools provide valuable analyses, they are not yet embedded in existing systems or coordinated across governments at the scale CFIT envisions.

4.1.6. NCDD

The National Coalition for Sustainable Digitalisation (NCDD), a public-private coalition with the Ministry of Economic Affairs and Cisco (Hartholt, 2024), reports that ICT device made up about 43% of Dutch digital CO₂ emissions in 2023 (NCDD, 2024). To address this, they support projects like Amsterdam's RePlanIT, which uses "Circular Resource Planning" to double device lifespans and increase component reuse by up to 50% through tools like a Circular Product Passport and AI-driven maintenance planning (AMS Institute, 2022). Pilots with Amsterdam and Rijkswaterstaat have already led to procurement changes, extending laptop lifespans from four to six years (AMS Institute, 2024).

4.1.7. Communication Gaps in Returns

A key insight emerged from reviewing SSC-ICT's lengthy (694-word), unclear email requesting device returns. SSC-ICT stakeholders emphasized that timely returns are essential for security, contract compliance, and maximizing refurbishment. However, they noted that timely returns do not always occur likely to do with the current communication towards the user.

4.2. Expert Interviews Insights

4.2.1. Strengthening Accountability and Reuse

The SSC-ICT system researcher highlighted that users only see their responsibilities in the initial agreement and suggested using more channels to boost awareness. He also emphasized that faster returns and reuse could cut the need for new devices, illustrating this with a visualization of an improved onboarding cycle.

4.2.2. eSIM Instructions

My company manager highlighted that there are currently no clear instructions available for employees on how to activate and use eSIMs. Promoting this option, along with providing straightforward guidance, could encourage more employees to consolidate their personal and work devices into a single phone. This would not only improve convenience but also indirectly support sustainability by reducing the total number of devices per user.

4.2.3. Untracked Devices and Duplicates

Approximately 200 devices are currently unaccounted for, according to a sustainability researcher at SSC-ICT. These devices are neither in use nor stored at SSC-ICT, indicating that many are likely sitting idle in employees' homes. Additionally, inadequate logistical coordination and unclear policies have resulted in duplicate accessories, such as multiple laptop bags per user.

4.3. User Perspective

To explore the perspective of employees, I organized an interactive session at the Dare to Share event. Using the context mapping approach, I created a participatory framework to tap into employees' tacit knowledge and everyday experiences, recognizing that while I bring design expertise, they are experts in their daily realities (van Boeijen et al., 2020, p. 83).

I briefly introduced my research topic, after which participants reflected on one of four broad questions about value, scaling, perspectives, or tips (figure 8). Armed with post-its and pens, 33 employees shared their insights, generating a rich mix of ideas and discussions (Appendix A).

4.3.1. Ensuring Choice and Transparency

Employees expressed concerns about the rigidity of the current system. Items are often ordered automatically. They have limited input regarding which devices and accessories they can select or opt out of. Employees mentioned that they receive devices they do not use because they simply do not need them: "The system decides for me, not with me" one employee noted, highlighting the lack of personalization in the current approach.

Moreover, after a certain period, employees are required to return their still-functional devices—often unwillingly and without knowing what will happen to them. "I received an email to return my perfectly good laptop after just two years. I still don't understand why," an other employee remarked, expressing frustration over the lack of transparency and the perceived waste.

They emphasized a desire for the system to be more customisable and transparent, particularly toward users. This would allow employees to better understand how to act as responsible and sustainable users and make more informed choices throughout the lifecycle of the devices.



Figure 8: User interaction with framework during event

4.3.2. Scaling by Integrating Multiple Values

Employees highlighted how the government is fragmented across hundreds of departments and organizations. For instance, at Logius, which manages the Netherlands' public-sector digital infrastructure, security is the top priority, often leading to the wiping or even destruction of devices. In contrast, an employee of BZK emphasized the importance of promoting social inclusion by donating devices to families living below the poverty line. Meanwhile, another individual stressed the need to monitor devices to ensure the recovery and reuse of critical materials within the EU. Participants agreed that addressing sustainability in isolation, or focusing solely on security or social goals, is insufficient. Instead, they stressed the need for an integrated vision that considers multiple challenges simultaneously.

4.3.3. User Intervention Ideas

Some suggestions focused on BYOD, though employees emphasized the need for a clear boundary between work and personal life. As one respondent noted: "I would be happy to use one phone, but I want work notifications turned off during the weekend."

Other ideas included the use of refurbished phones or modular devices, allowing individual components to be repaired or replaced instead of discarding the entire device. Additionally, some employees expressed a willingness to purchase high-end products themselves, believing this would extend the product's lifespan and thereby enhance its sustainability.

Conclusion

The four matrices reveal a clear employee interest and willingness to engage with sustainable solutions. However, it is also evident that employees are, in several ways, constrained in their ability to obtain and use devices more sustainably. These limitations arise both from their own lack of awareness about their behaviours and from the current system's structure, which restricts more sustainable choices.

4.4. Key Tensions in ICT Device Chain

To explore stakeholder relationships and system dynamics, I conducted semi-structured interviews. Insights from earlier research shaped both the interview focus and the coding tree (Appendix F), developed through thematic analysis. Grounded in the JVC lens, this coding tree revealed tensions, clarified roles, and highlighted gaps in shared understanding—key for collaboration.

A main finding was extensive fragmentation across the ICT device chain, visible in many subthemes. Stakeholders—from users to policy advisors—operate largely in silos. Actions in one lifecycle stage rarely inform the next, and accountability is diffuse. As a CIO Rijk respondent noted, “Departments are individually responsible for their ICT. We set frameworks but can’t enforce them,” leading to decentralized actions without central oversight.

Fragmentation also stems from infrastructure. An SSC-ICT manager stressed, “Everyone works in their own systems—QMS and Topdesk aren’t even linked.” This limits synergy and reinforces missed opportunities. Interviews further showed that such coordination conflicts with circular ambitions. A circular system requires actors to both contribute and accept returns from elsewhere. Instead, departments distance themselves from downstream responsibilities, perpetuating a linear chain.

Three key tensions emerged: (1) Operational efficiency vs. systemic fragmentation—disconnects from procurement to disposal cause inefficiencies, such as mismatched orders, incomplete forms, and poor end-of-life transparency. (2) User autonomy vs. sustainable responsibility—users often undermine sustainable use, shaped by limited awareness, feedback, and shared ownership. (3) Policy rigidity vs. adaptive change—institutional rules, contracts, and traditions constrain responsive, integrated decisions (figure 9). Together, these tensions show a system struggling to function as a whole, despite rising awareness of the need for sustainable, integrated ICT device governance.

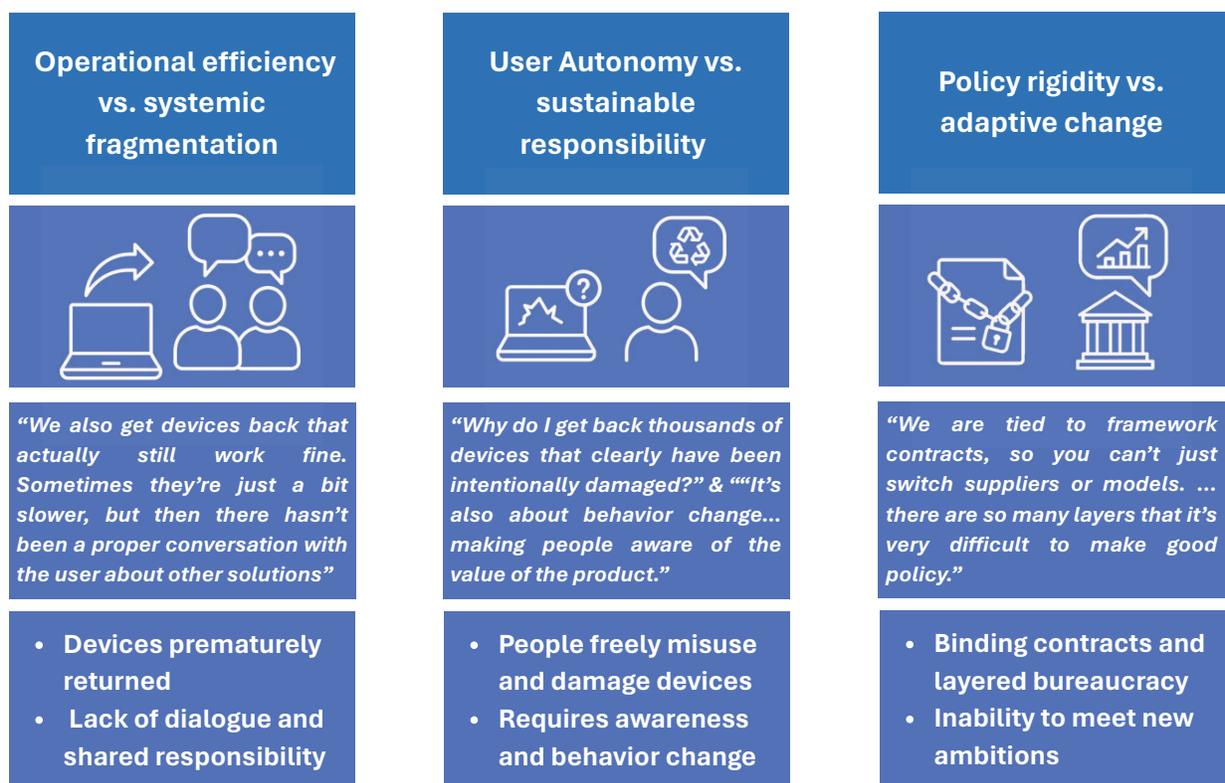


Figure 9: Three Coding Tree Tension Fields

4.4.1. Inefficiencies in the system

Focusing on the sub-theme inefficiencies in the system: These structural issues contribute to inefficiencies across the hardware lifecycle, from procurement to disposal. The process is heavily interdependent, meaning that mistakes or delays at one stage often disrupt others. Several stakeholders emphasized problems at the front-end, such as mismatches between requests and actual needs. “Departments regularly order the wrong devices or ones they don’t actually need,” explained by CIO Rijk. Similarly, an SSC-ICT user support manager shared that, “We receive many requests for phones and laptops, but the forms are often incorrect or incomplete.” Further down the chain, unnecessary returns also create logistical and environmental strain. ““We” also get devices back that actually still work fine. Sometimes they’re just a bit slower, but then there hasn’t been a proper conversation with the user about other solutions,” said a representative from IWR. Even at the disposal stage, transparency is lacking. The CIO Rijk stakeholder noted, “When something is sent to DRZ, we sometimes don’t even know whether it will be reused or disposed of immediately.” These gaps in insight and communication prevent the system from learning from itself or optimizing future cycles.

4.4.2. User Behaviour

The inefficiencies described above both shape and are shaped by user behaviour. Non-compliance, neglect, and misuse were recurring concerns in the interviews. According to an SSC-ICT user support manager, even basic procedures are often ignored: “Even when we include a note in the invitation saying it’s important for security... people don’t read it, or they just can’t be bothered.” The situation is further exacerbated by what logistics team perceive as deliberate damage to devices. “Why do I get back thousands of devices that clearly have been intentionally damaged? What does that have to do with sustainability?” asked one SSC-ICT logistics manager. Such incidents not only increase operational costs but also undermine circularity goals.

Underlying this behaviour is a broader issue of awareness which should not be solely blamed on the users. As one sustainability advisor at IWR remarked, “It’s also about behavior change... making people aware of the value of the product. Then you’ll see they come back in better condition.” Currently, however, the supply of hardware appears opaque and limitless to many users, detaching their individual actions from any collective environmental or economic impact.

4.4.3. Rigidity of Supply and Policy

The final theme—rigidity of supply and policy—reveals how structural rules, contracts, and institutional traditions limit intervention. Though departments seem to act independently, their fragmented practices are shaped by these very constraints. As one supply manager put it, “The government as a whole isn’t designed to work based on integration and synergy. It’s very pillar-oriented.” This leaves little room for cross-organizational collaboration, echoed by another who observed, “Everyone is pretty much in their own world. There might be opportunities there, but the question is whether they can do that in a generic, unified way.” Political ambitions often clash with procurement realities: “You often hear politicians say, ‘We want this or that,’ but when it comes time to procure it, you run into all the rules,” explained the SSC-ICT supply manager. “We are tied to framework contracts, so you can’t just switch suppliers or models. And across the national government, with all its executive agencies, there are so many layers that it’s very difficult to make good policy.” Even sustainability experts have limited influence; a category manager noted, “We are not allowed to prescribe anything; we can only advise. Some colleagues follow that advice, others just say, ‘Nice, but I’ll do it my own way.’” Together, these insights show a system not just siloed in practice but structurally locked, hindering adaptation.

4.3.4. From Fragmentation to Shared Responsibility

The three tension points are closely interrelated and mutually reinforcing; operational flaws often frustrate users, leading to careless or uninformed behaviour, this increases unnecessary device turnover and waste, which the current inflexible system struggles to absorb or correct. Simply addressing one element in isolation, such as improving return logistics or updating procurement tools, would only treat symptoms rather than root causes (Meadow, 1999).

What is needed is a shift toward co-ownership, where users, departments, and policy-makers share responsibility. The current fragmented roles and weak enforcement mean no one feels truly accountable for overall outcomes, undermining coordinated action and long-term sustainability goals. Embedding co-ownership into both processes and culture can break down siloed decision-making and reactive policies, enabling users to see the impact of their choices, departments to make more connected operational decisions, and policy-makers to craft frameworks that align with real-world needs. While many stakeholders already recognize these systemic shortcomings, the key challenge is turning this awareness into collective, sustained action.

However, the underlying tensions also make clear that the current system fails to stimulate co-ownership. Stakeholder groups remain siloed, and the tensions they experience are rarely surfaced or communicated across boundaries. In my interviews, I actively looked for signs of ongoing value negotiation that could enable JVC. Yet, what emerged instead was a pattern of disjointed governance that significantly hampers such collaboration. In the absence of shared dialogue and responsibility, tensions remain siloed rather than becoming shared challenges to be explored collectively (Bridoux & Stoelhorst, 2022).

5. Findings

5.1. The ICT Device Chain

To better understand transactional interactions in the ICT hardware ecosystem, I mapped the device chain using insights from my research. This identified opportunities for performance improvement and network redesign. Visualizing the chain exposes system vulnerabilities, guides strategic interventions (MacCarthy et al., 2022), and enhances transparency—essential for sustainability, complying with demands like MP Kathmann’s, and responding to user calls for traceability and ethical sourcing. The map also fosters inter-organizational collaboration by clarifying complex, multi-tier systems and serving as a shared tool for stakeholders.

5.1.1. The Ecosystem

Though dynamic and shaped by ongoing stakeholder interactions (figure 10), the ICT hardware process can be outlined from the policy stage: diverse inputs inform the Rijksinkoop samenwerking (RIS), which compiles the PDC-Rijk—the central catalogue of sourcing strategies, performance indicators, and oversight mechanisms (Rijksinkoop samenwerking, 2024).

This catalogue supports CIO Rijk and Category Management IWR in setting strategic ICT frameworks and multi-year procurement plans balancing sustainability, security, cost, and innovation, while promoting SME participation and social return (Pianoo, n.d.-a). These plans guide ICT service providers like SSC-ICT in contracting suppliers and manufacturers, shaping the SSC-ICT catalogue of approved devices.

SSC-ICT handles operational execution—purchasing, storing (in Rijswijk), and configuring devices—based on IWR agreements. They coordinate with ICT Coordinators and Department Managers: managers submit hardware requests for (new) employees, ICT coordinators verify them (e.g., checking duplicate accessory orders), then forward them. ICT User Support (GOS) within SSC-ICT oversees distribution, lifespan tracking, and returns to maximize device use.

IPKD manages secure, timely device transport (IPKD, n.d.). At end-of-life, DRZ performs secure data wiping (Blancco, n.d.), deregistration, and decides on destruction, reuse, or redeployment. The Category Manager for Waste oversees national contracts for waste processing, aligning with EU circular economy targets. Depending on DRZ’s assessment, devices may be sold by weight to refurbishers (Online Veilingmeester, n.d.), redistributed through initiatives like Allemaal Digitaal, or disassembled for material recovery (Riwald Recycling, n.d.)—keeping valuable resources in the European economy and advancing circularity and sustainability goals.

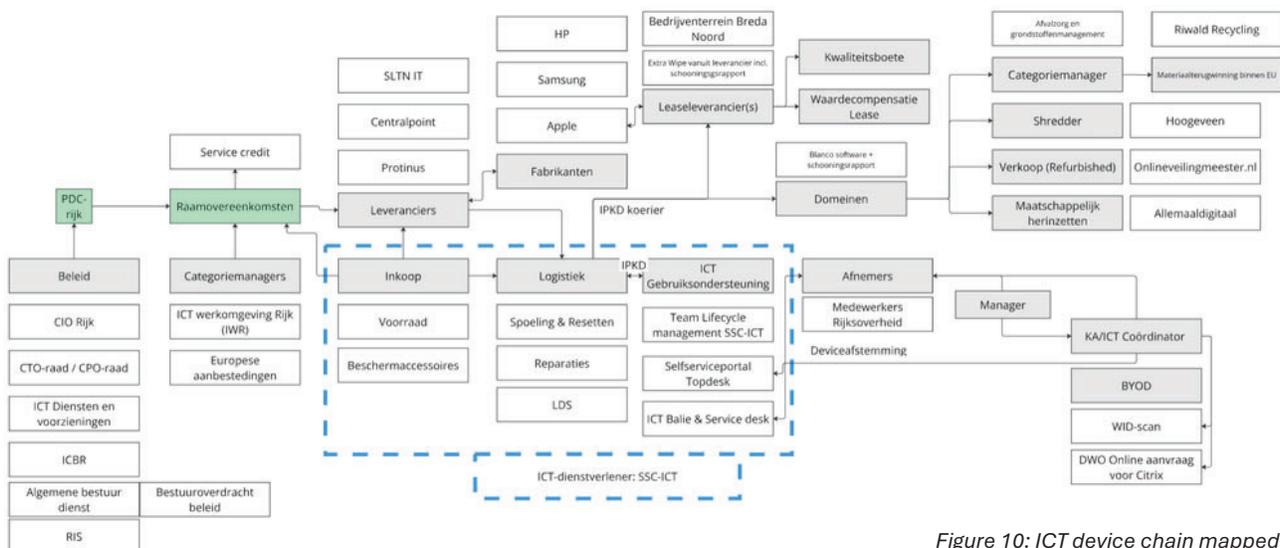


Figure 10: ICT device chain mapped

5.2. Opportunity Fields

As the ICT device chain is complex, I simplified it for the workshop, presenting it as a linear supply chain (figure 11). My insights were mapped into opportunity fields linked to broader themes, then shared with stakeholders to spark ideas, refine opportunities, and explore solutions (Appendix G). These are not direct solutions but areas of underlying friction that could be addressed.

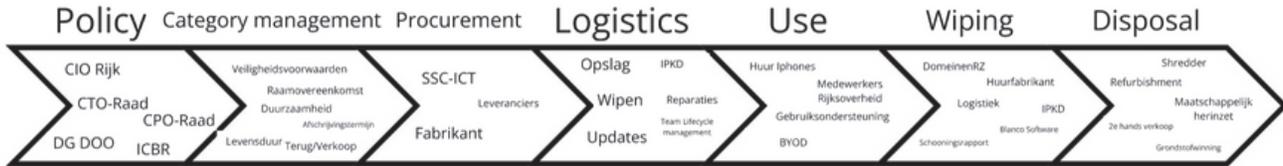


Figure 11: Simplified linear supply chain ICT hardware

Policy – Limitations in policy coordination and market influence

Although the policy domain is ambitious about sustainability, it struggles with implementation. The government's market size is too small to drive significant manufacturer change. Moreover, internal coordination is weak—departments interpret shared goals differently, and ICT service providers act autonomously. This limits coherent action.

Category Management - Agility but structured

This domain closely resembles the policy domain but is specifically focused on procurement agreements. While these multi-year frameworks provide consistency and enforce standards, they also reduce flexibility to adopt innovations like Fairphone, which are often seen as risky or unreliable at scale.

Procurement - Decision-making ambiguities

Procurement involves complex choices: balancing social, financial, environmental, and EU independence goals; leasing vs. ownership; accessory purchases; device selection; and assessing needs like tablets. This leads to decision ambiguities—unclear mandates and conflicting priorities—explored further with stakeholders.

Logistics - Efficient data management thus device lifecycle management

Lifecycle management shows inefficiencies: repairs, wiping, and redistribution all funnel through Rijswijk; many short-term employees receive long-term devices unnecessarily. About 20% of returned devices require repair. Smarter integration could better align device allocation and reduce waste.

Usage - Sustainability behaviour and awareness

Devices must be returned after 3.5–4.5 years regardless of condition; BYOD options are limited, and late returns are common, leaving ~250 unused devices at home. ~500 break monthly from user damage. New devices are often ordered without checking reuse, challenging sustainable behaviour.

Wiping - Intensive cleaning requirements and damage- and cost-related issues

Little data exists on device condition, making damage checks time-consuming. Mandatory wiping applies to all devices, often duplicated by partners like DRZ or Apple, driving up costs. Devices returned late or damaged lead to penalties, reflecting a system focused on compliance over efficiency.

Disposal - The balance in financial, societal, geopolitical, and sustainability interests

Disposal decisions weigh financial returns against social, geopolitical, and sustainability goals. Social reuse is costly and can undermine revenue, while poor oversight means refurbished devices may end up with non-sustainable parties outside the EU. Shredding is cheap but conflicts with circularity. Recovery of critical materials is limited by lacking tools and infrastructure, emphasizing the need for early collaboration to meet circular and strategic objectives.

Conclusion

This overview pinpoints friction across the ICT device chain—from policy gaps and rigid procurement to logistical issues, unsustainable use, costly data wiping, and complex disposal.

5.3. Customer Journey

Complimenting my research to understand user perspectives and behaviour, I created a customer journey lifecycle (Figure 12) to pinpoint critical touchpoints, moving beyond the assumption that all interactions are equally important. This serves as a strategic tool to guide service improvements (Rosenbaum et al., 2017). The customer journey lifecycle consists of three main phases:

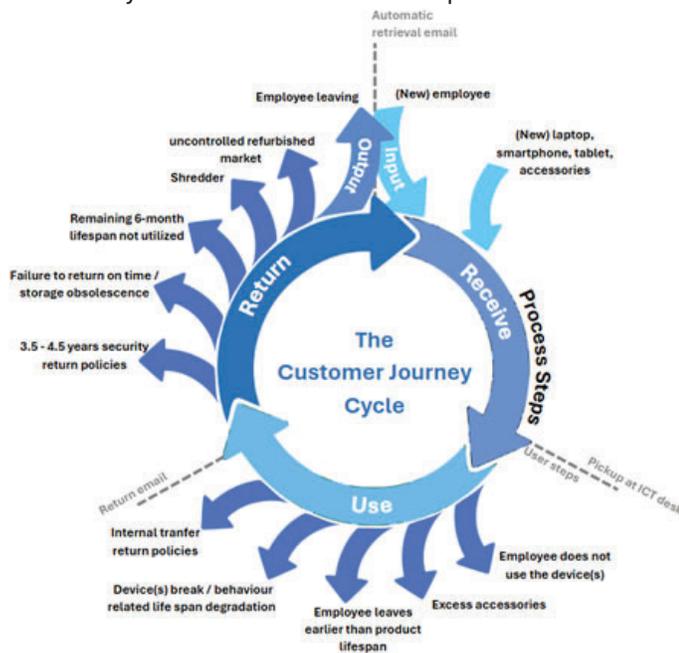


Figure 12: Customer journey lifecycle including critical touchpoints

Receive

A (new) employee receives an email containing a user agreement and a scheduled time slot to pick up a device. In this phase, the inputs are the hardware and its accessories. However, users are not informed about key sustainability aspects—such as the carbon impact of production, the importance of timely returns, or their responsibility for the device. There is little to no communication about the broader ICT lifecycle, resulting in missed opportunities to foster awareness, accountability, and sustainable behaviour. Device allocation is initiated automatically by the team manager in coordination with the ICT coordinator, without consulting the employee. Although a Bring Your Own Device (BYOD) option exists, it is not communicated and requires a separate, exceptional request. This lack of visibility creates a barrier to more sustainable practices.

Use

The employee picks up the device at the ICT desk and begins using it. This phase contains several critical outputs that disrupt the intended circularity of the system. For instance, some employees may not need the new device—either because they already have one or because they are transferred between ministries. In such cases, users cannot retain their original device, and instead must re-enter the journey from the receive phase, leading to the issuance of additional devices. This ‘default to new’ approach drives unnecessary procurement, particularly for short-term or temporary employees, and introduces avoidable resource inputs into the system.

Return

In the final phase, the employee receives a return notification. The expected device lifespan is typically calculated at 3.5 to 4.5 years, depending on factors such as DRZ disposal schedules, device condition, and software or firmware updates. A critical output in this phase occurs when devices are returned before reaching their full lifespan due to employee departures. Devices with less than six months of remaining life are not re-circulated, as the logistical effort required for redeployment is considered to outweigh the sustainability benefits. However, this practice overlooks the potential to allocate such devices to short-term users, such as interns or trainees, for whom a limited usage period would still be appropriate and resource-efficient.

These critical touchpoints reflect missed opportunities to optimize device circulation and close the loop in the customer journey. Greater transparency, user involvement, and flexibility across all phases could enable a more circular ICT device chain.

5.4. From Shared Values to Systemic Action: Co-Creation through the Joint Value Creation Framework

The goal of the workshop was to explore and reflect on the diverse values of stakeholders using the JVC framework. By making these values explicit, the session aimed to foster mutual understanding and use this awareness as a foundation to co-create new opportunity fields, strategies, and pilot interventions (Bos-de Vos, 2025).

5.4.1. Balancing Convenience and Responsibility

The JVC framework session turned out to be an open and constructive moment of reflection (figure 13). Participants began by writing down their individual values and interests, covering the table with post-its. Notably, more input was shared under the theme of collaboration than realisation, likely reflecting the current challenge to implement innovation.

Common values emerged, such as sustainability, safety, loyalty, responsibility, and transparency. One individual noted, “We seemed to agree on the same values, but no one asked what they truly meant to them.”

These values were seldom questioned or explored in depth. One participant pointed out a missing moral dimension, which later translated into values like pride and leading. Others emphasized values such as continuity, policy loyalty, or personal convenience—for instance, the decision between using one or two devices. As one participant explained, “I value continuity, like keeping the same systems and following the standard guidelines—but convenience matters too, and sometimes having two devices just makes life easier.”

A key insight from the session was the shared recognition of both convenience and responsibility as essential values, despite their inherent tension. Participants acknowledged the practicality and appeal of convenience, simplicity, and ease, while also recognizing the pressing need for sustainable responsibility. Rather than framing them as mutually exclusive, the group embraced the contradiction, opening space for deeper reflection. One participant summarised this sentiment: “Convenience keeps the system running smoothly, but responsibility keeps it worth running at all.”

Diverging Stakeholder Perspectives

Notably, participants with more experience in the ICT device chain voiced firmer opinions, often advocating that long-term responsibility should take precedence over short-term convenience. As one remarked, “Civil servants shouldn’t complain so much — you work, you do not pay for the devices yourself, that does the taxpayer, just do your job, end of story.”



Figure 13: JVC Workshop

From their standpoint, a system that prioritizes operational efficiency over personalized convenience is better equipped to meet sustainability goals—through streamlined maintenance, extended device lifespans, and improved opportunities for reuse and redistribution. Interestingly, while they were critical of convenience in the form of customization or luxury, they also acknowledged that a certain level of convenience is necessary—particularly when it contributes to system functionality. In their view, standardized and predictable processes are a form of functional convenience that enables the system to run smoothly. Ultimately, they argued that users have a responsibility to adapt to the system, rather than expect the system to adapt to them.

By contrast, sustainability coordinators presented a more nuanced take on the relationship between convenience and responsibility. While agreeing that excess and luxury should be avoided, they cautioned against dismissing convenience altogether. In their view, convenience—when thoughtfully integrated—can actually foster more responsible behaviour. For instance, when systems are intuitive and accessible, users are more likely to engage with them correctly, follow maintenance guidelines, and take ownership of their role in the lifecycle of ICT devices.

This divergence of perspectives illustrates the central tension: while some see convenience as a threat to long-term sustainability, others see it as a prerequisite for achieving it. One particularly valuable takeaway for me is the potential to integrate these seemingly conflicting values into a cohesive strategy. Rather than viewing convenience and responsibility as opposing forces, the real design challenge lies in aligning them—making responsible behaviour more convenient, and embedding responsibility seamlessly into everyday processes.

5.4.2. Co-creation Systemic Actions

Although the JVC workshop proceeded smoothly, the co-creation session unfolded in a less structured way. I began by presenting the chain analysis, which was well received, only a minor adjustments were needed (figure 14). Building on that, I introduced the opportunity fields I had identified and invited stakeholders to contribute additional ideas. This sparked several lively discussions, which quickly shifted toward identifying where things were currently going wrong and assigning blame. Most stakeholders pointed to policymakers as the root cause of the issues. Unfortunately, none of the invited policy representatives were able to attend.

This tendency to assign blame—particularly toward policymakers—reveals deeper systemic issues. It reflects a perceived power imbalance, where policymakers are seen as the key decision-makers yet are often viewed as disconnected from the operational realities faced by those executing and maintaining the system. The frustration voiced during the session points to rigidity in current structures, where execution-level stakeholders feel constrained by top-down decisions and limited in their ability to initiate change. Moreover, the absence of policy representatives reinforced a lack of dialogue and transparency, amplifying the disconnect between strategic intent and practical implementation. Perhaps most critically, the prevalence of blame suggests a low sense of joint responsibility among stakeholders. Instead of fostering a shared ownership of the system and its challenges, this dynamic reveals a culture in which accountability is externally assigned—undermining the spirit of JVC that the session aimed to cultivate.

Figure 14: Co-creation session



From Blame to Action

Since these challenges were attributed to policymakers it was important to acknowledge that placing blame on absent actors does little to advance the conversation. Given that these policymakers may not be able to participate in future sessions either, I redirected the discussion by posing the question: “How might we move forward with piloting, even without their direct involvement?” This helped shift the focus from assigning responsibility to exploring actionable steps within the group’s own sphere of influence.

This proved challenging, stakeholders struggled to propose concrete solutions within their own consortium. Instead, the few ideas that emerged focused on broader, systemic interventions, including:

- Storing devices for future reuse, allowing for the recovery of critical raw materials once extraction technologies become available.
- Encouraging Domeinen to establish direct contact with manufacturers and suppliers.
- Redeploying devices within the EU through a controlled system with proper monitoring, oversight, and take-back mechanisms in case of device failure.

In response, I introduced my opportunity fields as a foundation to build upon, emphasizing that challenges also exist within their part of the chain. This prompted a recognition among participants that they, too, hold responsibility in addressing these issues. The group largely agreed that top-down, conservative policy structures present a major barrier to innovation. At the same time, they recognized the potential of bottom-up pilot projects to gradually shift this dynamic by showcasing practical, scalable solutions that could eventually influence policy frameworks. Participants used the metaphor of “mushrooms” to describe these initiatives—sprouting throughout the system: small, scattered experiments that may not all succeed, but some hold the potential to grow through the cracks and eventually reshape the entire landscape (figure 15). Even the most distant policymakers, they noted, may come to recognize the value of these grassroots innovations once their impact becomes visible. By the end of the session, we aligned on initiating a pilot project at SSC-ICT aimed at making the system smarter, mostly through ICT coordinators communication with employees and logistics.

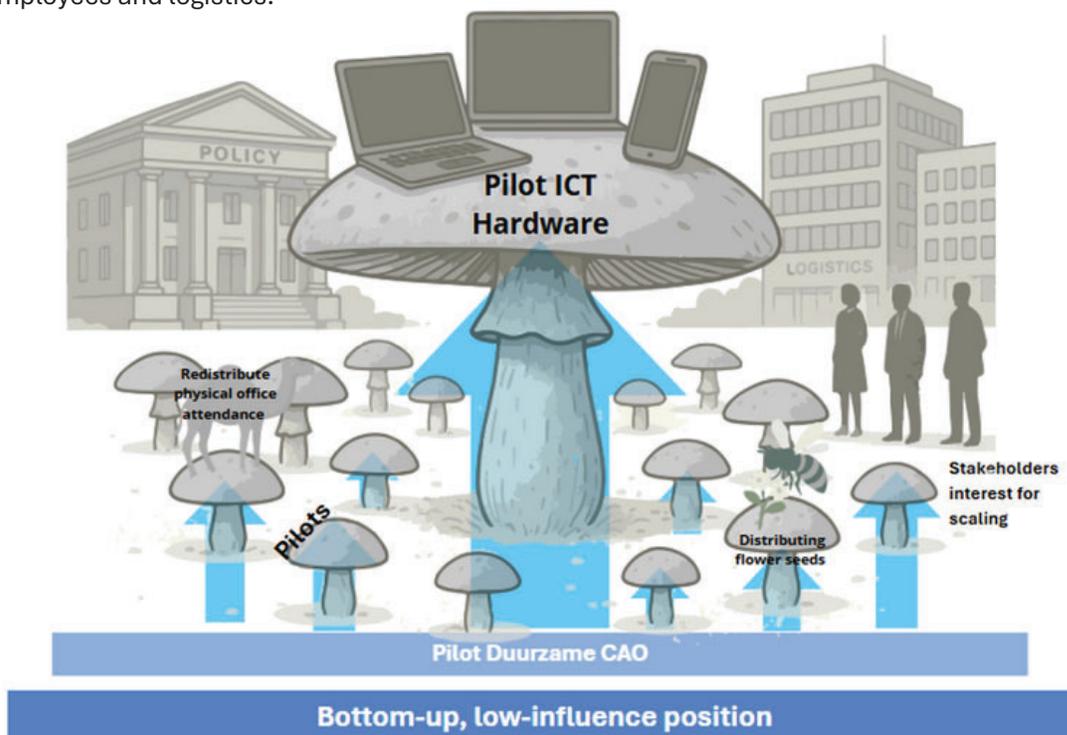


Figure 15: A visualization of the mushroom metaphor illustrating a possible future

5.4.3. Stakeholder Value Mapping

With stakeholder values of the JVC workshop, I developed a value space map visualizing their interactions. It revealed three key groups with distinct but linked roles: Policymakers (e.g., CIO Rijk, IWR, ICBR), who set laws, policies, and frameworks; Service providers actors (e.g., SSC-ICT departments, ICT coordinators, and DRZ), who manage and operationalize the chain; and Employees (users), including their departments, managers, and those who order and use devices.

This mapping moved beyond a firm-centric view to capture broader institutional interdependencies (Freeman et al., 2021), showing relationships built on shared purpose rather than control. Stakeholders are active, evolving agents (figure 16). Each group holds specific values, but these are often pushed down the chain. Policymakers have strong internal alignment and embed their values into policies that service providers must adopt or adapt to operational realities, creating hybrid values.

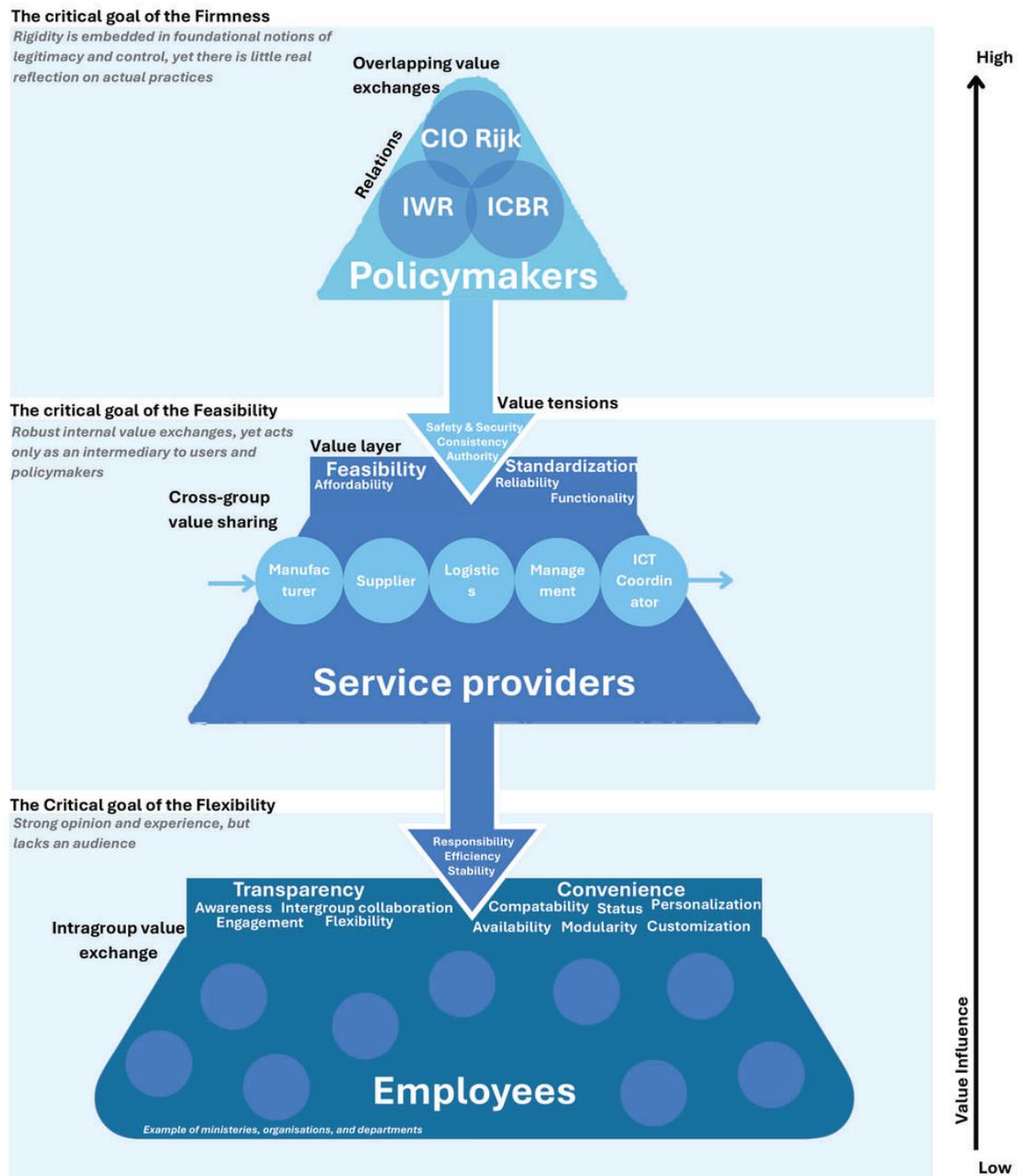


Figure 16: Value Space Map Showing the Three Stakeholder Groups, Their Value Interactions, and the Three F Goals

Service providers coordinate across organizations but mostly work sequentially, passing values along to employees who have little say—accepting imposed choices like standard devices or tight return rules. A value hierarchy emerged where user feedback on usability or return periods is often overruled by standardization needs or rigid policies. Service providers can not always cater to user needs, constrained by policy demands and logistical limits, while policymakers worry that too much flexibility could undermine overall coherence—resulting in what I term the F model: Firmness, Feasibility, and Flexibility.

Rethinking Governance

This dynamic causes recurring conflicts, such as between security (policy) and user convenience. Applying the Trias Politica lens, policymakers act as the legislative branch and service providers as the executive, but there's no judicial mechanism to correct misalignments. Drawing on Montesquieu, effective governance needs checks and balances (Center for International Relations and International Security, 2023). Employees, the users, directly impacted by decisions, are well placed to play this judicial role.

Institutionalizing user feedback—covering satisfaction, complaints, or usage issues—could provide oversight, flagging misalignments and prompting adjustments by policymakers and service providers. This would shift the system from overly linear and top-down to more adaptive and accountable. Embedding users as a judicial actor would close the loop, fostering JVC where all groups are held accountable (Floridi, 2018).

6. Strategy

6.1. Problem Definition

The ICT device chain of the Dutch central government is characterized by systemic fragmentation, misaligned stakeholder values, and rigid structures that undermine efforts toward a sustainable and efficient lifecycle. Fragmentation across policymakers (e.g., CIO Rijk, category management), service providers (logistics, Lifecycle teams, ICT coordinators), and end-users leads to siloed operations with limited collaboration or feedback loops. Policies are often set without sufficient regard for operational realities, leaving service providers and users with little say in upstream decisions.

These gaps cause practical inefficiencies: mismatched orders, unnecessary returns, weak repair and reuse practices, and logistical delays—exacerbated by poor data flows and disconnected systems. While not solely due to user behaviour, low awareness and few incentives for responsibility contribute to misuse and neglect, accelerating device wear and driving up procurement. Rigid policy and procurement frameworks deepen these problems. Long contracts and strict protocols limit adaptability, while uniform rules—like mandatory returns and shredding—often duplicate efforts and costs. Retaining devices longer could delay these processes and cut waste.

Overall, the system remains too linear and top-down, lacking structures for shared responsibility, integrated governance, or joint adaptation. This constrains JVC, slowing the shift toward a more sustainable, resilient system.

6.2. The Challenge

JVC is currently scarce in the ICT device chain, with only limited instances of collaboration that benefit stakeholders in this fragmented system. Yet, the literature suggests fragmentation is not inherently a weakness; when guided by clear boundaries, mutual understanding of values, and enhancing ongoing dialogue, it can enable distributed ownership and innovation.

The challenge is to transform this landscape into a jointly governed ecosystem where values are openly negotiated, boundaries foster trust and accountability, and enhancing ongoing dialogue ensures alignment. This goes beyond technical fixes, but by building systemic relationships that balance convenience with responsibility, efficiency with user experience, and short-term needs with long-term goals.

Inspired by Montesquieu's theory—applied to firms where management acts as the executive, boards as the legislative, and markets as the judicial power (van Rijswijk, 2019; Posner, 2010)—I propose applying this internally to government. Unlike markets, government users cannot simply choose alternatives. JVC demands all values are strengthened, not just those of dominant actors. I aim to give users a voice, reflecting on their own responsibilities as well as on the actions of executives and policies of lawmakers.

On a technical level, given existing policies, I focus to manoeuvre creatively within these limits. The greatest opportunities lie in smarter logistics, continuous feedback loops among policymakers, service providers, and users, and dialogue systems that build role awareness in line with the separation of powers.

6.3. My Future Vision

Looking ahead, I envision a system that transforms its current fragmentation from a source of inefficiency into a strategic asset for collaborative innovation. Guided by JVC, this future system would not eliminate diverse stakeholder values or enforce rigid uniformity but would actively recognize, negotiate, and harness these perspectives—embedding structures that allow priorities like security, sustainability, operational efficiency, and user convenience to coexist productively.

Applying Trias Politica internally, governance would balance clearly defined roles: policymakers as the legislative power ensuring Firmness through adaptive yet strong frameworks; service providers as the executive power ensuring Feasibility by operationalizing these frameworks; and users as a judicial function, embodying Flexibility by assessing, reflecting, and feeding back on both policy and execution (figure 17). This user role would be institutionalized not just through passive surveys but via structured mechanisms that elevate user experiences into the system’s checks and balances. Strengthening the separation of powers across these three F’s builds a more resilient, responsive, and jointly accountable system.

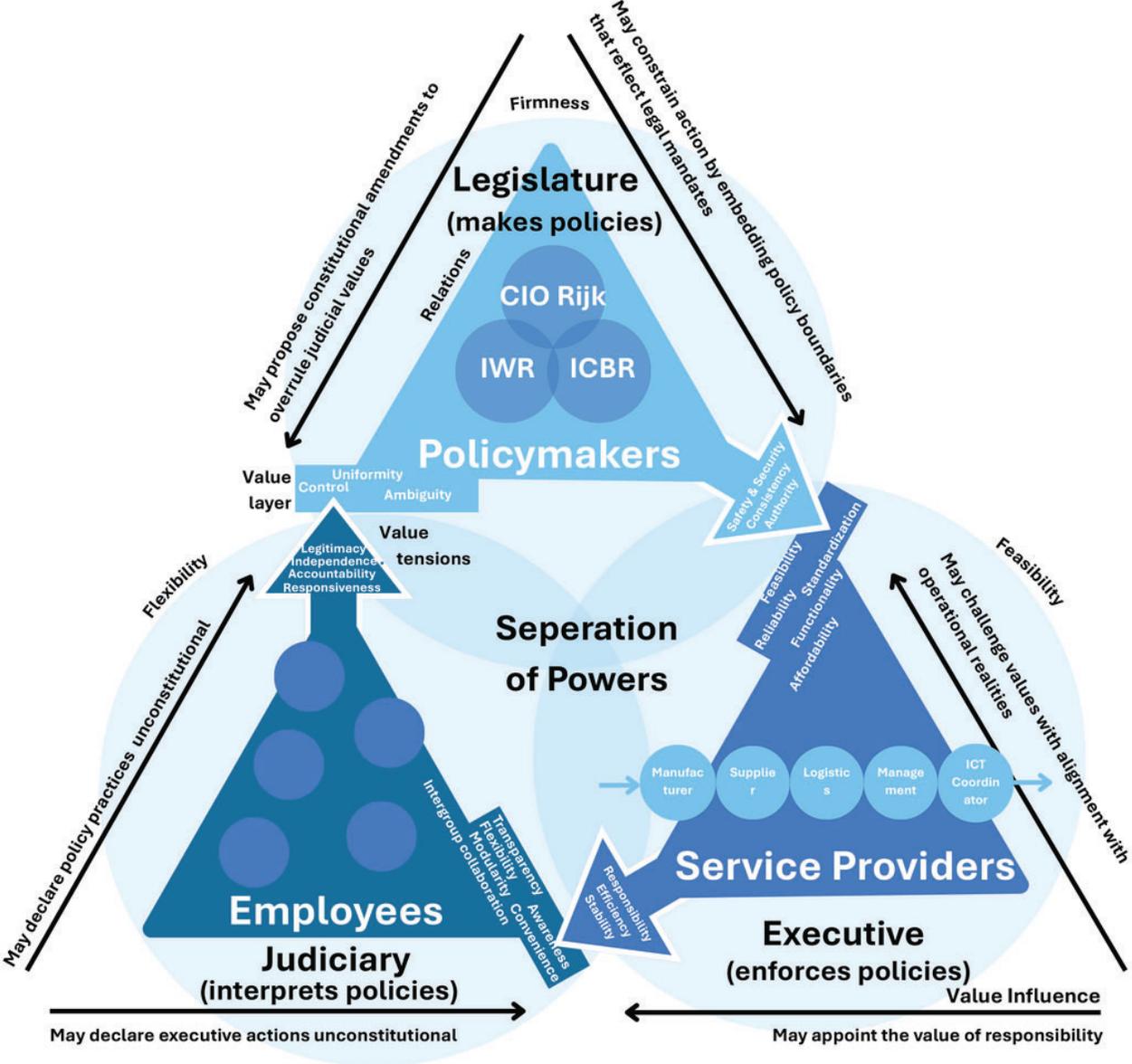


Figure 17: My Envisioned Value Space Map

This vision replaces sequential processes with an interconnected ecosystem rooted in shared ownership and iterative sensemaking. A culture of continuous dialogue would overcome siloed decision-making. Where pilot projects—“mushrooms” sprouting across the system—serve as experiments to align divergent goals, test this model, and showcase scalable solutions. Through this, the Dutch government can develop a resilient ICT device chain that achieves circularity and strategic autonomy by weaving together the strengths, insights, and evolving values of all actors.

6.4. Ideation

I independently ideated a set of How Tos to generate fresh concepts. These How Tos, which I developed myself, served as the foundation for my problem definition. As highlighted by van Boeijen, et. Al. (2020, p.83), How-tos are particularly valuable at the outset of idea generation because they frame the design problem around actionable questions. I mapped these How-tos onto the customer journey, which aligned them with the current opportunity areas. This scoping exercise guided the generation, selection, and further development of design ideas. Through this focus on concrete issues, a new circular customer journey emerges—one in which the design elements shaped by the How Tos help prevent undesired outcomes and reintegrate them into the system (figure 18).

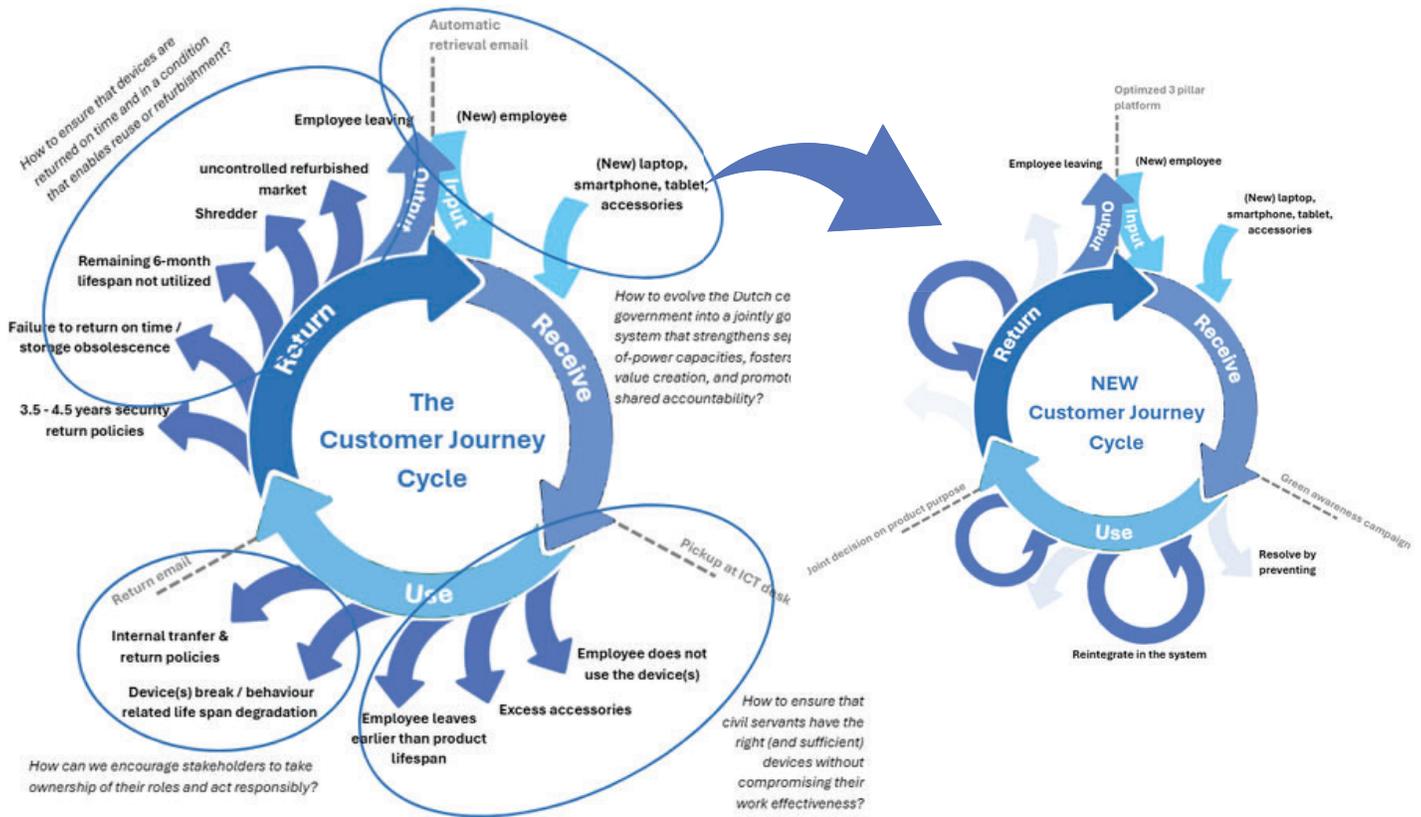


Figure 18: Customer journey with the How-tos layer to Future Customer journey which includes resolving outputs by preventing and reintegrating them in the system

7. The Design Concept

The strategic visual (figure 19) highlights all the key features I intend to integrate into the system, embedding awareness, responsibility, and ownership across all involved parties. They engage by completing onboarding, consulting user guides, and exploring the device chain. For example, users can trace the origins of critical materials, monitor monthly repair volumes and the teams responsible, or see how Allemaal digitaal repurposes refurbished government devices. This platform fosters continuous interaction among stakeholders, ensuring their individual values are recognized and that conflicting objectives are transparently surfaced and addressed in a constructive way.

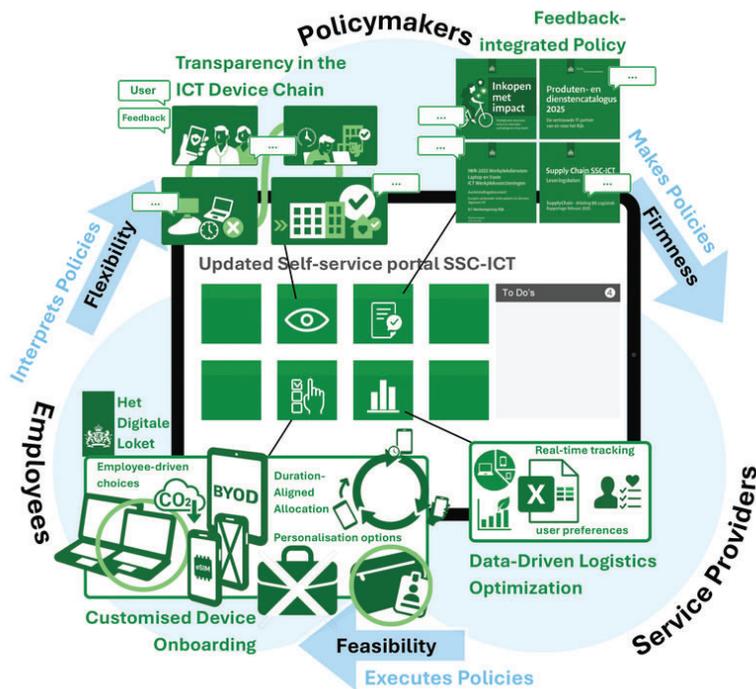


Figure 19: The platform features highlighted

7.1. The Interface Features

My research shows that employees often struggle to complete tasks assigned by service providers, frequently receiving vague, lengthy emails or remaining unaware of essential applications like SSP and SIA. To improve transparency and accessibility, I propose developing low-threshold solutions. In the new design, users would receive a clear, concise email—similar to Studielink notifications—highlighting a simple “To Do” action with a direct link to the Policymaker. Employee-driven, Service provider (PES) platform where they can complete the task (figure 20). To further lower the barrier, all devices will feature a magnetic sticker on the back displaying a QR code linked to the platform, along with its web address for manual access. This sticker also shows the device’s issuance and expiration dates, keeping employees informed about how long they can use the device while providing useful tracking information for logistics staff, making it easier to assess whether a device can be reintegrated into the system. Because the stickers are magnetic, staff can easily remove them—addressing the removal effort issue with standard adhesive stickers, as noted in the user agreement.

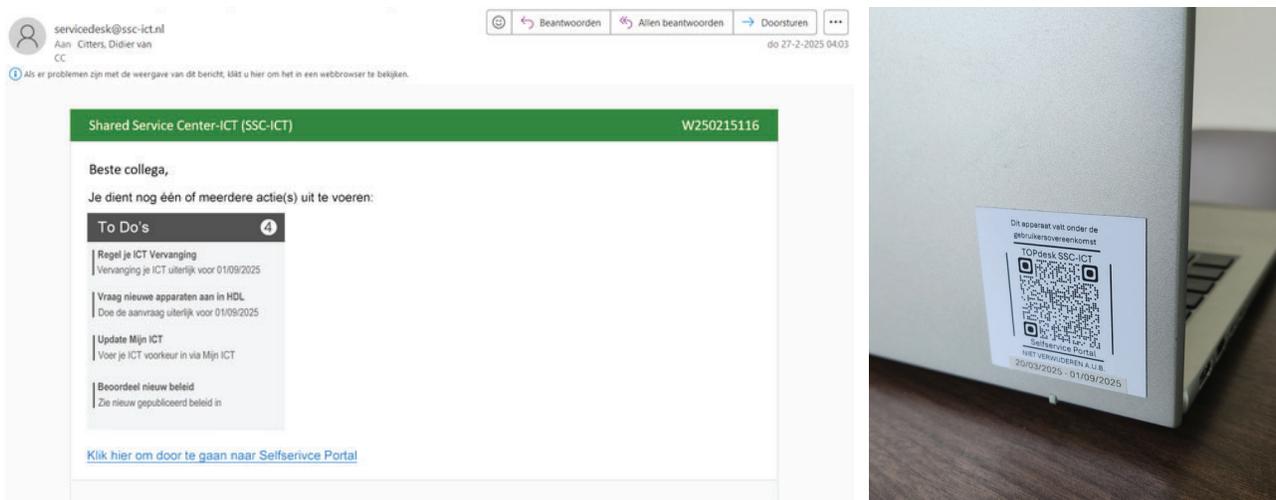


Figure 20: SSC-ICT user email & Magnetic QR Code sticker

7.1.1. PES Home Screen

The home screen displays the updated SSP, which now integrates HDL and SIA (figure 21). It features eight new panels with additional functionalities and includes a To Do interface that shows users their pending tasks and deadlines. SIA is also presented here, not only with its standard notifications but also with updates from the new Goedhuisvaderschap campaign information. Rather than being a separate application, these updates are now easily accessible to users directly within the platform.



Figure 21: Home screen of PES Platform

7.1.2. Het Digitale Loket

Device onboarding is now consistently initiated through HDL. Via the PES platform users can view the environmental impact of hardware options (using CFIT tools) and indicate preferences—choosing BYOD, premium or standard devices, or different sizes (figure 22).

Depending on their role, some departments have stricter standards. This is automatically filtered. For example, an intern at BZK typically has the standard laptop option, while an employee at Foreign Affairs may also select premium devices.

Additionally, users can choose accessories like a laptop stand, bag, or headphones, ensuring they only request what they truly need. To foster a personal connection—which research shows leads to stronger attachment, better care, and longer use (Fernando & Ranasinghe, 2020)—they can also pick personalization options such as an embroidered laptop sleeve or engraved smartphone case.

Within HDL, employees indicate their role (civil servant, intern, trainee, or contractor) and start/end dates. This shift from First-In, First-Out to Profile-Based Assets ensures they receive the devices with appropriate remaining lifespans, resulting in hardware with near end-of-life (< 1 year) can be reintegrated.

Lastly, HDL checks if the employee is new or transferring—a common occurrence—so devices can be updated at an ICT Desk without unnecessary replacements.

The system still relies on the ICT coordinator to verify if an order is warranted and fits standards. But instead of putting full responsibility on the department manager, user feedback now adds an extra layer, helping ensure selected hardware and accessories truly fit user needs.

Covers transfers between ministries

Bent u momenteel in dienst bij een ander ministerie of rijksorganisatie en beschikt u daar over een apparaat dat u voor uw nieuwe functie zou willen blijven gebruiken?

- Maak een keuze
- Maak een keuze -
- Ja, ik heb nog een device
- Nee
- Niet van toepassing

Het Digitale Loket

Profile-based asset

Wat is of wordt uw functietype?

Wat is uw verwachte dienstverband, tijdelijk of vast?

Indien tijdelijk, wat is de verwachte einddatum?

Zult u na deze datum naar verwachting stoppen met voor de rijksoverheid werken? Ja Nee

Shows CO₂ reduction

BYOD

Heeft u een persoonlijk apparaat dat u mogelijk kunt inzetten voor uw werk (BYOD)?

- Laptop saves 200-250 kg CO₂e
- Telefoon saves 60-100 kg CO₂e
- Tablet saves 100-120 kg CO₂e
- Geen van bovenstaande

User customisation

Wat voor werkzaamheden voert u uit waarvoor u het apparaat nodig heeft?

- E-mail / MS Teams / Office 365
- Ontwerp / technische software (CAD, Adobe, etc.)
- Data-analyse / programmeren
- Klantcontact / locatiebezoeken
- Presentaties geven

Andere werkzaamheden, namelijk:

Wat voor formaat of type device past het best bij deze werkzaamheden? saves 20-80 kg CO₂e

User Personalisation

Welke accessoires heeft u nog nodig voor uw werkzaamheden?

- Laptoptas
- Telefoonhoesje
- Oortjes
- Muis
- Toetsenbord
- Tablethoes

Let op: volgens de gebruiksovereenkomst is een hoesje verplicht bij telefoongebruik.

Zou u waarde hechten aan optionele personalisatie of aanvullende accessoires voor uw device?

- Gegraveerde naam
- Geborduurde of herkenbare hoes
- Sleutelhanger / tag voor herkenbaarheid
- Laptopstandaard
- Popsocket (voor telefoon)

Figure 22: HDL Device Onboarding

7.1.3. Mijn ICT

In “Mijn ICT,” users can view their current devices along with key details such as issuance and expiration dates, chosen hardware specifications, and sustainability indicators—like the total number of devices they use or completed repairs (figure 23). They can also share and compare these achievements with colleagues, fostering a sense of collective responsibility.

Additionally, in Mijn ICT, users can update their HDL preferences for future hardware onboarding. This data not only helps service providers anticipate which items to purchase, store, and invest in, but also provides policymakers with insights into what users value most.

Selfservice portal SSC-ICT
STARTPAGINA > Mijn ICT

Mijn objecten (1/1)

Soort / Object ID	Formaat	Details	Uitgitedatum	Vervaldatum	Toegewezen aan
Laptop CI0344605	15 inch	Hewlett Packard EliteBook 865 G11	20/03/25	01/09/25	Citters, Didier van (Den Haag,Turfmarkt 147)

Mijn ICT
Didier van Citters - BZK - Stagair

Duurzaamheidsprestaties:

- Eigen telefoon gebruik
- 0 reparaties
- Laptop CI0344605 voor 5 maanden gebruik

Persoonlijke Tips:

1. We zien dat je een stagair bent, heb je al gekeken naar **BYOD**?
2. Kies liever 13 inch: beter voor de planeet. Heb je echt groter nodig?

Deel en vergelijk je CO₂-voortgang met collega's

Deel

Stel hier je productvoorkeur in voor volgende aanvragen: [HDL](#)

Figure 23: Mijn ICT panel

Beleid Inzien

Selfservice portal SSC-ICT
STARTPAGINA > Beleid Inzien
Beleid Inzien

Inkopen met impact

Producten- en dienstencatalogus 2025
De vertrouwde IT-partner van en voor het Rijk

Supply Chain SSC-ICT | Leveringsketen
SupplyChain - Afdeling BB-Logistiek
Rapportage Februari - 2025

Probleem melden

- Om welk stuk gaat het?
Selecteer
- Om welk hoofdstuk gaat het?
Selecteer hier...
- Om welk onderdeel gaat het?
Selecteer hier het paginanummer...

Typ je vraag of bericht...

Policies transparency

Figure 24: Beleid Inzien panel

7.1.4. Beleid Inzien

In this panel, all groups can review relevant policy frameworks related to ICT hardware (figure 24). Individual users of the platform can easily browse these policies, see quotes, the publication dates, government plans, and explore other relevant details. They can also give targeted feedback by selecting a specific framework, highlighting a quote or page number, and submitting a comment. The responsible policymakers can then review these comments directly. Since policymakers typically update their frameworks every one to three years, this feedback can be incorporated into future policies. This creates a shift from solely a top-down system of authority, to integrating bottom-up feedback, aligning with my 3F model.

7.1.5. ICT Keten

In ICT Keten, users can explore how the ICT device chain is organized, with articles covering policy, procurement, logistics, usage, and disposal (figure 25). The goal is to clarify all positions and roles and define the boundary conditions by visualizing the chain and adding context through articles and updates. This helps everyone in the system better understand why certain decisions are made, or question why others are not by offering feedback directly to related actors.

The image shows a screenshot of the 'Selfservice portal SSC-ICT' with the breadcrumb 'STARTPAGINA > ICT Keten'. A central 'Visualisation of the chain' diagram features six stages: Beleid, Raamovereenkomst, Inkoop, Gebruik, Logistiek, and Afvoeren. To the right, a 'Users judicial role' feedback form is visible, with the text: 'Om niet alleen uw positieve rol binnen het ICT-landschap inzichtelijk te maken, hebben we de keten gevisualiseerd en belangrijke onderdelen uitgelicht. Zo kan iedere speler in het systeem beter begrijpen waarom bepaalde keuzes momenteel worden gemaakt of juist nog niet worden genomen. Heeft u hier feedback op? We horen dat natuurlijk graag. Typ je vraag of bericht...'. On the far right is the 'ICT Keten' logo, a green square with a white cube and arrows.

Below the visualization, a grid of articles is shown, categorized by domain:

- Beleid**
 - Nieuwe smartphone? Dan ook eentje recylen
- Inkoop**
 - Unieke leaseovereenkomst voor iPads en iPhones
 - Exposed: Child labour behind smart phone batteries
- Logistiek**
 - ICT van het Rijk verduurzamen vraagt vertrouwen en communicatie
 - Van de 500 defecte apparaten per maand wordt slechts 20% gerepareerd
- Gebruiksondersteuning**
 - Duurzamere dienstverlening is het doel
 - Campagne Goedhuisvaderschap verwerkt in SSP en SIA
- Afvoer**
 - Een verordening kritieke grondstoffen voor de toekomst van de Europese toeleveringsketens
 - Overheid geeft duizenden afgeschreven laptops weg

Figure 25: ICT Keten Panel, displayed left to right in the order it appears when scrolling down

7.1.6. Additional Panels

Gebruikershandleiding

As part of the Goedhuisvaderschap campaign, a truly practical user guide should be made available on the platform (Appendix H). This guide would explain the reasoning behind FAQs—such as why users are expected to return their devices at a certain point. Additionally, it would offer tips on how to use devices sustainably and responsibly, information that is currently not communicated to users at all. Ideally, these insights should be visualised to further enhance understanding.



eSIM

Complementing the user guide is the eSIM panel, designed to encourage low-threshold adoption and help reduce the total number of devices in use (Appendix I). This panel provides a clear, step-by-step guide for installing an eSIM on a work smartphone, which eliminates the need for employees to carry a separate personal device. In this way, it supports both convenience and sustainability goals.



BYOD

The BYOD panel serves a similar purpose by enabling users to schedule an appointment at the ICT Desk, if needed, to return their government-issued device and to configure their own device with DWO (Appendix J). This process supports a BYOD approach, reducing hardware volumes while still maintaining secure access to necessary systems.



ICT Vervanging

When users receive a To Do notification indicating it is time to return their device, they can open the ICT Vervanging panel to schedule an appointment (Appendix K). Here, they can also see why the device needs to be returned and the steps involved. Ideally, this process is visualised to make it more understandable—showing both how to return the device and what happens to it afterward, such as repurposing through initiatives like Allemaal Digitaal. Additionally, users can register other unused items, like laptop bags or charging cables, so these can be returned at the same time at the ICT Desk and put back into circulation.



7.1.7. Further Recommendations

To connect the different stakeholder groups to the platform, the design builds on a structure that users are already somewhat familiar with from the existing SSP system. However, in a later stage, I recommend developing a clearer and more intuitive platform architecture—one that maintains the proposed functionalities while consolidating them into fewer, more cohesive sections. For example, features such as eSIM activation and BYOD requests could be integrated into a broader “Gebruikershandleiding” section to reduce complexity.

To ensure the platform is both user-friendly and efficient, I strongly recommend involving a professional UX designer in the development process. Their expertise will be essential in streamlining navigation, enhancing layout clarity, and designing intuitive interface elements—such as panel icons and section headings—that are easily understood by all user groups.

7.1.8. Back-End Panel

The platform also supports service providers and policymakers with an additional layer of information through the Beheerderspaneel (Administrator Panel), a confidential back-end interface (figure 26).

This panel offers oversight and actionable insights from real-time platform data. Key features include:

- Device and Accessory Preferences: Aggregated insights into employee choices support optimized procurement.
- Logistics and Lifecycle Tracking: Data on allocation, usage, repairs, and returns improve visibility into operational efficiency.
- Sustainability Metrics: Policymakers can monitor reductions in device handouts (via BYOD), repair-to-replacement ratios, and extended lifespans, aided by CFIT tools.
- Policy Feedback Loop: The panel shows which policy documents are accessed and compiles feedback, highlighting unclear or impractical rules to inform revisions.
- Custom Reporting Tools: Downloadable reports (Excel, PDF) enable deeper analysis and easy cross-departmental sharing.
- Governance and Compliance Monitoring: Audit trails of device allocation ensure alignment with guidelines and security protocols.
- Trends and Forecasting: Visual dashboards detect usage trends (e.g., rising demand for models), helping anticipate needs and bottlenecks.

By centralizing these functions, the platform enhances user convenience while enabling coordinated, data-driven decision-making across stakeholder groups.

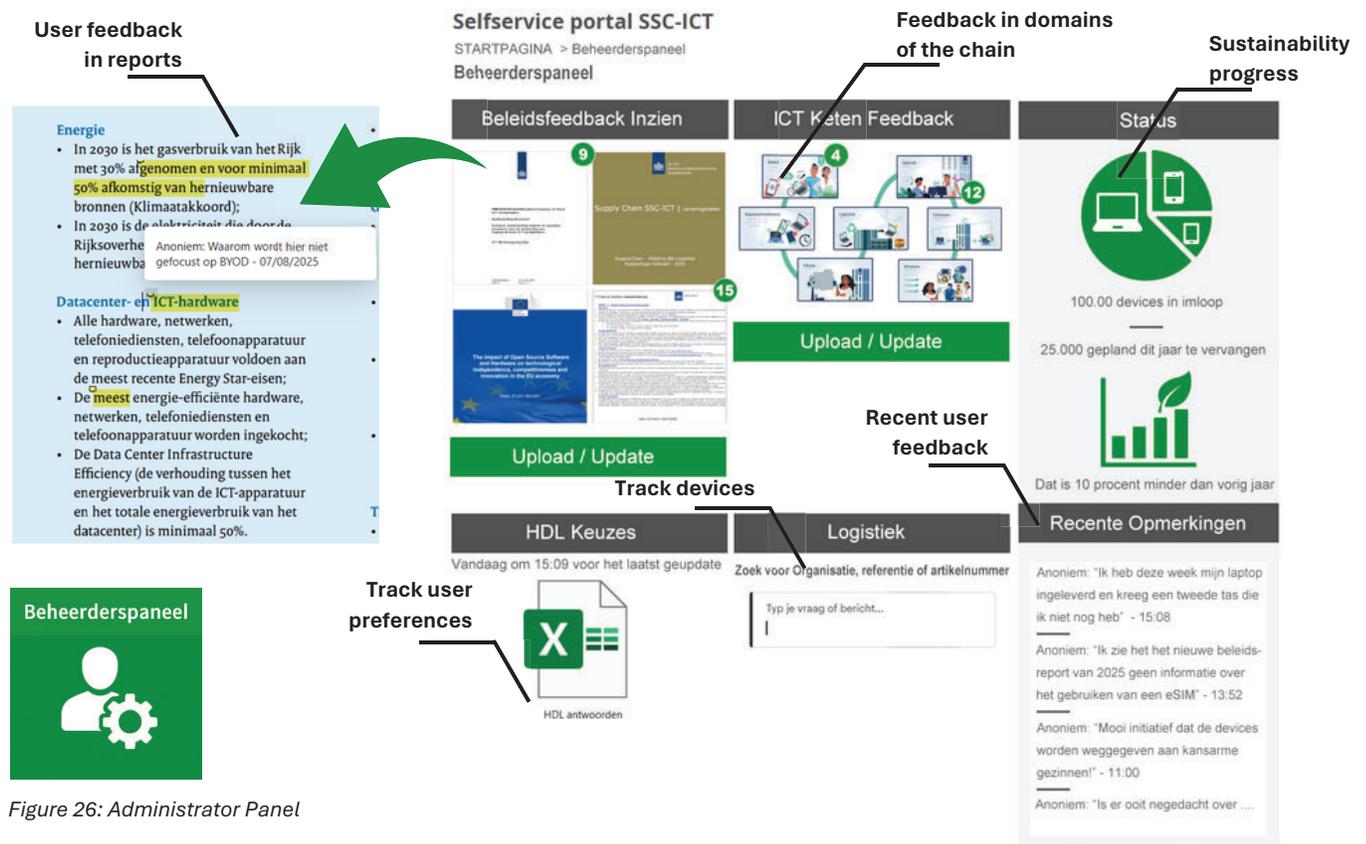


Figure 26: Administrator Panel

8. Design in Relation to Literature

8.1. Value Enhancing Paradox

The design concept directly embraces the paradoxical nature of JVC. Rather than forcing full alignment of divergent stakeholder goals, the PES platform surfaces and manages these tensions. As Kier et al. (2023) and Niesten and Stefan (2019) note, multi-stakeholder systems must simultaneously pursue shared value while protecting individual interests—a process inherently shaped by conflicting priorities.

Differentiation and Integration Tactics

In this system, the goals of the three groups—firmness, feasibility, and flexibility—coexist through deliberate differentiation. Firmness is maintained by allowing policymakers to remain in control of rigid frameworks. Feasibility is safeguarded by service providers through clear, proven tasks, such as processing BYOD requests or ensuring devices match contract durations. Flexibility emerges through user preferences, feedback, and personalization options. This directly reflects literature on differentiation tactics, where responsibilities and goals are consciously separated across actors and interfaces (Rozentale and van Baalen, 2021).

At the same time, my design also employs integration tactics by merging these goals into cohesive interactions (Rozentale and van Baalen, 2021). For instance, policymakers do not just develop frameworks; they gain valuable data from the user feedback, integrating top-down authority with bottom-up input. The ICT device chain visualization similarly combines perspectives from all three groups, making value tensions apparent and transparent. Moreover, user preference settings not only support individual flexibility but also generate additional data that reinforces policy firmness and enables service providers to better meet needs—blending all three objectives. Likewise, the user guide serves user convenience, incorporates guidelines from policymakers, and supports service providers' goals by promoting responsible behaviour.

By combining integration and differentiation tactics, the platform does not aim for total harmony but rather enables diverse stakeholder values to coexist productively (Rozentale and van Baalen, 2021). In doing so, it navigates the inherent paradoxes in joint value creation, supporting the long-term sustainability and circular ambitions set out in my vision.

8.2. Boundary Conditions

The concept also operationalizes clear boundary conditions by embedding governance structures that mirror the literature's emphasis on role clarity and distributed authority (Reypens et al., 2015; Bridoux & Stoelhorst, 2022).

Trias Politica in Practice

Applying my Trias Politica inspired vision, policymakers (legislative power) provide adaptive frameworks visible on the platform's "Beleid Inzien" panel; service providers (executive power) ensure logistical and technical feasibility through HDL, BYOD, and ICT vervanging requests; and users (as a form of judicial oversight) give feedback directly on policies, hardware, and system experiences at the Beleid Inzien and ICT keten panel.

This structure explicitly separates and defines roles, powers, and responsibilities, turning what was once siloed into a collaborative but separated strength. The ICT Keten panel, visualizing the chain, shows these role boundaries across the groups, increasing transparency, trust, and responsibility. Moreover, the inclusion of user input on hardware needs (via HDL and Mijn ICT) and feedback on policy documents institutionalizes user oversight, fostering the checks and balances Montesquieu argued were vital for legitimacy and accountability. By doing so, the system transforms policy-driven silos into interconnected nodes of joint governance, thereby adhering to my "3F model" (Firmness by policy, Feasibility by service providers, Flexibility by user input).

8.3. Enhancing Ongoing Dialogue

Finally, my design fosters iterative ongoing dialogue, echoing literature on co-creation and sensemaking across diverse stakeholders (Matinheikki et al., 2016). Rather than fragmented emails and tools, the PES platform creates one unified space where employees, service providers, and policymakers engage through shared visuals, terms, and interactive panels. It connects these groups via tools they already use, establishing continuous feedback loops: user experiences and sustainability data inform policy, shape execution, and open new user opportunities—feeding back into the system in a reinforcing cycle.

Each group engages with the platform to fulfil its own objectives—users handle hardware ‘To Dos’, policymakers upload frameworks and review user data, and service providers manages onboarding and replacements—naturally drawing all parties in. Though direct dialogue is limited, these interactions surface values, prompting reflection and iterative improvements. Unlike systems that focus solely on individual goals, the platform avoids rigid deliverables and promotes recurring interactions that align diverse objectives and enable smarter resource allocation (Vargo & Lusch, 2004).

Dimensions of Value Creation

In line with Matinheikki et al. (2016), the platform strengthens value creation across cognitive, relational, and structural dimensions. Shared panels like ICT Keten and Beleid Inzien, realized jointly by the groups, communicate common understanding by clarifying both the rationale and gaps in current systems (cognitive). User input, such as hardware preferences, informs procurement and policy adjustments, enhancing relational trust. Integrating all these functions fosters structural connectivity across the ecosystem.

Additionally, Mijn ICT lets users compare sustainability achievements, boosting transparency and sparking dialogue—even indirectly, as policymakers and execution are also users. Meanwhile, Beleid Inzien and ICT Keten do more than share policies or chain overviews; they invite engagement, co-creating a living dialogue and fostering a shared vocabulary.

This communicative infrastructure aligns values and helps navigate complex multi-organizational contexts (Bos-de Vos et al., 2022). It builds trust—essential for collaboration (Pralhad & Ramaswamy, 2004)—by enabling actors to iteratively align, prioritize, or add contexts in response to emerging incongruencies. Thus, the platform supports an evolving, jointly shaped system that integrates diverse goals over time—crucial for bridging fragmented interests and sustaining innovation.

9. Implementation Recommendations

9.1. Strategic Roadmap

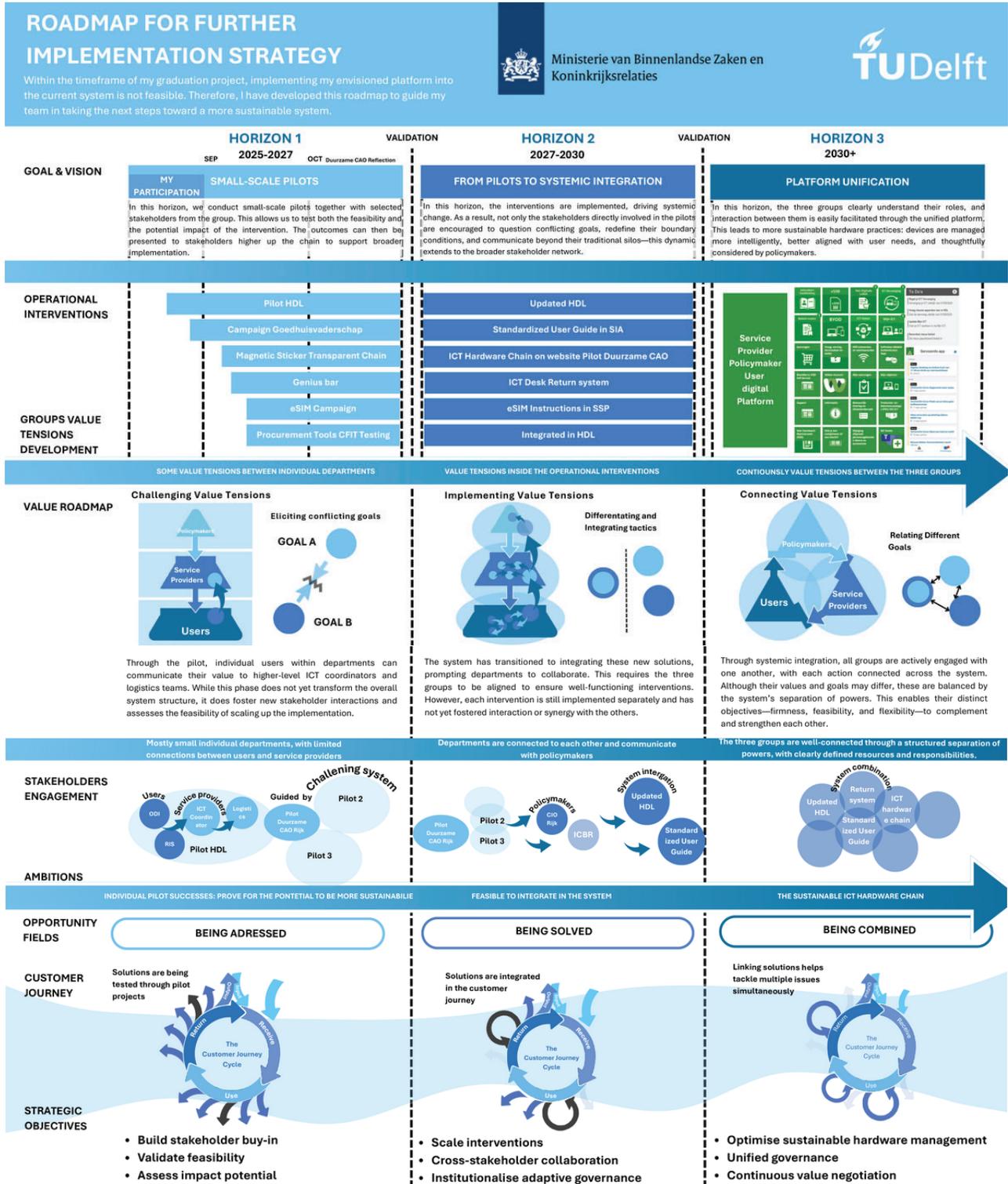


Figure 27: Strategic Roadmap

9.2. Pilots

As shown in the roadmap (figure 25), my recommendation for this rigid system is to start piloting the identified intervention ideas. This allows my team to test their impact and feasibility, and to present tangible results to the organizations—starting with service providers and extending to policymakers—who need to be convinced to adapt their current practices. During my project, I already initiated one pilot that the team can further develop. Additionally, together with stakeholders and my team, I have outlined several other pilots to support the future development of the PES platform.

9.2.1. Pilot HDL

In collaboration with an ICT coordinator who actively uses HDL, I added targeted questions to the hardware onboarding process for (new) employees of RIS and OBF (Appendix L). This pilot serves as a precursor to the updated HDL, which includes customisation, personalisation, and smart logistics features envisioned in horizon two of the roadmap.

The added questions collect employee preferences—such as BYOD, device transfers from other ministries, or choosing specifications like 13- or 15-inch laptops (figure 21). Accessories such as laptop sleeves or personalised smartphone cases can also be selected. This data not only informs execution and policymakers, but also reveals employee desirability for a more tailored system.

The pilot also tests Profile-based assets in practice. When an employee reports having a contract shorter than one year, this information is shared with the ICT coordinator and logistics team. In response, a device with a matching remaining lifespan can be provided. This enables the recirculation of idle devices with less than six months of use left. Currently, due to the pilot, one such device has been assigned to an employee starting in July and leaving in December 2025, demonstrating the feasibility of this collaboration between the teams.

The pilot has the potential to scale further. The participating ICT coordinator noted that in September 2025, around 100 trainees will join a department, typically for a one-year period. Since only about half are expected to continue working for the government, I recommend expanding the pilot to this group. Doing so could result in the smart reuse of approximately 50 devices.

Pilot Results

A total of 48 employees completed the survey. Two respondents indicated that they are still using a device from another department or ministry, which could potentially be transferred instead of issuing a new one. 16 employees stated they could use their own devices, including 12 with their own laptops, 13 with their own phones, and 2 with personal tablets. Strikingly, only 13% of permanent civil servants reported being able to use BYOD, compared to 77% of trainees, interns, and external hires. This suggests that BYOD is particularly relevant among non-permanent staff, likely due to better access to personal equipment in temporary roles.

The survey responses were collected from employees currently undergoing the hardware onboarding process. This means that employees who do not require a device or arrange this independently may be underrepresented in the results. As a consequence, the findings primarily reflect hardware preferences and may not fully represent the broader employee population. It is also important to note that the survey was only sent to two departments, and therefore does not necessarily capture the perspective of all employees across the organization.

17 out of 48 respondents were employed on a temporary basis of less than one year, with 12% employed for less than six months. This highlights the potential impact of profile-based asset allocation, as the majority of these employees will leave before reaching the minimum device lifespan of 3.5 years. Only 14 employees reported having an indefinite contract exceeding that duration.

In terms of laptop preferences, 14 employees expressed no specific preference for screen size. In such cases, it is recommended to assign a device with the lowest environmental impact—typically a 13-inch laptop. Although only 18% of respondents explicitly chose the 13-inch option, this does suggest there is some openness to smaller and more sustainable devices.

All respondents (100%) indicated a desire for accessories, selecting a broad range of items including phone cases, mice, earbuds, and laptop bags. This points to a clear preference for having the ability to choose accessories. Additionally, 44% of employees expressed interest in further personalization of their devices, such as engraved cases or add-ons like laptop stands. This reveals a relatively high demand for customization and more user-friendly hardware setups.

Overall, the survey results offer valuable guidance for SSC-ICT. Profile-based asset strategies could align device lifespans with contract durations, prioritise low-impact formats where suitable, support BYOD instead of default device distribution, and enable personalisation to foster emotional attachment and responsible use—echoing the priorities expressed by employees in the context mapping session.

Profile-Based Assets Test

The profile-based allocation test interview revealed that the user was generally satisfied with the refurbished hardware she received, rating it 9 out of 10 and stating, "I have no complaints about the hardware." (Appendix M). The minor issues she encountered were related to connection problems—likely caused by software or VPN settings—rather than the devices themselves.

More importantly, the interview highlighted the significance of offering choice and customisation. She expressed a clear preference for being able to select accessories, noting: "I would appreciate it if there were options for what someone does or doesn't want, so everyone can make a personal selection."

For instance, although she received a standard-issue shoulder bag, she said, "I prefer a backpack over a shoulder bag," and explained that she stored the unused bag in her closet while continuing to use her backpack from a previous job. This confirms that unnecessary materials are being distributed that do not match user preferences. When selecting device specifications, she chose a 15 inch screen—"I picked the larger one, and it was allowed"—indicating that such functional preferences matter, even for short-term contracts.

While she was open to sustainability measures in principle, product familiarity clearly took precedence: "Even if the iPhone had been more energy-efficient in terms of CO₂ emissions, I still would have chosen the Android." She reflected critically on this behaviour, adding: "Ideally, you should choose the option with lower CO₂ emissions, but realistically, people tend to go with what they know."

Overall, the pilot appears both feasible and desirable from the user's perspective. While this individual appreciated the flexibility to choose accessories and device specifications, her responses also suggest that such choices can reinforce existing habits. In this case, familiarity with a product outweighed environmental considerations. Although this insight stems from a single interview, it highlights a potential tension between user-centred customisation and broader sustainability goals. Service providers should therefore carefully consider which options to offer and how they may influence user behaviour.

9.2.2. Additional Pilot Suggestions

Genius Bar initiative

To address lost items, the Genius Bar initiative introduces a temporary stand at the ICT Desk to encourage the return of unused devices and accessories. There are two main reasons for creating a separate stand:

- To raise awareness and actively promote hardware returns;
- Because it is currently not possible to return these items through the standard ICT Desk process.

Insights gathered from this initiative can be shared with policymakers and service providers to inform improvements within SSP and the ICT Desk services.

Sharing the ICT Device Chain

To compliment the Goedhuisvaderschap campaign, I propose a pilot that actively engages all three stakeholder groups by introducing a low-threshold, interactive system. Specifically, I suggest placing magnetic stickers on newly issued laptops during onboarding. These stickers would display the device's issuance and expiration dates, helping employees understand how long the device is expected to be in use. Additionally, a QR code would link to a dedicated tab on the Pilot Duurzame CAO website. This page would include a visual representation of the ICT device chain, with interactive panels showcasing the roles and responsibilities of each involved party.

This approach fosters transparency, encourages shared responsibility, and makes the broader system visible to users—stimulating more conscious and sustainable practices.

Other scalable pilot initiatives

- Distributing flyers that explain how to activate and use eSIM on work smartphones.
- Introducing laptop reservation lockers for office-based employees, managed by Binnenwerk (Organisatie en Personeel Rijk, n.d.).
- Integrating CFIT tool calculations into the HDL onboarding system.

10. Ethical Considerations and limitations

My research adhered to ethical standards and methodological transparency, yet several limitations must be noted.

Sampling Constraints

The scope was constrained by the number of stakeholders interviewed. Despite efforts to include diverse roles across the ICT device chain, the limited sample may have introduced selection bias, potentially skewing findings toward dominant actors like SSC-ICT, while voices from smaller or peripheral organizations were underrepresented.

Stakeholder Interests and Bias

Some stakeholders have vested interests in maintaining existing structures. Transitions toward a circular ICT system could threaten current business models or mandates. For example, widespread leasing might reduce the role of DRZ in hardware disposal, while extended device use could lower demand for service providers like SSC-ICT. Consequently, stakeholders may have framed responses to protect organizational interests. These statements were critically cross-referenced with other data sources to check for self-preservation biases.

Novelty of Methods

While tools such as the JVC framework and co-creation methods provided valuable structure, they are relatively novel and not yet widely validated in government ICT contexts. The JVC tool used in the workshop is still in a testing phase; although it stimulated rich discussion, its outcomes should be interpreted with caution, as tool novelty may have influenced participant engagement or understanding.

Researcher Role and Ethics

My dual role as embedded intern and independent researcher granted access to networks and tacit knowledge but may also have introduced subtle power dynamics. Participants might have shaped responses based on assumptions about my alignment with internal agendas. Additionally, being responsible for developing pilot interventions, I risked unconsciously favouring more feasible or low-effort pilots to meet internship objectives. These risks were mitigated through informed consent, voluntary participation, anonymization, and reflexive practices to remain aware of my own positionality.

Context and Generalizability

The findings are grounded in the context of SSC-ICT and may not fully generalize to other parts of the Dutch government or beyond. While the systemic principles identified could have broader relevance, practical application may vary based on organizational structure, culture, or procurement maturity. Thus, these insights should be seen as indicative rather than definitive.

11. Validating the Design

11.1. Concept Validation with Policymaker and Service Provider

To further validate my concept besides the pilot, I presented my concept and held discussions with the SSC-ICT logistics manager and the IWR Category Management sustainability coordinator. Both, representing a policymaker and a service provider perspective, considered the concept fundamentally valuable but highlighted critical concerns regarding security, privacy, and logistical complexity. They emphasized that, at the security level, too little attention is currently given to what is technically and organizationally possible. Privacy was seen as a particularly sensitive issue: “Technically, the question is how far BYOD can go. Security—this needs to be looked at, that’s my advice.”

Expanding user choice was also seen as risky: “From a procurement and cost perspective, it has to remain worthwhile... too broad a product range only makes logistics more complex.” Their recommendation was to limit choices to what can be efficiently managed within procurement structures and to use user preferences to support predictive purchasing.

They were critical of unfiltered feedback flows: “No one paid to make policy is waiting for a thousand random user reactions... make sure feedback is structured and constructive.” They advised filtering and translating feedback into actionable insights, potentially supported by AI. Recognizing the platform’s role in facilitating user interaction, they stressed it should also strengthen the intersection between policymakers and service providers—where ideas often fail due to implementation challenges. This policy–execution friction is currently only minimally addressed in the platform concept.

They also suggested integrating the data analysis tool Nexthink (Charles, n.d.) into the platform: “It would be great to integrate the network analysis, so everything comes together.” They stressed the importance of testing the technical feasibility of each function and aligning with the relevant departments. However, they cautioned that, while using data at the individual level could support sustainability and proactive maintenance, it must be carefully balanced against privacy risks.

Perceived Value and Roadmap

Both the concept and the roadmap for implementation were perceived as valuable. The roadmap was seen as realistic and logical, allowing for a small-scale start and later scaling: “I see a nice layering... this is simply a healthy, practical approach in different phases.” According to them, the concept’s core value lies in exposing untapped opportunities within a complex system: “You’re hitting the sweet spot... you’re showing where opportunities are being missed because of how we’re currently organized.”

11.2. Feasibility of Platform

The feasibility of the proposed design depends on its compatibility with current system constraints, including resource availability and stakeholder coordination (Bocken et al., 2022). Pilot findings suggest that elements such as profile-based asset allocation are technically feasible on a small scale — as demonstrated by the HDL test, where a user successfully received and worked with refurbished hardware. However, large-scale adoption remains uncertain, as the results also show that only certain stakeholder groups (e.g., logistics teams and some users) have expressed clear willingness to adopt the system, while policymaker support is less established.

The platform could be integrated with existing infrastructure (SPP, SIA, HDL) with only minor adaptations, but implementation would require coordination between multiple teams (HDL staff, SIA programmers, CFIT developers, the Goedhuisvaderschap team, and policymakers), adding complexity. Pilot-based, small-scale interactions are intended to build this coordination gradually, reducing risk.

Replacing FIFO with profile-based asset allocation challenges current logistics workflows but responds to clear opportunities. For example, 17 out of 48 surveyed employees had contracts shorter than one year — well below the minimum device lifespan of 3.5 years — suggesting a tangible benefit from matching device allocation to contract length. However, expanding features like personalized hardware requests could strain logistics by increasing order variation. While the pilot suggests users value such choice (e.g., preference for specific accessories), the discussions with service provider and policymaker caution that these benefits must be balanced against procurement efficiency and cost control.

Governance and Sustainability Considerations

Privacy and governance risks are also notable. The concept involves collecting detailed user preference and usage data. While the policymaker and service provider validation indicated that such data could aid sustainability and proactive maintenance, they stressed it must be weighed carefully against privacy risks. Some procurement information may also remain confidential, limiting transparency unless governance changes are introduced.

In addition, it is possible that future pilot results will reveal limitations in feasibility, sustainability, or that additional time is required for full integration, which results in less CO₂ impact. Moreover, although the Dutch government aims to be climate-neutral by 2030 (Ollongren & Van Veldhoven-van der Meer, 2022, p. 21), this design—under current procurement structures—is not fully aligned with that ambition, as it does not tackle the procurement and disposal impacts. However, the platform could complement future CO₂-neutral front- and back-end strategies.

11.3. Long-Term Systemic Viability

Long-term viability depends on balancing financial, operational, and organizational constraints while securing sustained stakeholder engagement (Adebayo et al., 2024). The design builds on existing procurement frameworks and leverages familiar tools, reducing the likelihood of costly system overhauls. Pilot findings indicate that even small adjustments — such as offering accessory choice or enabling BYOD for certain groups — can yield operational benefits, including reduced distribution of unused materials (e.g., the test user storing an unwanted standard-issue bag).

Rather than undermining the existing system's viability, the design strengthens it by introducing a form of judicial power—user oversight and structured feedback—that enhances reliability and accountability. This, in turn, supports long-term organizational and financial sustainability while advancing ambitions for circularity and JVC. Greater coordination also reduces unnecessary procurements, addressing ethical concerns and enabling more deliberate disposal strategies, such as redirecting refurbished laptops for social benefit.

The viability case is further strengthened by the potential to reduce unnecessary procurements. Survey data showed that 16 of 48 respondents could use their own devices, with particularly high BYOD potential among non-permanent staff (77% of trainees, interns, and external hires versus 13% of permanent civil servants). This suggests that targeting BYOD in specific segments could meaningfully reduce procurement volumes without compromising productivity.

Adoption Drivers and Constraints

However, political prioritization of environmental goals is uncertain (NL Times, 2025). The validation with a policymaker and service provider indicated that while sustainability is valued, financial and logistical arguments are more persuasive for adoption. The platform therefore needs to foreground its operational and cost benefits — such as smarter allocation extending device lifespans — alongside environmental and ethical benefits like reduced reliance on critical materials.

11.4. Desirability of System Integration

The Employee

From the user perspective, desirability is supported by clear evidence. Survey results show strong demand for choice (100% of respondents wanted accessories; 44% wanted further personalization), transparency, and control, aligning with their flexibility goal. The HDL pilot reinforced this, with the participant valuing the ability to select accessories and device specifications. These findings validate the intervention's alignment with user priorities, while also revealing nuances — for example, the test user admitted choosing a familiar Android device over a more sustainable iPhone option, suggesting that customization may sometimes reinforce habits counter to sustainability goals.

On transparency, evidence of users' willingness to provide feedback on the ICT device chain or policy reports is more limited. While the survey did not directly capture this, the context mapping session revealed that users expressed a desire to be involved in decision-making. The platform's feedback mechanisms could facilitate this involvement, thereby fostering a stronger sense of control.

Additionally, the Verduurzaming ICT Rijk group—functioning as a collective “user”—is currently preparing a report to advise policymakers and service providers. The platform would offer them a dedicated, structured channel for submitting such input, replacing the current reliance on ad-hoc communication such as individual email exchanges.

Service Provider

Service providers have shown interest through co-creation workshop engagement and follow-up discussions. Many features were directly inspired by execution-level insights, such as profile-based asset purchasing to streamline logistics. However, service provider validation cautioned that expanding user choice too far could create procurement inefficiencies, making it desirable only if operational complexity is controlled and in line with their feasibility goal.

Policymakers

Policymakers desirability is less firmly established, as their engagement during the research phase was limited. Nonetheless, the validation dialogue indicated an appreciation for the concept's phased implementation roadmap and its capacity to reveal “untapped opportunities within a complex system.” They also recognized the value of structured, actionable feedback, provided it is filtered and targeted to avoid overload.

The platform creates a transparent mechanism through which users can identify inconsistencies between policy and practice, submit feedback, and propose improvements. While this increases accountability, it simultaneously equips policymakers with real-time insights and early signals for targeted refinement.

From their perspective, the intervention holds appeal for two main reasons. First, its reliance on pilots and gradual integration supports low-risk, evidence-based learning, enabling policy adjustments grounded in measurable outcomes. Second, it facilitates a shift in their role—from perceived gatekeepers to proactive, responsive actors—demonstrating a commitment to systemic improvement and user-centred governance. This increased visibility not only strengthens legitimacy and trust but also enhances the credibility and acceptance of future policies, aligning with policymakers' value of firmness.

12. Discussion

12.1. How is the ICT device chain currently organized?

In interpreting the findings related to the research question, I understand the ICT device chain within the Dutch central government as a fragmented but interdependent multi-actor system. Policymaking, execution, and user roles function largely in isolation, with limited coordination or shared oversight. Each phase of the chain—policy, procurement, logistics, usage, and disposal—is shaped by its own mandate, supported by separate systems and processes that are disconnected yet mutually reliant. This leads to inefficiencies, blurred responsibilities, and missed opportunities for sustainability. For instance, there are wide range of departments making policies, regulations, and advice, multiple CO₂ procurement tools (such as CFIT), various shared service providers (e.g., SSC-ICT, DICTU), and ministries with differing hardware standards illustrate how operational complexity limits cohesion. Communication takes place across disparate platforms like HDL, SPP, SIA, and email, while rigid frameworks reinforce separation. In my view, this architecture, while favouring specialization, inhibits cross-stage learning, adaptive feedback, and system-wide optimization. Actor mentioned to operate within the boundaries of their own scope, which I interpret as accountability also being fragmented, resulting in a system where no single party feels responsible for the broader environmental, social, or financial impact of ICT hardware decisions.

Theoretical Implications

These findings align with and extend my literature review on JVC in multi-actor systems. Scholars such as Reypens et al. (2015) and Matinheikki et al. (2016) have shown that fragmented governance structures create both opportunities for tailored action and risks of coordination failure. Similarly, Bridoux and Stoelhorst (2022) argue that fragmentation is not inherently dysfunctional but becomes productive when supported by transparent role differentiation, structured communication, and shared norms.

My research confirms this perspective but also deepens it by highlighting that these enabling conditions, enhancing value exchange, clear boundaries, and enhancing ongoing dialogue are largely absent in the Dutch central government's ICT device chain.

12.1.1. Harnessing Fragmentation as a Strategic Asset

In my concept, fragmentation becomes a design strength when governed effectively. My findings show that it enables distributed ownership—based on tens of interviews with individuals in diverse roles and organisations—allowing actors to contribute in tailored ways rather than conforming to a single, centralised process, echoing the clear boundaries literature. It also supports value differentiation: policymakers, service providers, and employees each hold distinct values and goals, as clearly illustrated by the F-model. Furthermore, fragmentation fosters checks and balances. For example, during the JVC workshop, participants noted that rigid, top-down policy structures often serve to check and constrain execution practices. While I argue that such rigidity should shift toward a more iterative governance model, this example shows how fragmentation creates functional checks and balances—aligning with the Trias Politica principle, where clear role separation strengthens legitimacy and prevents power concentration.

Fragmentation also generates a wide range of skillsets and expertise, as seen in the many specialised initiatives operating in parallel—such as Closing the Loop, the Green Awareness campaign, and Team Duurzame ICT Rijk, alongside SSC-ICT research into logistical bottlenecks. Each focuses on a distinct sustainability or operational challenge, collectively producing a breadth of insights and innovations that a single, centralised process would be unlikely to match. Additionally, fragmentation creates innovation potential by offering multiple entry points for piloting new ideas without requiring a full system overhaul, like my team Pilot Duurzame CAO Rijk, and thus it enhances resilience by reducing the risk of a single point of failure in policy or execution.

Risks of Unchecked Fragmentation

While specialization offers these benefits, the lack of shared infrastructure, cross-stage visibility, and clear accountability structures undermines systemic coherence. The system thus illustrates the risks of fragmentation without integration: roles are not only siloed but also ambiguously defined, communication tools are disconnected, and no platform supports ongoing reflection on shared values or outcomes. This analysis supports the notion that fragmentation can be generative—but only when carefully scaffolded through governance mechanisms and design interventions that facilitate coordination, learning, and mutual responsibility.

12.2. What are the core values of the three groups in the ICT device chain and how are such related to each?

In addressing the second research question, I interpret the value landscape as pluralistic but structurally misaligned. My findings reveal three distinct groups—policymakers, service providers, and employees—each operating within a shared system but guided by differing, and at times conflicting, value priorities. While collaboration is nominally present, value coordination is largely absent, reinforcing parallel rather than integrated operations.

Three Identified Groups

Policymakers consistently emphasized control, security, and legitimacy. These values are rooted in their mandate to uphold systemic stability through frameworks, standardization, and risk management. One stakeholder, representing CIO Rijk, described their roles in terms of designing consistent national frameworks and minimizing liability, often prioritizing regulatory robustness over adaptability. While this creates procedural clarity, it also translates into inflexible frameworks that inhibit downstream innovation and responsiveness.

Service providers prioritize feasibility, efficiency, and continuity. These stakeholders are responsible for operationalizing policies through procurement, logistics, and support. Although many expressed support for sustainability, their capacity to act on these goals is constrained by rigid service agreements and budgetary accountability. They operate as intermediaries, translating upstream policy values into practice while managing day-to-day tensions with user needs and logistical realities.

Users, by contrast, prioritize convenience, flexibility, and transparency. Context mapping and customer journey revealed that employees want greater agency in choosing or personalizing their devices, clearer communication on responsibilities, and a better understanding of their role in sustainability efforts. Users voiced frustration over opaque procedures and top-down hardware decisions that ignored their actual work context, such as hybrid schedules or short-term contracts.

Value Misalignment and Tensions

While each group's values are legitimate within its own scope, the findings show that these values are structured hierarchically and operationally apart, resembling a pyramid-like system. Policymakers define the frameworks, service providers translate them into infrastructure and services, and users interact with the results. However, this structure lacks reciprocal mechanisms. There are no robust feedback loops that allow user experiences or executional tensions to inform upstream policy decisions. As a result, values do not evolve in response to real-world conditions—they remain isolated, reinforcing siloed practices.

The absence of value alignment is not inherently problematic—indeed, value diversity can be generative—but only if accompanied by governance mechanisms that allow for mutual value understanding, boundary conditions, and enhancing ongoing dialogue.

Stakeholders across groups did express shared commitments to abstract values like sustainability and responsibility, but these were interpreted very differently depending on their role. For instance, while policymakers saw responsibility in terms of compliance and standard-setting, logistics actors framed it as minimizing breakage or ensuring timely returns. These distinctions illustrate what the literature describes as value tensions—not failures of alignment, but productive differences that require integration or differentiation tactics (Rozentale & van Baalen, 2021). The co-creation session demonstrated that when these tensions are made explicit, stakeholders are willing to engage with them—provided they are treated as valid contributions rather than operational noise.

Toward Value Exchange and Negotiation

Taken together, the findings suggest that the current ICT hardware system is not defined by value incompatibility, but by value under-structuring. There are limited institutional mechanisms for aligning, prioritizing, and adding these values across stakeholder levels (Bos-de Vos et al., 2022). This absence limits the system’s capacity for innovation and undermines mutual accountability. As supported by JVC theory, what is needed is not uniformity in values, but a designed space for value exchange—where stakeholders can openly reflect on tensions and co-create durable responses.

My research extends existing literature by suggesting that while stakeholder value mapping is essential, it may not be sufficient on its own. Sustainable transitions in multi-actor systems also require governance structures that facilitate value negotiation, strategic compromise, and managed disagreement. My contribution to the JVC discourse goes beyond mapping tensions (Freeman et al., 2021); it reconstructs a preferred value map that enables new forms of value exchange between policymakers, service providers, and employees—shifting from description to the design of aligned yet differentiated value constellations.

The chain, if restructured around such principles, could become a model for how to embrace institutional complexity while advancing systemic sustainability.

12.3. How can collaborative interventions support systemic change toward a more sustainable ICT hardware lifecycle within the Dutch government?

Through a value mapping lens, I developed a future-oriented value map that envisions how diverse stakeholder goals—firmness, feasibility, and flexibility—can coexist and interact meaningfully. Drawing on the principle of separating powers, this model assigns distinct but interdependent roles: policymakers set norms (legislative), service providers implement them (executive), and employees assess real-world outcomes (judiciary). Rather than flattening power, it redistributes it, enabling co-shaping of decisions through transparent, iterative dialogue.

Roadmap for Incremental Change

Currently, the system does not reflect this envisioned structure. Collaborative interventions are needed to gradually move from today’s fragmented value map toward this integrated model. These are embedded in a three-phase strategic roadmap—pilot, intervention, and unification. In early stages, little changes structurally, but by the third horizon, value alignment improves and systemic integration becomes possible.

In this future model, PES platform does more than facilitate transactions—It enables reciprocal value flows. For example, users can share sustainability preferences during onboarding, service providers can signal inefficiencies, and policymakers can receive feedback on the effectiveness of frameworks. This mutual visibility helps translate high-level goals into grounded actions, bridging the gap between top-down policies and bottom-up realities.

However, change must be incremental. The current system is too complex and risk-averse for radical shifts. Low-threshold pilots—like the sticker campaign and pilot HDL—act as strategic entry points. As Bocken et al. (2022) note, such “niches” allow safe experimentation and legitimacy-building. These pilots are not endpoints, but scalable interventions that embed new values and practices.

Embedding Governance in Collaboration

This aligns with JVC literature, which emphasizes evolving values, structured interaction, and boundary-setting (Green & Sergeeva, 2019; Matinheikki et al., 2016). My work extends this by showing that collaborative interventions must also embed governance mechanisms that trace value exchange, redistribute influence, and enable adaptive feedback. Without such structures, co-creation risks remaining symbolic.

In sum, collaborative interventions are not just coordination tools—they reconfigure the system’s architecture. By enabling plural values to interact within shared platforms and defined roles, they pave the way for circular, transparent ICT hardware practices. My research contributes to JVC literature by showing that systemic change requires not only engagement, but also institutional design.

13. Conclusion

My research shows that this fragmentation can be reconfigured to support system-wide sustainability, provided that appropriate structures for value exchange are in place. By applying the JVC framework and adapting the Trias Politica principle, I designed a layered governance model where policymakers, service providers, and employees hold distinct but interdependent roles. In this model, interaction is scaffolded through collaborative infrastructures—ensuring that values are not unified, but negotiated and made actionable through feedback loops, shared platforms, and co-designed interventions.

The resulting design concept operationalizes this vision. By integrating onboarding mechanisms in HDL, enabling personalized preferences in Mijn ICT, and using QR-coded magnetic stickers to trace devices, the system supports both sustainable behavior and strategic learning. Service providers gain insight into device circulation and return patterns, while policymakers receive data-driven input grounded in real user behaviour. The system positions users not as passive recipients but as active overseers, closing the feedback loop between policy, implementation, and daily use.

My thesis contributes to the literature by moving beyond value mapping toward the design of mechanisms that facilitate value negotiation and co-creation. It shows that transformation is not achieved by dissolving stakeholder boundaries but by making them transparent, functional, and communicative. My design adds to emerging work on circular ICT by introducing a scalable, adaptable roadmap that aligns with JVC theory while being politically and operationally feasible, viable, and desirable in the empirical context.

Looking ahead, my work provides a foundation for Team Pilot Duurzame CAO to build on. Future research could expand the scope by testing additional pilots and exploring how value feedback mechanisms can be integrated into the broader ICT landscape.

It is now up to my team to follow the strategic roadmap I have outlined. The next steps include scaling the pilot into a fully integrated and automated system change, launching new initiatives—such as the Genius Bar—and presenting both this report and the PES platform to key stakeholders in execution and policymaking.

Greater engagement from policymakers will be essential to scale the concept across departments and ensure alignment with evolving sustainability frameworks. Still, the tools for change already exist within the system—they simply require alignment, visibility, and activation.

In closing, my thesis offers a hopeful outlook: that even in a rigid landscape, systemic change is possible when designed through collaborative, structured, and value-driven interactions. Rather than replacing existing systems, we can reimagine and reconfigure them—transforming rigid chains into adaptive ecosystems where sustainability is not an add-on, but a shared responsibility.

AI Statement

In my thesis, AI has been used as a supportive tool. It assisted in identifying relevant literature and publicly accessible reports from the central government. I used AI to generate ideas and personally reflect on them, helping to identify topics that connect themes to my conclusions and relevant theory. AI also served as a questionnaire platform to facilitate deeper self-reflection. Additionally, AI was used as a grammar tool to structure and rephrase sentences.

No confidential materials were uploaded, as they could be stored in the platform's database.

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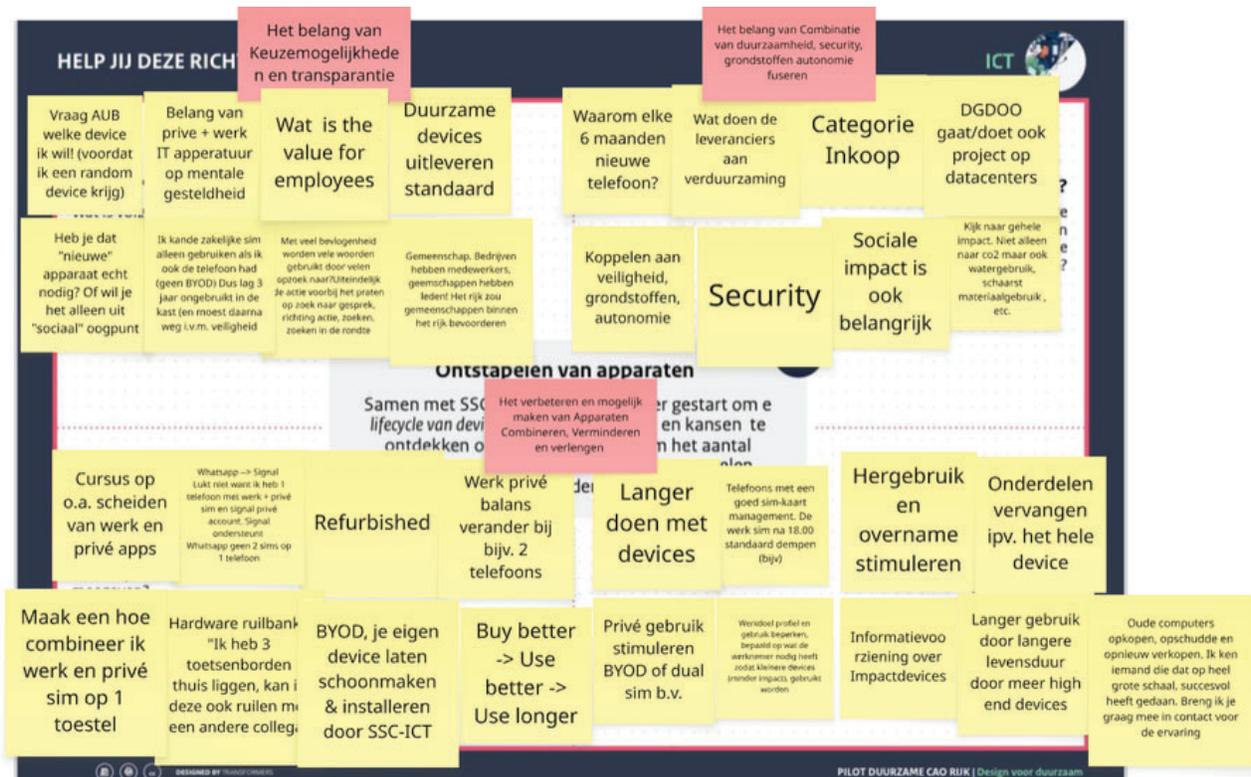
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Appendix

Appendix A - Context Mapping Framework



Appendix B - Interview Protocol

Introduction Interview

*HREC shared beforehand**

U wordt uitgenodigd om deel te nemen aan een onderzoeksproject getiteld 'Inzicht in de ICT-hardwarecyclus binnen Nederlandse overheidsorganisaties'. Dit onderzoek wordt uitgevoerd door Didier van Citters, masterstudent aan de faculteit Industrieel Ontwerpen van de TU Delft, als onderdeel van zijn afstudeerproject. Het onderzoek staat onder begeleiding van Marina Bos-de Vos (TU Delft).

Het doel van dit onderzoek is om de ICT-hardwarecyclus binnen Nederlandse overheidsorganisaties in kaart te brengen, met als doel het identificeren van inefficiënties en het ontwikkelen van oplossingen om duurzaamheid te bevorderen, CO₂-uitstoot te verminderen en circulair hardwaregebruik te stimuleren.

In het kader van dit onderzoek wordt u uitgenodigd om uw inzichten en ervaringen met betrekking tot het hardwaretraject binnen uw organisatie te delen via [een interview/workshop]. De interview zal maximaal 1 uur duren / De sessie zal naar verwachting ongeveer 2 uur duren. Alle verzamelde onderzoeksgegevens worden volledig geanonimiseerd en veilig opgeslagen op een TU Delft-projectdrive, die uitsluitend toegankelijk is voor de betrokken onderzoekers van de TU Delft. De geanonimiseerde gegevens kunnen worden gebruikt in (academische) publicaties, onderzoeksrapporten voor de praktijk (exacte vorm nog te bepalen), onderwijsmaterialen en voor verspreidingsdoeleinden.

Uw deelname aan dit onderzoek is volledig vrijwillig. U kunt op elk moment besluiten om uw deelname te beëindigen, zonder opgave van redenen. U bent vrij om vragen over te slaan en wordt aangemoedigd de onderzoeker te informeren als u gevoelige of vertrouwelijke informatie deelt. Informatie die u als vertrouwelijk aanduidt, wordt niet opgenomen in de uiteindelijke onderzoeksdocumentatie.

Hartelijk dank voor uw deelname aan dit onderzoek.

1. Gedrag (Huidige Praktijken en Handelingen)

- Kunt u uw rol beschrijven binnen de levenscyclus van ICT-hardware in uw organisatie?
- Hoe ziet uw betrokkenheid eruit bij de aanschaf, het gebruik of de afdanking van ICT-hardware?
- Met welke andere actoren (zoals beleid, ICT-dienstverlening, gebruikers of leveranciers) heeft u in uw rol te maken?
- Kunt u mij meenemen in het besluitvormingsproces rondom de aanschaf van nieuwe hardware? Welke factoren beïnvloeden deze keuzes?

2. Mening (Opvattingen en Attitudes)

- Wat beschouwt u als de grootste obstakels voor een duurzamere ICT-hardwareketen binnen uw organisatie?
- Hoe ervaart u het huidige beleid of de richtlijnen rondom hardwarebeheer en duurzaamheid?
- Welke veranderingen zouden volgens u de duurzaamheid van ICT-hardware in uw organisatie verbeteren?
- In hoeverre voelt u zich betrokken of verantwoordelijk bij het verduurzamen van de hardwareketen?

3. Kennis (Inzicht en Bewustzijn)

- Wat weet u over het afdankings- en recyclingproces van ICT-hardware binnen uw organisatie?
- Bent u op de hoogte van duurzaamheidsinitiatieven rondom ICT-hardware binnen uw organisatie of sector? Zo ja, welke?
- Wat voor kennis of ondersteuning zou volgens u medewerkers helpen om duurzamer met hardware om te gaan?
- Hoe ziet de hardwarecyclus eruit vanuit uw perspectief?
- Ervaart u fricties of knelpunten in de keten? Zo ja, waar bevinden deze zich?
- Waar ziet u binnen zes maanden realistische kansen voor verbetering?

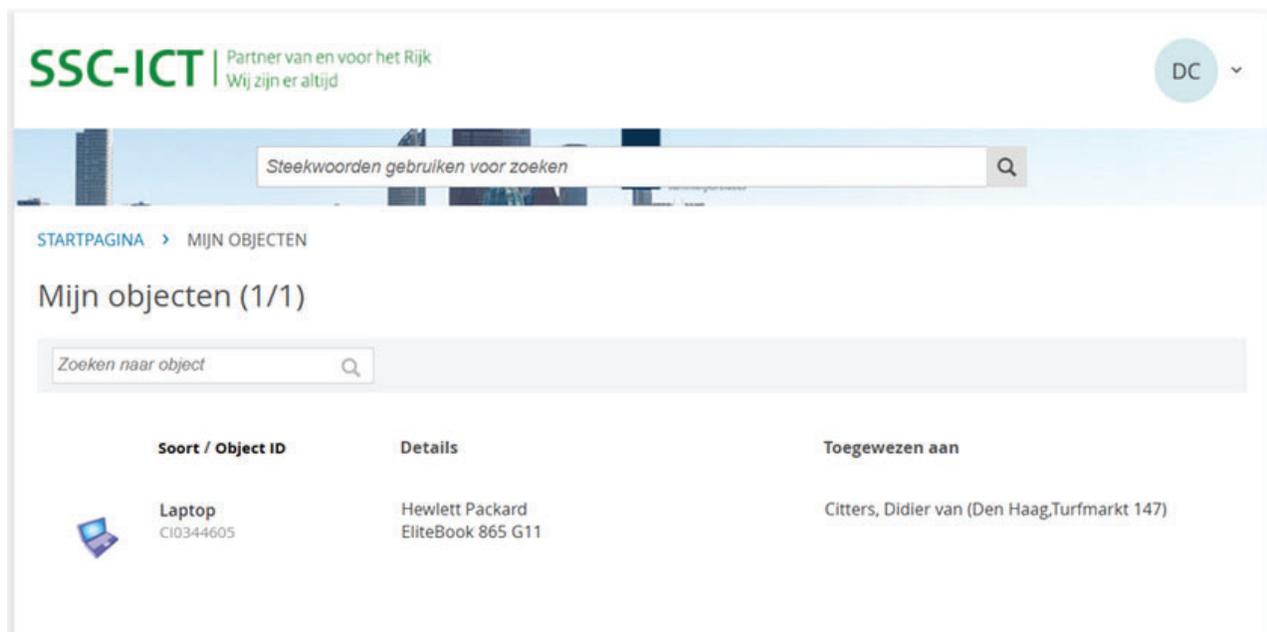
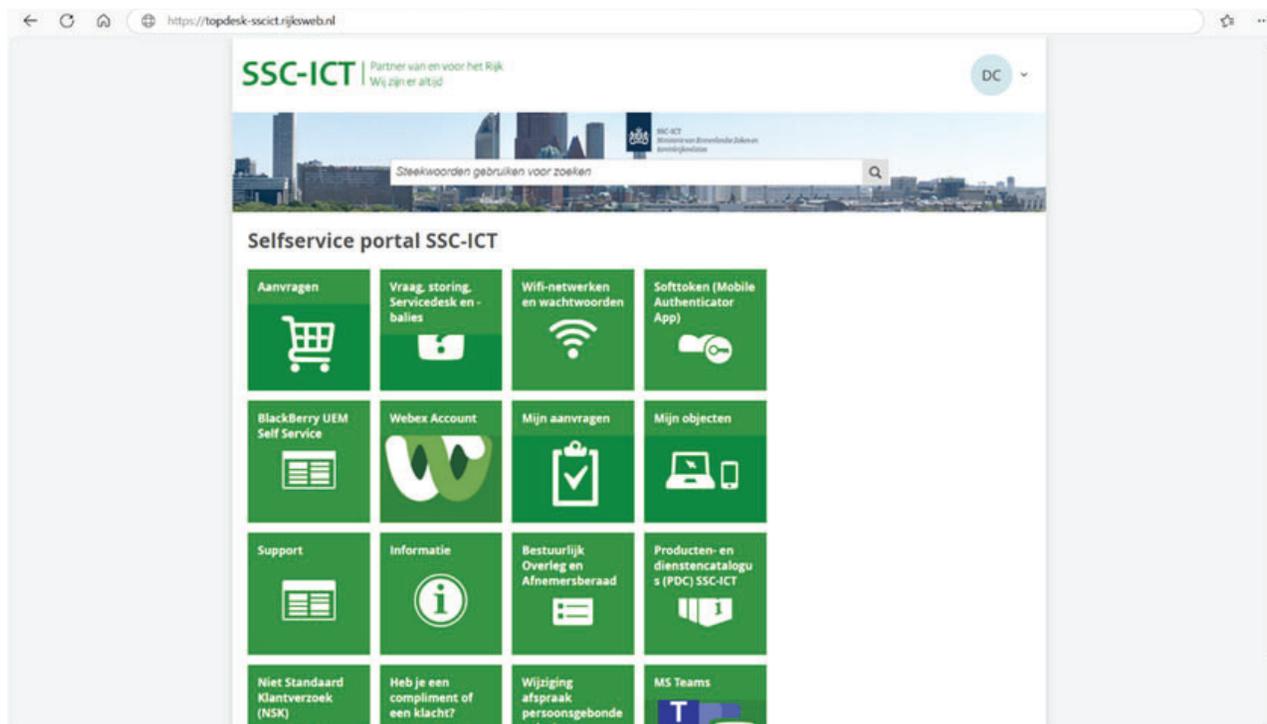
4. Conclusie

- Heeft u nog afsluitende opmerkingen of aanvullingen die relevant kunnen zijn voor dit onderzoek?

Appendix C - JVC Workshop Results

REALIZE	COLLABORATE
VERANTWOORDELIJKHEID - AANDE - MZICHT	NIEUWSGERIG DUIDELIJKHEID EFFICIËNTIE + <u>GEMAK</u>
LOYALITEIT - org - politiek	INNOVATIE <u>VERANTWOORDELIJKHEID</u>
GELOOFWAARDIGHEID	<u>DUURZAAMHEID</u> RENTMEESTERSCHAP
VEILIGHEID CONTINUÏTEIT STABILITEIT	
GEMAK	
KORTE TERMJN (politiek)	
EFFICIENTIE	

Appendix D - Selfservice Portal TOPdesk SSC-ICT



Appendix E - Het Digitale Loket



Organisatie voor Bedrijfsvoering en
Financien
Ministerie van Binnenlandse Zaken en
Koninkrijksrelaties

Beste didier van Citters,

Om ervoor te zorgen dat jij op je eerste werkdag over alle benodigde middelen en rechten beschikt, willen wij je vragen een aantal gegevens leveren en/of documenten te uploaden. Dat kun je doen door te klikken op onderstaande link.

Let op! Er is een reden aangegeven waarom de gegevens opnieuw opgevraagd worden:

[Klik hier om je gegevens in te voeren!](#)

Beste didier van Citters,

Onderstaande gegevens hebben wij nodig om de voor jou benodigde middelen en rechten aan te vragen.

Wij willen je verzoeken om deze gegevens in te vullen en te controleren. Je kunt de gegevens versturen door op verzenden te klikken.

Aanhef *	<input type="radio"/> Mevrouw
	<input type="radio"/> De heer
Voornaam *	<input type="text"/>
Tussenvoegsel	<input type="text"/>
Achternaam *	<input type="text"/>
Roepnaam *	<input type="text"/>
Geboortedatum *	<input type="text"/>
Gebruik partnernaam *	<input type="radio"/> Ja <input type="radio"/> Nee

Als je voor het Rijk gaat werken ben je verplicht de *Amtseed* (eet of belofte) af te leggen. Hiermee verklaar je een *integere ambtenaar* te zijn. Er zijn 2 verschillende teksten.

Beëdiging *	<input almachtig.")"="" god="" helpe="" mij="" type="text" value="Eed (" waarlijk="" zo=""/>
-------------	--

Zodra de ICT-middelen beschikbaar zijn, kun je deze ophalen op de volgende locatie:

Beatrixpark
Wilhelmina van Pruisenweg 52
2595 AN Den Haag
ma t/m vr 8.30 tot 17.00u

Om de afhandeling zo soepel mogelijk te laten verlopen hebben wij de volgende gegevens van je nodig.

Telefoonnummer *	<input type="text" value="06 12345678"/>
------------------	--

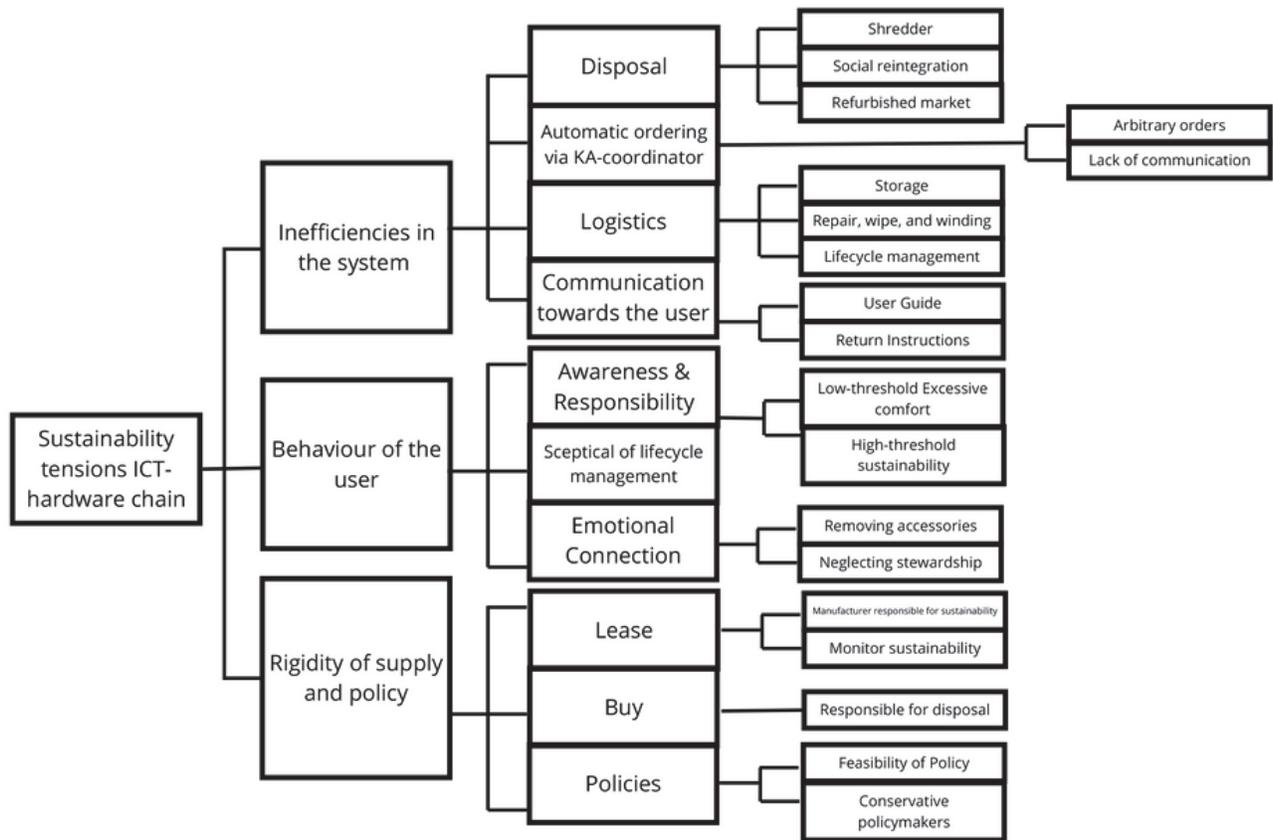
Ik verklaar dat ik alle gegevens naar waarheid heb ingevuld en geef tevens toestemming deze gegevens te gebruiken voor het vullen van de relevante systemen.

Hierbij geef ik toestemming voor de verwerking van mijn pasfoto ten behoeve van de WID scan (Wettelijk identificatiedocument scan). Verdere informatie hierover kan je vinden in bijlage A van de HDL dienstbeschrijving.

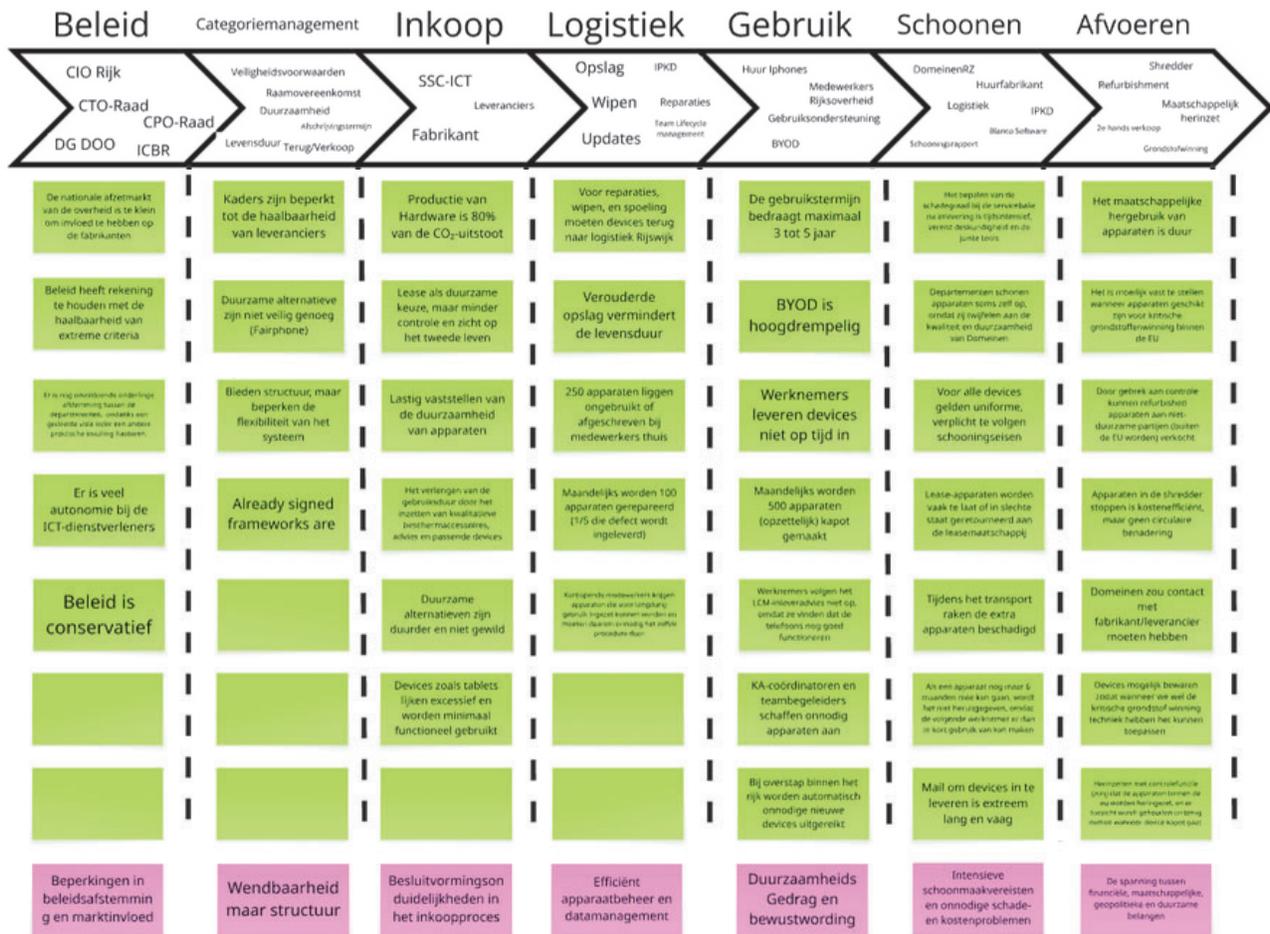
Annuleren

Verstuur

Appendix F - Coding Tree



Appendix G - Opportunity Fields



Appendix H - Gebruikshandleiding



Selfservice portal SSC-ICT

STARTPAGINA > Gebruikershandleiding

Gebruikershandleiding

FAQ

Waarom worden mobiele apparaten vervangen?

Veiligheid

Een modern apparaat is sneller, sluit beter aan bij hedendaagse techniek en heeft moderne software die beschermt tegen cyberaanvallen en andere pogingen om gegevens te stelen. Zelf ben je je er misschien niet bewust van, maar via jouw kwetsbare apparaat kunnen hackers het rijksbrede computernetwerk binnenkomen. Daarmee zijn documenten en gegevens van andere collega's of zelfs burgers niet meer beschermd.

Om te zorgen dat iedereen een veilig apparaat heeft, worden ze periodiek vervangen. Ook als ze ogenschijnlijk nog goed werken. Zie het als je banden vervangen, voordat je uit de bocht glijdt.

Duurzaamheid en kosten

Sommige mobiele apparaten worden voor een bepaalde tijd geleased. Als ze niet of te laat worden ingeleverd, worden er extra kosten in rekening gebracht en kunnen de apparaten niet duurzaam hergebruikt worden. Die kosten zijn uiteindelijk voor jouw departement. Ook aan apparaten zonder lease-overeenkomst zitten kosten verbonden. Het inleveren van oude apparaten zorgt dus meteen voor een kostenbesparing.

Gebruikstips

Jouw telefoon en laptop zijn in bruikleen. Dat betekent netjes behandelen en schadevrij terugbrengen. Zo help je boetes voor jezelf of jouw departement voorkomen en draag je bij aan een duurzame Rijksoverheid.

- Gebruik altijd een hoesje voor je telefoon en een beschermtas voor je laptop.
- Zet eten en drinken niet op dezelfde tafel als je laptop of telefoon.
- Laat je laptop niet in de zon liggen en leg er geen zware spullen bovenop.
- Stop je telefoon niet samen met sleutels in je zak.
- Gebruik een laptop houder (declarabel via P-Direkt).
- Zet je apparaat na werktijd helemaal uit. Dat bespaart energie én verlengt de levensduur.
- Houd de batterij tussen 20% en 80% opgeladen voor een langere levensduur.
- Gebruik altijd de originele of een gecertificeerde oplader.
- Laat apparaten niet onnodig aan de lader hangen.
- Zet je laptop 's aan het einde van een werkdag altijd uit.
- Kortom: verzorg je zakelijke apparaten alsof ze van jezelf zijn.

Zo draag jij bij aan een efficiënte, duurzame en kostenbewuste overheid.

Appendix I - eSIM



Selfservice portal SSC-ICT

STARTPAGINA > eSIM

eSIM



eSIM gebruiken op iOS (iPhone)

Heb je een Sim Only abonnement van Simpel en wil je je simkaart vervangen door een eSIM? Dat regelen we makkelijk samen.

Goed om te weten: zorg dat je iPhone verbonden is met wifi.

Stap 1: Bestel je eSIM

Je bestelt de eSIM in [Mijn Simpel](#). Ga naar Sim & Instellingen > Sim vervangen > eSIM aanvragen en volg de stappen. Daarna krijg je instructies om de eSIM te activeren.

Stap 2: Activeer je eSIM

Werk je huidige sim nog?

Laat je sim dan in je telefoon zitten en volg deze stappen:

1. Log in op [Mijn Simpel](#).
2. Ga in het menu naar Sim & instellingen → Activeren sim → eSIM activeren.
3. Volg de stappen op je scherm.
4. Klaar? Ga door naar stap 3.

Werk je huidige sim niet meer?

Is je sim geblokkeerd (bijvoorbeeld door verlies of diefstal) of werkt 'ie niet meer? Dan kun je je eSIM via IDEAL activeren. Doe je zo:

1. Log in op [Mijn Simpel](#).
2. Ga in het menu naar Sim & instellingen → Activeren sim → Activeer via IDEAL.
3. Volg de stappen op je scherm.
4. Alles gelukt? Ga door naar stap 3.

Stap 3: Download je eSIM

Je eSIM is geactiveerd. Tijd om hem op je toestel te zetten, zodat je 'm kunt gebruiken. Open de e-mail die je van ons hebt gekregen. Klik op de link in de mail en volg de stappen. Of scan de QR-code in de mail vanaf een ander apparaat.

Ga je de QR-code scannen? Volg dan deze stappen:

1. Ga naar 'instellingen' → 'Mobiel netwerk'.
2. Tik op 'Voeg mobiel abonnement toe'.
3. Scan de QR-code: richt je camera op de QR-code die in de mail staat.
4. Volg de instructies op het scherm.
5. Tik op 'Voeg mobiel abonnement toe' of 'Ga door' als dat wordt gevraagd.
6. Zet je iPhone uit en weer aan. Zo weet je zeker dat alles goed werkt.

Lukt het scannen met de QR-code niet? Je kunt je eSIM ook handmatig instellen:

1. Open de instellingen en ga naar 'Mobiel netwerk' of 'Mobiële data'.
2. Kies Voeg mobiel abonnement toe → Voer info handmatig in.
3. Vul de gegevens in die in de e-mail staan:
 - o SM-DP+ adres
 - o Activeringscode
4. Tik op 'Ga door' en daarna op 'Gereed'.
5. Je eSIM wordt gedownload en geïnstalleerd.
6. Zet je telefoon uit en weer aan. Dan weet je zeker dat alles goed werkt.

eSIM gebruiken op Android

Heb je een Sim Only abonnement van Simpel en wil je je simkaart vervangen door een eSIM? Dat regelen we makkelijk samen.

Goed om te weten: zorg dat je telefoon verbonden is met wifi.

Stap 1: Bestel je eSIM

Je bestelt de eSIM in [Mijn Simpel](#). Ga naar Sim & instellingen > Sim vervangen > eSIM aanvragen en volg de stappen. Daarna krijg je instructies om de eSIM op je telefoon te activeren.

Stap 2: Activeer je eSIM

Werk je huidige sim nog?

Laat je sim dan in je telefoon zitten en volg deze stappen:

1. Log in op [Mijn Simpel](#).
2. Ga in het menu naar Sim & instellingen → Activeren sim → eSIM activeren.
3. Volg de stappen op je scherm.
4. Klaar? Ga door naar stap 3.

Werk je huidige sim niet meer?

Is je sim geblokkeerd (bijvoorbeeld door verlies of diefstal) of werkt 'ie niet meer? Dan kun je je eSIM via IDEAL activeren. Doe je zo:

1. Log in op [Mijn Simpel](#).
2. Ga in het menu naar Sim & instellingen → Activeren sim → Activeer via IDEAL.
3. Volg de stappen op je scherm.
4. Alles gelukt? Ga door naar stap 3.

Stap 3: Download je eSIM

Je eSIM is geactiveerd. Tijd om hem te downloaden, zodat je 'm kunt gebruiken. Zo doe je dat:

1. Zet je QR-code klaar Open de e-mail die je van ons hebt gekregen. Daar vind je de QR-code. Zorg ervoor dat je de mail opent op een ander apparaat dan je telefoon. Bijvoorbeeld via je laptop. Je kunt ook een schermafbeelding van de QR-code maken.
2. Open de instellingen van je telefoon Tik op Instellingen → Verbindingen → Simkaartbeheer.
3. Voeg je eSIM toe Tik op + eSIM toevoegen → kies QR-code scannen.
4. Scan de QR-code Richt je camera op de QR-code en tik op Toevoegen. Heb je een schermafbeelding gemaakt? Klik op het icoon Galerij en upload de afbeelding.
5. Tik op Ok om je nieuwe mobiele abonnement in te schakelen.
6. Herstart je telefoon Zet je telefoon even uit en weer aan. Dan weet je zeker dat alles goed werkt.

Lukt het scannen met de QR-code niet? Je kunt je eSIM ook handmatig instellen:

1. Open de instellingen van je telefoon.
2. Ga naar Verbindingen → SIM-beheer → eSIM toevoegen.
3. Kies QR-code scannen en tik op Activeringscode invoeren.
4. Vul de code in.
5. Je eSIM wordt gedownload en geïnstalleerd.
6. Zet je telefoon uit en aan.

Appendix J - BYOD



Selfservice portal SSC-ICT

STARTPAGINA > BYOD

BYOD

Je dient het BYOD-proces binnen 6 weken af te ronden in verband met de beveiligingsrichtlijnen.

Je kiest hierbij voor het activeren van BYOD aan de balie. Om alles soepel te laten verlopen, vragen we je vooraf goed de instructies door te nemen en deze op te volgen. Als de instructies niet gevolgd zijn, kan de activatie op dat moment niet plaatsvinden.

Tijdens de afspraak aan de balie wordt jouw eigen device gecontroleerd en ingericht zodat je veilig toegang hebt tot de werkomgeving. Houd er rekening mee dat dit ongeveer 20 minuten kan duren.

Na afloop ontvang je een bewijs van activatie, de "SSC-ICT Gebruikersverklaring".

Indien je nog extra accessoires zoals een tas of toetsenbord nodig hebt, kun je dit via Het Digital Loket aanvragen.

Aanmelder

Naam	Citters, Didier van
Telefoonnummer *	<input type="text"/>
E-mail	didier.citters@minbzk.nl
Departement	MINBZK
Directie	MINBZK/MINBZK/DGDOO/A&O

Een afspraak bij de Servicebalie is verplicht.
Een afleverdatum binnen 7 werkdagen wordt geannuleerd.

Keuze uitgifte locatie: * ?

- Turfmarkt 147, Den Haag
- Parnassusplein 5, Den Haag
- Rijnstraat 8, Den Haag
- Wilhelmina v. Pruisenweg 52, Den Haag
- Koningskade 4, Den Haag
- Korte Voorhout 7, Den Haag

Afleverdatum binnen 7 werkdagen worden geannuleerd.
Let op: De levering zal plaatsvinden tussen 08:30 en 17:00.

Ik bevestig dat er een afspraak is gemaakt bij de Servicebalie *

Ik ga akkoord met het bovenstaande. *

[Klik hier voor alle openingstijden voor de balie's](#)

* Verplichte velden

Indienen

Appendix K - ICT Vervanging



Selfservice portal SSC-ICT

STARTPAGINA > ICT Vervanging

ICT Vervanging

Vervanging persoonlijke devices - Kantoorlevering

Je gebruikt dit formulier vanwege de uitnodiging die je hebt ontvangen vanuit de postbus SSC-Lifecycle.

Let op:

Je dient de vervanging binnen 6 weken te doen. Dit in verband met de beveiligingsnormen.

Je kiest voor vervanging aan de balie

Om de vervanging vlot te laten verlopen, vragen wij vooraf de instructies te volgen, die vermeld zijn in de uitnodigings-mail die je hebt ontvangen. Als deze instructies niet gevolgd zijn of je levert het oude device niet in, kan de vervanging op dat moment niet plaatsvinden.

Jouw nieuwe device is niet voorzien van een tas, hoes of andere accessoires. Indien wenselijk kan je deze via je ICT-contactpersoon apart aanvragen.

Bij het vervangen van een laptop zien wij ook graag de voeding terug. Andere accessoires mag je bij de nieuwe laptop gebruiken. Denk hierbij aan de tas. Op het moment van de afspraak bij een balie, krijg je na de inname je nieuwe device mee.

Houdt rekening mee dat de vervanging rond de 20 minuten duurt.

Na deze vervanging, krijg je een bewijs van vervanging mee, de "SSC-ICT Gebruikersverklaring".

Waarom worden mobiele apparaten vervangen?

Zie > [FAQ](#)

Aanmelder

Naam Citters, Didier van
Telefoonnummer *
E-mail didier.citters@minbzk.nl
Departement MINBZK
Directie MINBZK/MINBZK/DGDOO/A&O
CI-nummer huidige device (op de achter-/onderkant van het device) of serie nummer *

Een afspraak bij de Servicebalie is verplicht. Een afleverdatum binnen 7 werkdagen wordt geannuleerd.

Keuze uitgifte locatie: *

- Turfmarkt 147, Den Haag
- Parnassusplein 5, Den Haag
- Rijnstraat 8, Den Haag
- Wilhelmina v. Pruisenweg 52, Den Haag
- Koningskade 4, Den Haag
- Korte Voorhout 7, Den Haag

Afleverdatum binnen 7 werkdagen worden geannuleerd.

Let op: De levering zal plaatsvinden tussen 08:30 en 17:00.

Ik bevestig dat er een afspraak is gemaakt bij de Servicebalie *

Vul hier uw overige rijksoverheids items in die u wilt inleveren (bijv. laptotas, oude telefoon, muis, toetsenbord):

Ik ga akkoord met het bovenstaande. *

[Klik hier voor alle openingstijden voor de balie's](#)

* Verplichte velden

Indienen

Appendix L - HDL Pilot

Enquete duurzaamheids pilot



Bent u momenteel in dienst bij een ander ministerie of rijksorganisatie en beschikt u daar over een apparaat dat u voor uw nieuwe functie zou willen blijven gebruiken?

Wat is of wordt uw functietype?

Wat is uw verwachte dienstverband, tijdelijk of vast?

Indien tijdelijk, wat is de verwachte einddatum?

Zult u na deze datum naar verwachting stoppen met voor de rijksoverheid werken? Ja Nee

Heeft u een persoonlijk apparaat dat u mogelijk kunt inzetten voor uw werk (BYOD)?

- Laptop
- Telefoon
- Tablet
- Geen van bovenstaande

Wat voor werkzaamheden voert u uit waarvoor u het apparaat nodig heeft?

- E-mail / MS Teams / Office 365
- Ontwerp / technische software (CAD, Adobe, etc.)
- Data-analyse / programmeren
- Klantcontact / locatiebezoeken
- Presentaties geven

Andere werkzaamheden, namelijk:

Wat voor formaat of type device past het best bij deze werkzaamheden?

Welke accessoires heeft u nog nodig voor uw werkzaamheden?

- Laptoptas
- Telefoonhoesje
- Oortjes
- Muis
- Toetsenbord
- Tablethoes

Let op: volgens de gebruiksovereenkomst is een hoesje verplicht bij telefoongebruik

Zou u waarde hechten aan optionele personalisatie of aanvullende accessoires voor uw device?

- Gegraveerde naam
- Geborduurde of herkenbare hoes
- Sleutelhanger / tag voor herkenbaarheid
- Laptopstandaard
- Popsocket (voor telefoon)
- Touchscreen pen / stylus
- Nee, geen behoefte

Andere personalisatie/accessoire, namelijk:

Appendix M - Interview Questions Profile-based Asset HDL

1. Dienstverband en context

Wat is uw huidige functie en dienstverband bij de Rijksoverheid?

2. Aanvraagproces en ervaring

U heeft twee weken geleden werkapparatuur aangevraagd. Heeft u tijdens dat proces ongemakken ervaren? Zo ja, welke?

3. Functionaliteit en prestaties

Vindt u dat de laptop en/of telefoon voldoende presteert voor uw werkzaamheden?

Had u vooraf verwachtingen over het apparaat? Hoe verhouden die zich tot uw ervaring tot nu toe?

4. Tweedehands apparatuur

Merkt u dat het apparaat eerder gebruikt is? Zo ja, in hoeverre stoort dat?

Voelt u zich anders behandeld doordat u tweedehands apparatuur heeft ontvangen?

Vindt u het logisch dat tijdelijke medewerkers hergebruikte apparatuur krijgen?

5. Personalisatie en keuzemogelijkheden

Wat vindt u van het idee om meer persoonlijke keuzes te bieden, bijvoorbeeld in accessoires of type apparaat, vergeleken met een automatisch systeem waarin u gewoon toegewezen krijgt wat beschikbaar is?

6. Duurzaamheid en inzicht

Wat vindt u van het idee om inzicht te krijgen in de CO₂-uitstoot per apparaatkeuze?

Wat vindt u van het concept Bring Your Own Device (BYOD)?

7. Aanbeveling en tevredenheid

Zou u deze aanpak aanraden aan een nieuwe collega die ook tijdelijk in dienst komt?

Hoe tevreden bent u met het werkmateriaal op een schaal van 1 tot 10? Waarom?

8. Overige opmerkingen

Heeft u nog andere aandachtspunten of opmerkingen die u wilt delen?

CHECK ON STUDY PROGRESS

To be filled in by SSC E&SA (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total _____ EC

Of which, taking conditional requirements into account, can be part of the exam programme _____ EC

<input type="checkbox"/>	YES	all 1 st year master courses passed
<input type="checkbox"/>	NO	missing 1 st year courses

Comments:

Sign for approval (SSC E&SA)

Name _____ Marina Bos-de Vos _____ Date 11-03-2025 _____ Signature 

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

<input type="checkbox"/>	YES	Supervisory Team approved
<input type="checkbox"/>	NO	Supervisory Team not approved

Comments:

Based on study progress, students is ...

<input type="checkbox"/>	ALLOWED to start the graduation project
<input type="checkbox"/>	NOT allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Name _____ Date _____ Signature _____

Personal Project Brief – IDE Master Graduation Project

Name student Didier van Citters

Student number 5,085,624

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT

Complete all fields, keep information clear, specific and concise

Sustainable Hardware: Designing Government-Wide ICT Strategies

Project title

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

The pilot Sustainable CAO Rijk is a joint agreement between the unions (FNV and others) and the Dutch Government (Employer Rijksoverheid), aiming to promote sustainability within the central government through employment conditions. Fourteen initial experiments have been consolidated into seven impact projects: 1) Behavior & Culture, 2) Mobility, 3) Sustainable Individual Choices Budget (IDKB), 4) Workplace, 5) Greening the Workplace, 6) Food & Drink, and 7) ICT. My focus will be on ICT.

The ICT impact project is a collaboration of sustainable ICT experts from various government organizations (DUO, Logius, I&W, Belastingdienst, SSC-ICT, RWS) who aim to drive innovation, stretch existing systems, and connect to current initiatives through concrete, value-driven pilots for policy, implementation, and employees. A key challenge is how to stimulate more sustainable and circular ICT hardware use within Dutch government organizations, ensuring that devices remain in use longer and are properly reused or repurposed.

The ICT landscape within the central government is fragmented and complex, with 150,000 employees across multiple organizations, serviced by four different facility centers. Each organization follows different policies, and various criteria (e.g., privacy, archiving, security, roles, budget) determine which devices (laptops, tablets, smartphones) are provided and how they are managed. Although there is a focus on sustainable and circular procurement, the chain of processes between acquiring new devices and returning old ones involves different regulations and many stakeholders, most of whom are not yet engaged in circular usage, including end-users. This often prevents devices from being reused or achieving a long lifespan, with many ending up in shredders for security reasons or being replaced every three years.

→ space available for images / figures on next page

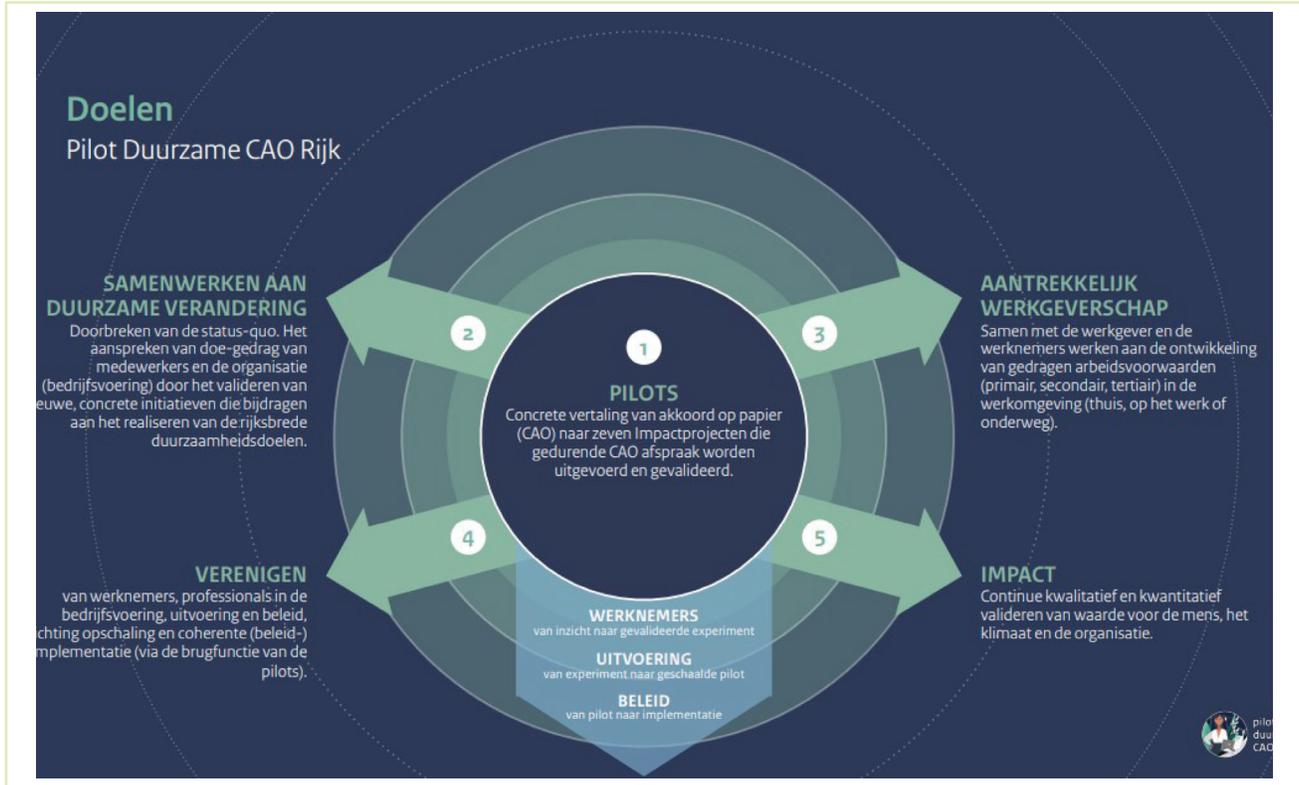


image / figure 1 Pilot Duurzame CAO

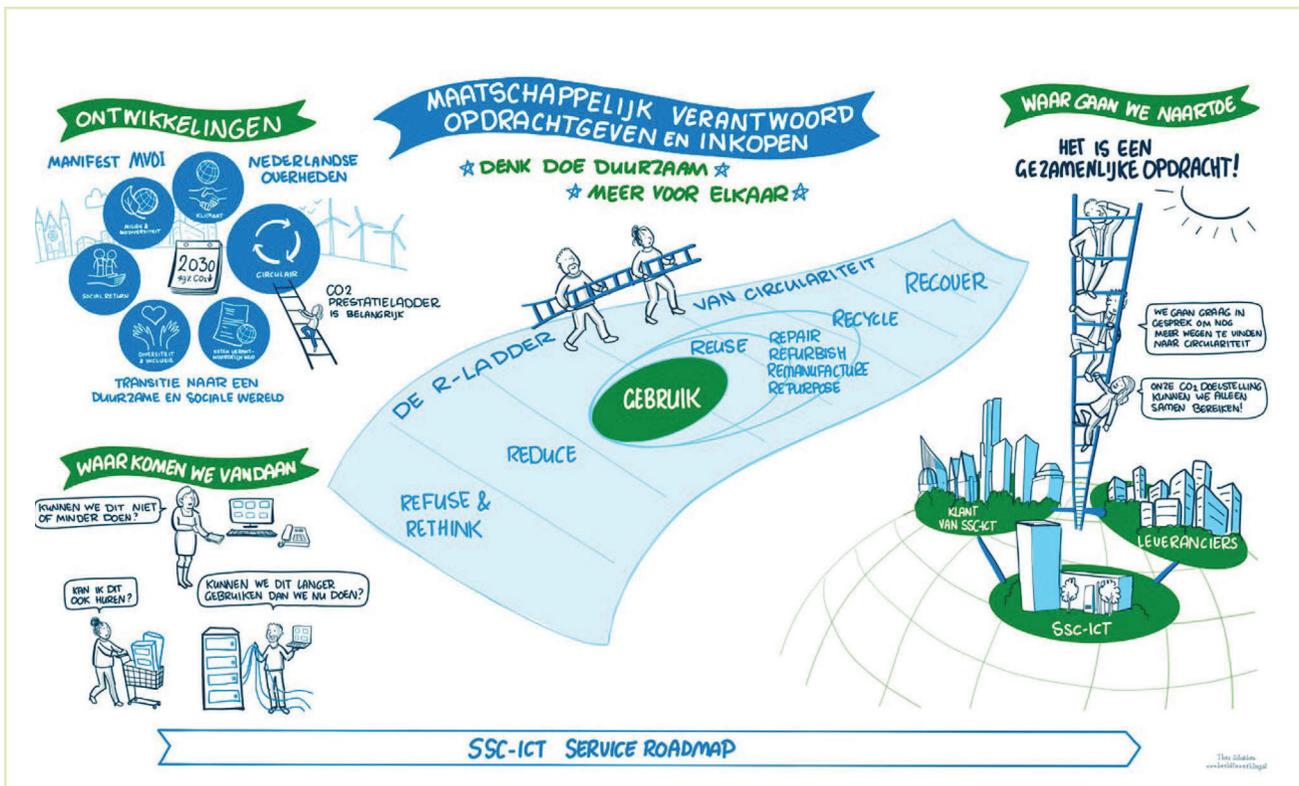


image / figure 2 Socially responsible commissioning and purchasing SSC-ICT

Personal Project Brief – IDE Master Graduation Project

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.

(max 200 words)

Since 80% of CO2 emissions from government-wide ICT comes from hardware, improving the process is crucial. My goal is to map the entire hardware lifecycle—from supplier to disposal—to identify gaps where new opportunities can emerge. Once identified, I aim to test, iterate, and develop final recommendations for nationwide implementation across government organizations.

Opportunities:

1. Positively encourage users (behaviour) of ICT resources within the national government to handle their belongings with care and to contribute to a longer lifespan.
2. Stimulate ICT service centers (e.g. SSC-ICT) to stimulate sustainability into their chain with tangible interventions (e.g. procurement, user journey ICT desk, after life of devices, longer use of devices etc.)
3. Inspire policy makers (CIO Rijk) to include more sustainable policies about the use of devices in their policies. E.g. policies for devices focused on specific groups of users, procurement etc.
4. Improve alignment and streamline process between employees, policy and operations.
5. By running interventions/ experiments in the organisation.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for.

Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence)

As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Design a process to identify and evaluate the journey of hardware within national government organizations, mapping stakeholders, conducting interviews, and piloting interventions to address hardware sustainability and security issues.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

I will begin by conducting thorough research into the current ICT hardware lifecycle within government organizations, such as Binnenlandse Zaken, I&W, and DUO. This involves 1) Initial stakeholder mapping with help of the knowledge of my company mentor and desktop research. 2) Conduct semi-structured interviews with key relevant stakeholders to gather insights on existing processes and challenges. 3) Analyze the findings from interviews and desktop research to form a comprehensive understanding of the current system through inductive data analysis. 4) With this knowledge and multiple design methods I will ideate and if possible collaborate with stakeholders to establish a shared vision for sustainable ICT across government organizations. 5) Together with my team, Pilot Duurzame CAO Rijk, I will develop and implement a few prototypes & pilot projects based on the agreed vision. These pilots will address specific inefficiencies and serve as test cases for sustainable ICT hardware practices. 6) Evaluate and refine further with design methods 7) Support the embedding of outcomes of the pilot projects into government policies and frameworks. I will develop roadmaps for potential upscaling, ensuring that lessons learned are applied and that further multiplication of successful practices is possible government-wide.

Project planning and key moments

To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	<u>13 Feb 2025</u>
Mid-term evaluation	<u>29 May 2025</u>
Green light meeting	<u>16 Jul 2025</u>
Graduation ceremony	<u>29 Aug 2025</u>

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	<input type="checkbox"/>
For how many project weeks	<input type="text"/>
Number of project days per week	<input type="text"/>

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.

(200 words max)

I see this topic and research as a valuable opportunity to better understand government organizations, their structures, and regulations. As an intern, conducting research that benefits these organizations will give me deep insights into the diverse stakeholders and logistical challenges involved. Sustainability has always been a topic I find fascinating, and I've consistently incorporated sustainability into my design process. This project blends the practical aspects of working within a system with my sustainable mindset, which further motivates me. The competencies I want to develop include gaining a deeper understanding of how government organizations operate, as their internal processes and structures are often not fully visible to the public.

Moreover, I have personal ambitions that influenced my choice of project topic. I have never worked in a large organization, especially not in a government one. I want to learn how to communicate within such a system and understand how to design and navigate its regulations and policies, knowing from personal experience that there is a form of hierarchy present in these organizations. The skills I want to further develop include the ability to analyze and identify problems in contexts I am unfamiliar with, while still being able to create suitable and effective solutions.