



Greenpeace's Digital Transformation

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A small green plant with four leaves is growing out of a laptop keyboard. The background is a blurred office setting with a laptop and a cup of coffee.

GREENPEACE'S DIGITAL TRANSFORMATION

A CASE OF DIGITAL–SUSTAINABLE CO-TRANSFORMATION



LEUPHANA
UNIVERSITÄT LÜNEBURG

GREENPEACE

Greenpeace's Digital Transformation: A Case of Digital–Sustainable Co- Transformation

DECEMBER 2024

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1 INTRODUCTION	5
2 RESEARCH BACKGROUND OF THIS REPORT	8
2.1 Green IT, Green Information Systems and Digital Sustainability	8
2.2 What is Digital–Sustainable Co-Transformation?	9
3 ABOUT THIS REPORT’S RESEARCH METHOD	12
3.1 The Case Organisation: Greenpeace	12
3.2 Data Collection	13
3.3 Data Analysis	14
4 STATUS QUO: GREENPEACE’S DIGITAL TRANSFORMATION	17
4.1 Greenpeace’s Organisational Identity	17
4.2 Greenpeace’s Green IT Activities	19
4.3 Greenpeace’s Green Information Systems Activities	24
4.4 Greenpeace’s Campaigns on Digital Technology	26
4.5 Greenpeace’s Digital Transformation of Activities of Campaigning	29
5 QUO VADIS DIGITAL–SUSTAINABLE CO-TRANSFORMATION?	35
5.1 The Nature of Co-Transformation: Balancing Value Tensions	35
5.2 Learnings on Digital Sustainability: Co-Transformation Baseline	38
5.3 Learnings on Value-Based Management: Governing Co-Transformation	41
5.4 Learnings on Co-Transformation of Core Activities	45
6 CONCLUSION	49
REFERENCES	50
LIST OF FIGURES	53
LIST OF TABLES	54
ACKNOWLEDGMENTS	55



EXECUTIVE SUMMARY

Digital transformation changes society and economy through combinations of digital technology. This transformation process has positive and negative effects. While markets herald the positive effects for economy (e.g. new and increased revenue streams), the negative ones threaten planetary health (e.g. use of resources, energy consumption), society and peace (e.g. surveillance capitalism, filter bubble and social medias' effect on democratic elections). These negative effects of digital transformation emphasise the importance of **combining sustainability**, understood as accounting the triple bottom line of environmental, social and economic sustainability, **and digital transformation into one co-transformation**. This notion of co-transformation recognizes that digital transformation's negative effects threaten sustainability, as well as that sustainability can provide purpose to digital transformation. Hence, digital-sustainable co-transformation suggests strategizing for digital and sustainability transformation as one concern. However, how can organisations strategize for and accomplish this co-transformation?

For the environmental non-governmental organisation (NGO) Greenpeace, sustainability has presented a key concern since its foundation in 1971. With the goal of winning campaigns (faster), the NGO started its digital transformation, in 2020. While Greenpeace's digital transformation seeks to improve the NGO's

core activity of campaigning, their strategy considers how this transformation can reflect environmental and social sustainability. Thus, this case study investigates Greenpeace's digital transformation as digital-sustainable co-transformation. Analysing 15 qualitative interviews with Greenpeace staff, which took place between May and July 2023, and archival records, this study outlines four key learnings: (1) the nature of co-transformation as balancing **value tensions of digital sustainability**; (2) **digital sustainability presents the baseline for co-transformation**; (3) governing co-transformation requires **value-based management**, and (4) the co-transformation process presents a **three-layered strategy process**.

1 THE NATURE OF CO-TRANSFORMATION: BALANCING VALUE TENSIONS

Greenpeace's digital-sustainable co-transformation shows that understanding digital and sustainability transformation as one concern integrates the two transformations' value dimensions. Sustainability transformation emphasises the triple bottom line of environment, social and economic sustainability. Digital transformation focuses on technological and economic improvements. Hence, **co-transformation comprises four value dimensions** of environment, social, technology and economic.

Greenpeace's co-transformation decisions illustrate that this understanding reveals **value tensions of digital sustainability**. Co-transformation decisions refer to selecting digital technology to implement changes to organisational

processes and core activities. These decisions involve value tensions of digital sustainability among the four dimensions of co-transformation since they often emphasise one (or multiple) value dimensions but undermine others. Hence, digital-sustainable co-transformation requires organisations to identify these value tensions of digital sustainability and select the co-transformation decisions that improve organisational impact on the four co-transformation dimensions.

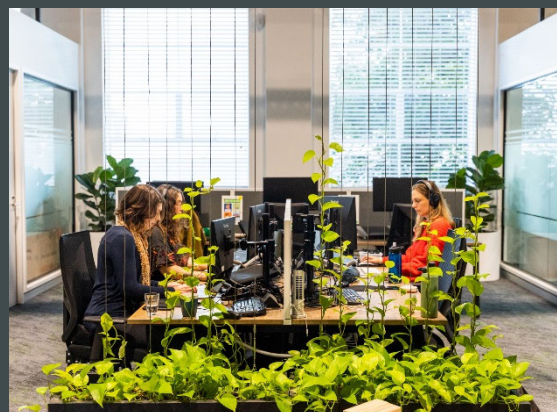
2 DIGITAL SUSTAINABILITY: CO-TRANSFORMATION BASELINE

Digital sustainability activities of operating the organisational IT infrastructure most sustainably (i.e., Green IT) and offering information systems (IS) that support sustainable business practices (i.e., Green IS) present the **baseline for co-transformation**. Greenpeace's co-transformation process shows that this baseline requires organisations to establish a **digital sustainability mindset**, data basis of their environmental and social governance (ESG) (incl. digital footprint) and a **cross-functional digital sustainability process**. This allows organisations to govern their Green IT and Green IS activities toward positive impact on their four co-transformation dimensions. Moreover, this provides the baseline for co-transforming organisational core-activities using digital technology.

3 VALUE-BASED MANAGEMENT: GOVERNING CO-TRANSFORMATION

To govern co-transformation and its inherent value tensions of digital

sustainability, Greenpeace set up **value-based management processes**. The NGO started by distilling key value tensions based on involved values and different stakeholders' views. This then underpinned their definition of a value-based decision-making process for co-transformation decisions. Making such decisions, they consider four views: **least bad view, portfolio view, projection view** and **value-change view**. The goal across these views: balancing or resolving value tensions for improving organisational impact on the four co-transformation dimensions.



4 STRATEGIZING DIGITAL-SUSTAINABLE CO-TRANSFORMATION OF CORE-ACTIVITIES

Greenpeace's co-transformation suggests a **three-layered digital-sustainable co-transformation process**. The base layer refers to strategizing for (most) sustainable operation of organisational IT infrastructure. The second layer concerns strategizing for using digital technology to support sustainable organisational practices. The third layer refers to strategizing for sustainable, digital innovations that transform organisational core activities to become digital and sustainable at the same time.

The first two layers present pre-requisites for operating digital technology sustainably and for establishing sustainable organisational practices. The last layer co-transforms organisations' business model to become sustainable at the core. Hence, organisational co-transformation presents a three-layered strategy process.

CONCLUSION

Value tensions of digital sustainability among the four value dimensions of co-transformation—environment, social, technology and economic dimension—delineate digital-sustainable co-transformation from digital transformation. The case study provides insights on how Greenpeace addresses these tensions via a cross-functional digital sustainability process, value-based management and a three-layered co-transformation process. Beyond these key learnings, the study describes exemplary digital sustainability activities (i.e., Green IT and Green IS) at Greenpeace that can serve other organisations as inspiration.





1

INTRODUCTION

1 INTRODUCTION

Digital transformation changes society and economy (Bughin et al., 2019; Kane et al., 2016; Vial, 2019). Digital technology entails disruptions to consumer behaviour to which organisations respond by triggering changes to their structure and core activities for value creation (Hess et al., 2016; Vial, 2019). The resulting digital transformations have positive and negative effects on economy, society and our planet. Economy heralds the positive effects, which have thus far been the focus of research. For example, digital transformation can lead to cost savings while unlocking new and increased revenue streams (Svahn et al., 2017; Westerman & Bonnet, 2015). New waves of emerging digital technologies, the latest being advances in artificial intelligence, proclaim new waves of optimization and automation and consequently, efficiency gains. Most often, the positive effects pertain to organisations' economic bottom line (Barthel, 2021; Vial, 2019). However, digital technology can also create positive effects on organisations' environmental or societal bottom line. For example, artificial intelligence can optimize energy consumption or resource-use in production (Henriksen et al., 2021; Melville, 2010; Veit & Thatcher, 2023). Information systems (IS) can assist in designing products for reparability and recyclability (Ixmeier et al., 2023). Accordingly, policymakers, corporates and researchers herald the manifold positive effects of digital transformation on sustainability.

The negative effects of digital transformation materialize from the resulting proliferation of digital technology. Digital technologies bind resources, consume energy during production and operation, present challenges in recycling or pollute our planet as e-waste (Kotlarsky et al., 2023; Mikalef et al., 2022; Tarafdar et al., 2015). Moreover, their use changes our sociotechnical world. New digital technologies and the increased need for digital literacy can deepen digital divide (Kotlarsky et al., 2023). Information overflow and always-on can create technostress (Nastjuk et al., 2023; Salo et al., 2022) and social media platforms operate on debated privacy-policies that enable surveillance capitalism (Cecez-Kecmanovic, 2019; Zuboff, 2015) and can be exploited to manipulate democratic elections. Recognizing that digital transformation has these manifold positive and negative effects on sustainability emphasises that using digital technology to tackle issues of sustainability comes with a dilemma (Veit & Thatcher, 2023): do the positive effects outweigh the negative ones? One response to this dilemma can be digital–sustainable co-transformation.

Organisations not only face digital transformation but also sustainability transformation. The planetary crises, related regulatory and market demands for improving sustainability and digital transformation's potential negative effects require organisations to improve their sustainability (Rosati et al., 2024; Zimmer et al., 2023). Thus far, practitioners and scholars have regarded the two transformations as separate concerns. However, increasingly, we can observe that organisations tackle them as one strategic concern referred to as digital–sustainable co-transformation or twin-transformation (Breiter et

al., 2024; Hinsen et al., 2023; Zimmer & Järveläinen, 2022). Co-transformation introduces the triple bottom line of sustainability—environmental, social and economic sustainability—to digital transformation (Zimmer & Järveläinen, 2022). The notion that underpins co-transformation recognizes that digital transformation’s negative effects threaten sustainability, as well as that sustainability can provide purpose to digital transformation. Hence, digital–sustainable co-transformation suggests strategizing for sustainable digital transformation as well as sustainability through digital transformation.

While appealing in principle, co-transformation presents strategic and managerial challenges of digital sustainability (Hinsen et al., 2023). Organisations must transform their existing IT infrastructure to operate sustainably as well as use digital technology, and integrate new waves of emergent digital technologies, such that their use advances these organisations’ digital transformation while improving sustainability of their business processes and core activities for value creation (Melville, 2010; Rosati et al., 2024). This co-transformation quest for digital sustainability presents a major challenge for any organisation.

This case study focuses on one organisation that takes particular interest in co-transformation: the environmental non-governmental organisation (NGO) Greenpeace. For Greenpeace, sustainability has presented a key concern since its foundation in 1971. In 2020, recognizing that digital transformation of economy and society requires changes in Greenpeace’s campaigning, the NGO started its own digital transformation with the goal of winning campaigns (faster). While the NGO seeks to improve its campaigning, it faces the dilemma that its digital transformation can negatively affect the environmental and social sustainability of its campaigning. A dilemma that Greenpeace addresses in its digital transformation strategy. Treating Greenpeace’s digital transformation as an example for digital–sustainable co-transformation, this case study investigates:

How do organisations with an established sustainability mindset combine digital and sustainability transformation into one co-transformation?

Answering this question for the case of Greenpeace, this case study outlines three key observations and related learnings: (1) **co-transformation requires balancing of value tensions**; (2) **sustainable IS are the baseline for co-transformation**, (3) organisations should establish **value-based management for governing co-transformation** and (4) **co-transformation requires changes to organisational core activities**. These observations stem from the analysis of 15 qualitative interviews with Greenpeace staff, which took place between May and July 2023 as well as internal and publicly available archival records.

The remainder of this case study report outlines the research background on digital sustainability and digital–sustainable co-transformation. Afterwards, this report presents the case organisation, data collection and analysis. Section 4 then outlines the status quo of Greenpeace’s digital transformation and section 5 subsequently provides learnings on quo vadis digital–sustainable co-transformation. The report closes with a short conclusion.



2

**RESEARCH
BACKGROUND
OF THIS REPORT**

2 RESEARCH BACKGROUND OF THIS REPORT

2.1 GREEN IT, GREEN INFORMATION SYSTEMS AND DIGITAL SUSTAINABILITY

The sustainability impact of IT presents a long-standing interest in practice and research (Kotlarsky et al., 2023; Malhotra et al., 2013; Melville, 2010). Since the proliferation of corporate IT, organisations dealt with questions of Green IT, which refers to environmentally friendly operation of IT hardware and services (Kotlarsky et al., 2023; Rosati et al., 2024). Most often **Green IT** refers to activities that focus on reducing energy consumption of IT hardware but can extend to sourcing (e.g., refurbished hardware), software development and coding or hiring (e.g., diversity). Besides green operation of IT, scholars have also investigated how information systems (IS) can support green business practices, that is, Green IS (Elliot, 2011; Hanelt et al., 2017; Malhotra et al., 2013). **Green IS** thus refers to deploying IS to reduce the environmental impact of organisational operations. One specific type of Green IS are eco-innovations that seek to nudge sustainable behaviour (Hanelt et al., 2017). Green IT and Green IS activities thus seek to address digital technologies' sustainability dilemma. This dilemma emphasizes that digital technology can be used to positively affect sustainability (i.e., Green IS), but their use negatively affects sustainability. In this equation, Green IT can improve the sustainability impact of Green IS to meet (and excel) the net zero of digital technology use (see Figure 1).

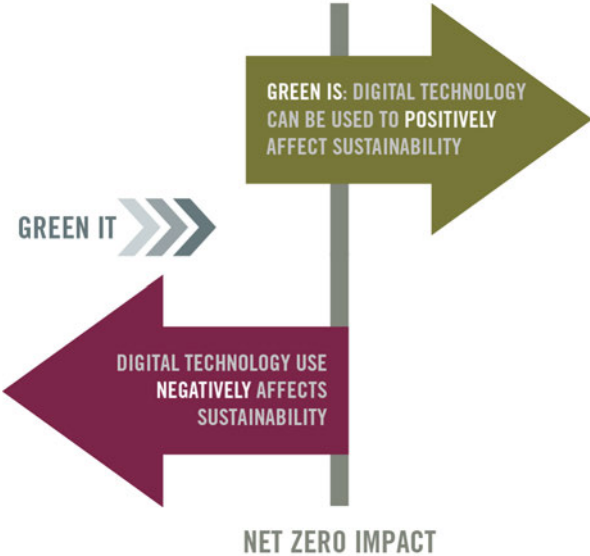


FIGURE 1. THE DIGITAL SUSTAINABILITY DILEMMA

Scholars investigating digital technologies' sustainability dilemma subsume Green IT and Green IS as digital sustainability (Kotlarsky et al., 2023). Their interest roots in three crises, namely, energy, economic growth and extinction (Rosati et al., 2024). This suggests an environmental sustainability focus, which reflects in their definition of **digital sustainability** as “the design, development, configuration, deployment, and decommissioning of digital resources and artifacts toward improving the environment, and economic welfare” (Rosati et al., 2024, p. 8). In this definition, digital resources present modular objects that encapsulate assets or capabilities for sustainability improvements that can be accessed via programmatic interfaces (Piccoli et al., 2022, 2024). Thus, digital resources are not digital technology, but digital technology can be used to create, configure and deploy digital resources that can support organisational activities for improving sustainability. Moreover, this case study takes a broader view on the digital sustainability dilemma by considering the social sustainability dimensions part of digital sustainability.

Organisations can use digital technology not only to improve their sustainability but also to create new products and services for changing markets (Berghaus & Back, 2017; Svahn et al., 2017; Wessel et al., 2021). Scholars and practitioners refer to resulting organisational changes to core activities for value creation as digital transformation (Hanelt et al., 2020; Vial, 2019). Bearing the digital sustainability dilemma in mind, organisations can seize this opportunity to move from improving existing business models' sustainability to designing business models that are sustainable from the start (Schoormann et al., 2022; Zimmer & Järveläinen, 2022). This positive narrative of using digital technology to transform business models into sustainable ones can be understood as digital–sustainable co-transformation.

2.2 WHAT IS DIGITAL–SUSTAINABLE CO-TRANSFORMATION?

Digital transformation refers to a process that triggers significant changes to an entity by combination of digital technologies (Vial, 2019). Scholars found that for organisations these changes pertain to their identity and value proposition (Wessel et al., 2021). When organisations embark on their digital transformation, they most often seek efficiency and economic gains (Barthel, 2021; Vial, 2019). However, regulatory and market demand for improved sustainability sparked interest in practice and research to combine digital and sustainability transformation (Breiter et al., 2024; Christmann et al., 2024; Hinsen et al., 2023). A notion that Zimmer & Järveläinen (2022) define as digital–sustainable co-transformation.

The notion of **digital–sustainable co-transformation** understands digital- and sustainability transformation not as two separate strategic concerns but as one (Zimmer & Järveläinen, 2022). Accordingly, organisations should tackle them—digital and sustainability transformation—as one co-transformation. This co-transformation understands digital transformation as a lever to accomplish sustainability, and sustainability as a purpose that drives digital transformation (Graf-Drasch et al., 2023).

Digital–sustainable co-transformation builds on Elkington’s triple bottom line of sustainability (1994). Elkington proposed in the mid 90s that organisations have not only a financial bottom line but also a social and environmental bottom line. This proposition became the triple bottom line of sustainability that organisations should balance rather than emphasise one of these bottom lines. Building on this notion, digital–sustainable co-transformation captures the idea that understanding digital- and sustainability transformation as one co-transformation, organisations’ digital transformation should emphasise balance among their triple bottom line (Silvestre & Țîrcă, 2019; Zimmer & Järveläinen, 2022). Hence, depending on digital transformation’s emphasis, Zimmer & Järveläinen (2022) outline a co-transformation typology (see Figure 2).

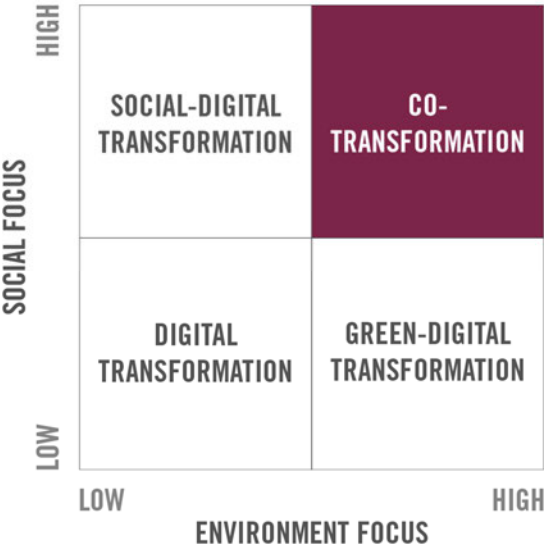


FIGURE 2. DIGITAL–SUSTAINABLE CO-TRANSFORMATION FRAMEWORK (ADAPTED FROM ZIMMER & JÄRVELÄINEN, 2022)

The co-transformation typology differentiates between digital transformation, social-digital transformation, green-digital transformation and digital–sustainable co-transformation (Zimmer & Järveläinen, 2022). **Social-digital transformation** emphasises improving social sustainability through digital transformation while treating environmental and economic sustainability subservient. **Green-digital transformation** emphasises environmental sustainability and considers social sustainability subservient. **Co-transformation** strikes a balance on the triple bottom line, meaning, none of the dimensions of the triple bottom line are subservient or emphasised. This typology indicates the key issue of co-transformation: how to manage and balance the dimensions of sustainability when strategizing for digital–sustainable co-transformation?



3

**ABOUT
THIS REPORT'S
RESEARCH METHOD**

3 ABOUT THIS REPORT'S RESEARCH METHOD

Digital–sustainable co-transformation is a new conceptual notion for strategizing organisations' digital- and sustainability transformation as one co-transformation (Breiter et al., 2024; Christmann et al., 2024; Zimmer & Järveläinen, 2022). Accordingly, understanding how organisations engage in co-transformation or how they consider sustainability as part of their digital transformation presents a new phenomenon. To understand how this phenomenon becomes enacted in practice, this report builds on a single case study. Single case studies present a qualitative research method that can provide the in-depth insights required to explore and infer conclusions on new phenomenon (Ozcan et al., 2017; Walsham, 2006; Yin, 2003). For data collection, single case studies often build on interviews and archival records (Myers & Newman, 2007). The basis of this report provides a single case study that explores the digital transformation of Greenpeace and how this digital transformation relates to sustainability.

3.1 THE CASE ORGANISATION: GREENPEACE

Greenpeace is an environmental NGO that comprises a global network of 25 independent national and regional organisations (NROs) in over 55 countries and regions as well as the coordinating body Greenpeace International. The NGO “uses peaceful, creative confrontation to expose global environmental problems, and develop solutions for a green and peaceful future” (Greenpeace Int., 2024). Respective confrontations can be campaigns against company practices or regulations that are harmful to the environment and peace; campaigns for regulations that can improve sustainability; or campaigns promoting consumer protection regarding matters of environmental protection or health. Moreover, the NGO provides educational resources on climate change and sustainable behaviour. Increasingly, Greenpeace's campaigning activities build on digital technology and while its NROs had engaged in digital transformation initiatives individually, in 2020, the NGO kicked-off its global digital transformation with its **Technology Vision**. The **Technology Vision** refers to a strategy process and document that emerged from the grass-root level through a set of six workstreams. These streams are Beautiful Basics, Breaking Silos, Culture for Impact, Elevating Priority NROs, Our Responsibility and Winning with Data. Greenpeace staff collaborated in these workstreams to define actions and principles for Greenpeace's digital transformation. The Technology Vision's goal: to use digital technologies to improve Greenpeace's campaigning activities while retaining, if not improving, their own level of sustainability. An important objective for the NGO, since new waves of emerging digital technologies, such as the latest developments in artificial intelligence (e.g., Capgemini, 2023; Feuerriegel et al., 2024), drive digital transformation of economy and society and consequently lead to new environmental and societal challenges.

The Technology Vision suggests a timeline of three horizons for Greenpeace’s digital transformation. The first horizon comprises transformation steps that Greenpeace seeks to undertake as soon as possible. These focus on developing and honing digital literacy as well as the roll-out of a global data strategy. The second horizon refers to mid-term initiatives that build on the first horizon. These seek to position Greenpeace as an innovator that’s not only competent with technology but has the skills to stay ahead. The third horizon initiatives build on the first and second one as well as require large-scale change efforts across the Greenpeace network of NROs. Jointly, the streams and horizons address that the NROs’ digital maturity and thus, the starting conditions for their digital transformation, varies.

3.2 DATA COLLECTION

Data collection occurred between May 2023 and July 2023. During this time, the principal investigator (PI) conducted 15 online interviews with employees observing different roles at Greenpeace’s NROs and Greenpeace International (see Table 1). Depending on interviewees’ roles, he used different semi-structured interview guides (e.g., interview guides for managerial staff, IT staff or campaigners). These guides reflected a map of themes that he intended to discuss with the interviewees rather than a strict list of question items. These themes emerged from mind-mapping the interviewees’ organisational role (e.g., hierarchical level, job role, etc.) and how these relate to questions on digital transformation and sustainability. This approach allowed for freedom in the interview situations so that the PI could follow up on interesting themes that emerged in the moment (Myers & Newman, 2007). The interviews took place online and lasted, on average, 57 minutes. After interviewees’ informed consent, the first author recorded and transcribed each interview. He also took notes on his recollections of each interview. That is, after each interview, he wrote down what he recalled as interesting, new and surprising. He kept these notes descriptive but added analytical notes on ad-hoc interpretations to inform subsequent interviews or data analysis.

TABLE 1. OVERVIEW OF INTERVIEWEES, THEIR ROLE AT GREENPEACE AND INTERVIEW DURATION

ID	Interviewee’s Role at GP	GP NRO	Duration
1	Compliance and integrity officer	GER	56 mins
2	Team lead: Environmental education at schools	GER	61 mins
3	Chief information officer	GER	51 mins
4	Campaigner	GER	59 mins
5	Chief technology officer	INT	55 mins
6	Functional application manager	INT	59 mins
7	Campaigner	GER	50 mins
8	Campaigner	East Asia	45 mins
9	Engagement specialist	GER	120 mins

10	Team lead: Site reliability engineering	INT	57 mins
11	Digital transformation	INT	48 mins
12	Executive director	GER	35 mins
13	Team lead: IT and engagement	FR	55 mins
14	ICT support employee	GER	53 mins
15	Campaigner	GER	56 mins

Besides interviews, the case study draws on archival records. The interviews either shared these archival records with the PI or he obtained publicly available documents, presentations, news or blog posts that provide insights into Greenpeace as an organisation and its digital transformation. For example, interviews shared the internal strategy documents on Greenpeace’s Technology Vision (i.e., Greenpeace’s digital transformation strategy) or the IT strategy for refurbished hardware. Publicly available documents cover, for instance, job tenders for digital campaigners, reports on past Greenpeace campaigns or chronicles and descriptions of Greenpeace’s organisational history.

3.3 DATA ANALYSIS

Analysing the collected data, the PI focused on identifying themes in response to two analytical questions. First, he examined for the *status quo* of Greenpeace’s digital transformation. This involved asking analytical questions on how Greenpeace considers sustainability regarding its IT infrastructure; or how Greenpeace’s and society’s digital transformation changes campaigning. This investigation of the status quo produced five themes **organisational identity**, **Green IT activities** (with the sub-themes: hardware, data, application and people), **Green IS activities**, **campaigning on digital technology**, and **digital transformation of campaigning** (with the sub-themes: fundraising and engagement, campaign topics, campaign targets, communication practices, campaigning practices, and campaigning structure).

Second, he asked *quo vadis* digital–sustainable co-transformation when reflecting the identified themes on Greenpeace’s digital transformation against the notion of digital–sustainable co-transformation. That is, what learnings can we infer from Greenpeace’s digital transformation if viewed as digital–sustainable co-transformation that addresses the digital sustainability dilemma. This led to the reflection that co-transformation, unlike digital transformation, emphasises consideration of multiple value dimensions that co-transformation decisions affect. At Greenpeace, these dimensions are environmental, societal, economic and technological sustainability. Co-transformation decisions involve tensions among these dimensions. These tensions emerge from competing and changing valuations of such decisions—that is, stakeholders’ value ascriptions to competing decisions (Stahl, 2024)—regarding their impact on the four value dimensions (i.e., environmental, social, economic and technological sustainability). Thus, considering sustainability and digital transformation as one strategic concern of **digital–sustainable co-transformation requires balancing of value tensions** among these four co-transformation dimensions.

Greenpeace addresses these tensions in sustainable IS activities (i.e., Green IT and Green IS activities). Sustainable IS activities focus on sustainable operation of digital technology and on using digital technology to provide the basis for informing co-transformation decisions regarding their impact on the four co-transformation dimensions. Drawing on Greenpeace’s sustainable IS activities, the PI inferred **learnings on sustainable IS** that provide the baseline for digital–sustainable co-transformation. Recognizing value tensions among these four dimensions, Greenpeace set up processes for decision making that consider such tensions. These processes provide **learnings on value-based management** (with the sub-themes: governance of value-based transformation management and value-based supplier management). Lastly, the PI noticed that interviewees’ statements suggest shifts in Greenpeace’s organisational core activity of campaigning. These present **learnings on co-transformation of organisational core activities**. Table 2 provides an overview of the identified themes.

TABLE 2. IDENTIFIED THEMES ON STATUS QUO OF GREENPEACE’S DIGITAL TRANSFORMATION AND QUO VADIS OF DIGITAL–SUSTAINABLE CO-TRANSFORMATION¹

	Identified Themes
<i>Status-quo</i> of Greenpeace’s Digital Transformation	<ul style="list-style-type: none"> • Greenpeace’s Green IT Activities • Greenpeace’s Green IS Activities • Greenpeace’s Campaigns on Digital Technology • Greenpeace’s Digital Transformation of Activities of Campaigning
<i>Quo vadis</i> Digital–Sustainable Co-Transformation	<ul style="list-style-type: none"> • Digital–Sustainable Co-Transformation: Balancing Value Tensions • Learnings on Digital Sustainability • Learnings on Value-Based Management • Learnings on Co-Transformation of Organisational Core Activities

During data analysis, the PI discussed his interpretations with colleagues and the case study partner Greenpeace. Moreover, they jointly reflected learnings for Greenpeace and other organisations. These discussions helped sounding and translating inferred learnings to organisations other than Greenpeace. Greenpeace is a campaigning organisation with an established sustainability mindset. Translating this case study to other organisational contexts, we considered what organisations with core activities focused on products or services, or organisations with an emerging sustainability mindset could learn from the Greenpeace case.

¹ These themes and the summarized interview contents and presented findings reflect the dominant view that we identified from analysing all interviews holistically



**PLANET
EARTH
FIRST**

GREENPEACE

4

**STATUS QUO:
GREENPEACE'S DIGITAL
TRANSFORMATION**

4 STATUS QUO: GREENPEACE'S DIGITAL TRANSFORMATION

This section presents insights from the interviews that describe the *status quo* of Greenpeace's digital transformation. Since Greenpeace's organisational identity emerged in the interviews as pivotal for understanding the changes that Greenpeace's digital transformation triggers, this section first outlines the principles that constitute this identity. Afterwards, the report outlines past and ongoing Green IT Activities, Green IS Activities, Campaigns on Digital Technology, and Digital Transformation of Campaigning.

4.1 GREENPEACE'S ORGANISATIONAL IDENTITY

Greenpeace's organisational identity refers to interviewees' conception of the features that are central to Greenpeace's character or "self-image". These features make Greenpeace—as an organisation—distinct and have continuity over time. Accordingly, the Greenpeace identity reflects in interviewees' statements and narratives of Greenpeace, its organisational history, campaigns and purpose.

Since its foundation, Greenpeace engages in actions for a greener, healthier and more peaceful planet. While this objective presents a feature of continuity in Greenpeace's self-image, the actions themselves depend on the environmental challenges and means of the time. Thus, campaign topics and means of campaigning change but their objective—peaceful, creative confrontations for a green and peaceful future—remains.

Greenpeace understands itself as representative of nature and environmental conscious citizens. Living up to this self-image, the organisational members consider reflection of their actions' moral credibility essential. This moral credibility depends on two organisational features. First, Greenpeace's **independence** both **financially** as well as **collaboratively**. Financially, Greenpeace can only be morally credible, if the source of their equity stems only from voluntary private individuals. Accordingly, they object donations or money from governments, political parties or economic interest groups. Collaboratively, Greenpeace sees the risk that morally questionable behaviour of partners can smear or damage their moral credibility. Second, donors' willingness to support Greenpeace's cause of action depends on Greenpeace's **campaign success**, that is, campaigns' impact. Without campaign success, Greenpeace's use of resources for campaigning becomes subject of scrutiny, which can undermine its moral credibility. This extends from campaign success to Greenpeace's responsibility to live up to its own values in its operation and campaigning. Thus, these two features—**independence** (financially and collaboratively) and **campaign success**—enact Greenpeace's moral

credibility. However, Greenpeace's self-image also comprises other organisational features, for example, internationality, because planetary health and peace stretch across country borders, and charitability.

Greenpeace follows a set of principles that guide its campaign activities, differentiating it from other campaigning organisations and/or non-profits that work in the environmental remit. These campaign principles are **bearing witness**, **violent free**, **civil disobedience**, **scientifically produced facts** and **alternative solutions**.

GREENPEACE'S CAMPAIGN PRINCIPLES

BEARING WITNESS

refers to taking protest and action to where environmental harm occurs. This reflects in banners hanging from corporate headquarters, protests at congresses or boats circling around whaling ships or oil rigs. One key aspect of this principle: creating powerful images that take people to the scene of environmental crime, provoke and move.

NON-VIOLENT

refers to acting without harming others. Any Greenpeace protest or action must occur peacefully. This presents a critical principle because violent protest conflicts the organisation's values and presents a risk for moral credibility.

CIVIL DISOBEDIENCE

refers to actions or forms of protest that disrupt and present nuisances to society or campaign targets but without violence, damage to property or undermining people's safety.

SCIENTIFIC FACTS

refers to building campaigns on information that stems from data collection and analysis that adhere to scientific standards.

ALTERNATIVE SOLUTIONS

refers to not only pointing the finger to environmental harmful societal, political or business practices but to also propose and outline viable alternatives for these practices.

Noticeably, these principles define no explicit **positioning of Greenpeace toward technology**. The interviewees referred to technology as “always having been there”. They expressed that the use of ships to disrupt atomic bomb testing and the broadcasting from marine vessels indicate that innovating with technology for creative forms of confrontation presents part of Greenpeace’s organisational identity. This conception of technology being part of Greenpeace’s identity reflects in their Technology Vision as their digital transformation strategy as well as contemporary means for campaigning and campaign topics.

4.2 GREENPEACE’S GREEN IT ACTIVITIES

Greenpeace’s Green IT activities (see Deep Dive) can be classified into activities that address **sustainability of hardware, data, applications and people** (see Figure 3). This classification provides for a layered model of Green IT. The base layer are Green IT activities that improve sustainability of hardware by reducing its carbon footprint. The second layer comprises activities that address sustainability of storing and processing data. The third layer pertains to sustainability of applications (or IT services) that run on the hardware and data layer. The fourth layer are people. This layer includes trainings of staff in sustainable use of IT as well as improving social sustainability in relation to operating and using IT (e.g., staff diversity or digital divide). The boundaries between these layers can be fluid. For example, the Third Life for Social initiative addresses hardware but also the layer of people. Similarly, the Digital Clean-up Day seeks reduction of data (i.e. data layer) but also nurtures skills to avoid accumulation of data in the future (i.e. people layer).

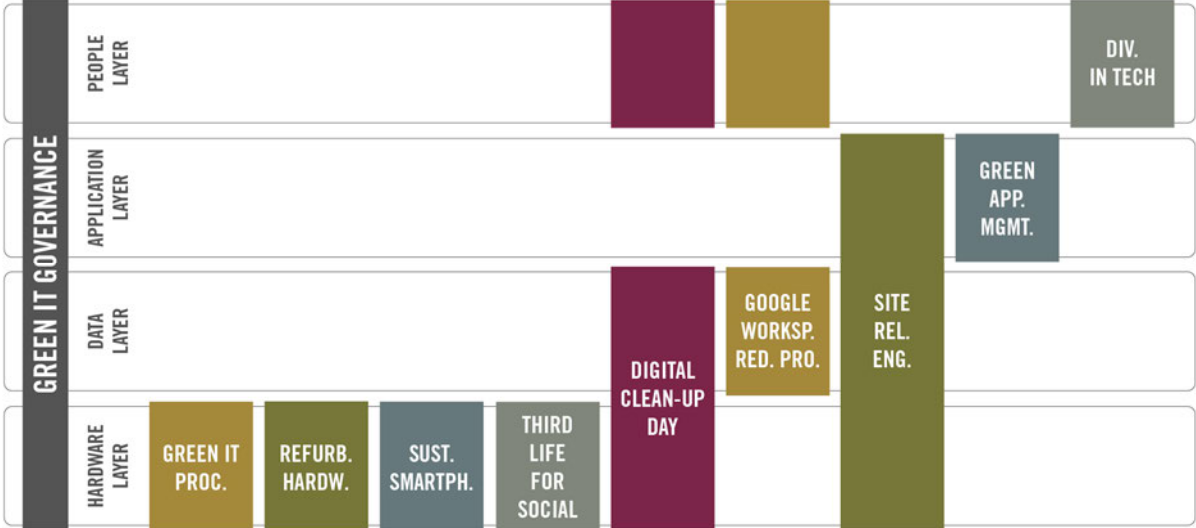


FIGURE 3. GREENPEACE’S GREEN IT GOVERNANCE AND ACTIVITIES PER GREEN IT LAYER (SEE DEEP DIVE FOR DETAILED DESCRIPTION)

Across these layers, Greenpeace established Green IT governance activities. These activities focus on tracking and managing the NGO's Green IT activities to identify co-dependencies, draft and issue new Green IT policies (e.g., on refurbished hardware sourcing) as well as assessing and adjusting existing policies. These policies inject elements of campaigning into Green IT activities at Greenpeace. That is, interviewees described activities such as Green Procurement as resembling features of campaigning since these activities involve negotiations with IT suppliers. In these, Greenpeace asks for information on their energy mix or sustainability strategy. Suppliers' responses form an integral part for Greenpeace's IT sourcing decisions. The interviewees' experiences show that IT suppliers take business decisions to reduce their carbon footprint after engaging with these questions to win Greenpeace as a customer (e.g., moving their hosting location to data centres that run on renewable energy). This integrates campaigning into IT sources in that respective Green IT activities advocate digital sustainability and propose alternative solutions to IT suppliers.



DEEP DIVE: EXAMPLES OF GREEN IT ACTIVITIES AT GREENPEACE

Green IT Procurement (Hardware Layer)

Green IT Procurement refers to the general practice of ensuring green IT sourcing. This involves questionnaires that potential IT suppliers and vendors must fill. These contain questions on their energy mix, work conditions and their sustainability strategy. Subsequent negotiations can lead to suppliers and vendors taking business decisions to improve their sustainability (e.g., switching their cloud hosting to a renewable-energy site). Greenpeace Germany has—with Refurbished Hardware—one specific project on Green IT Procurement. Greenpeace France uses a hardware repairability index when making purchasing decisions for work devices. Greenpeace International runs cost-benefit analysis for devices with the concept of cost involving sustainability costs considering issues as durability or repairability.

Refurbished Hardware (Hardware Layer)

The refurbished hardware project introduced refurbished hardware for work laptops and computers as well as infrastructure devices (e.g., switches) at Greenpeace Germany. The project reported learnings and best practices for adjusting IT services to successfully operate and maintain refurbished hardware. For example, Greenpeace Germany's IT service switched from grouping service and maintenance records per device type (e.g., all laptops of the same model) to records for each individual device. They recognized that records by model veil, if the same device requires repeated fixing because of the same faulty. An issue that increased with refurbished hardware. Switching to records by individual devices, Greenpeace Germany's IT service could identify and replace these faulty devices. Part of the refurbished hardware program is the third life for social.

Sustainable Smartphones (Hardware Layer)

In 2016, Greenpeace adopted a more sustainable smartphone alternative. These smartphone's key feature: repairability. However, this adoption was reverted after issues during these smartphone's operation. Most critically, delivery times of spare parts impeded the adopted smartphones' repairability, that is, Greenpeace had to purchase spare phones to replace broken ones while waiting for ordered parts. This tilted the sustainability balance of these smartphones and resulted in a re-evaluation and switch to a different smartphone make.

Third Life for Social (Hardware Layer)

Third life for social refers to the hand-over of IT hardware that's not functional anymore for internal use at Greenpeace Germany (or Greenpeace International) but still operable. Greenpeace Germany (and Greenpeace International) hands this hardware over to social projects that support, for example, pupils from low-income milieus or refugees.

Digital Clean-up Day (Hardware, Data and People Layer)

Digital Clean-up Day presents a Green IT initiative, for example, at Global IT, the German and French NRO. The initiative reminds and prompts IT admin staff and end-users to delete old emails, old files and unused data to reduce carbon emissions of data storage. Moreover, besides data deletion, the initiative calls Greenpeace staff to return unused hardware, which will then be refurbished or recycled. Greenpeace France also conducted trainings on the impact digital activity. Since 2024, Greenpeace scales the Digital Clean-up Day to all NROs.

Google Workspace Reduction Programme (Data and People Layer)

Greenpeace International runs a Google Workspace Reduction Programme that aims at reducing Greenpeace International's storage space on Google Services. The program seeks to increase awareness for the environmental pollution that data storage creates; to identify and delete old, unused data; and to trigger and guide behaviour change to avoid that data accumulates.

Google Cloud Platform (Site Reliability Engineering) (Hardware, Data and Application Layer)

The Site Reliability Engineering team at Greenpeace Global IT monitors reliability of services run on Google Cloud Platform. This involves monitoring the greenhouse gas emissions of these services and ensuring that services are hosted in Google Sites that run on renewable energy. The created metrics can inform product and service owners' decisions regarding hosting of their IT services and applications.

Green Application Management (Application Layer)

Green application management comprises a multitude of Green IT activities that emphasise green practices in and for operating applications. This involves optimizing

websites regarding their carbon dioxide footprint, regular cleaning of email lists (e.g., sorting out emails addresses that repeatedly show no engagement with newsletters, etc.) and considering design aspects in digital transformation projects (e.g., necessity of email subscription services). Thus, these activities aim at reducing the carbon footprint of application usage.

Diversity in Tech (People Layer)

Diversity in Tech presents a theme that emerged in multiple interviews. Greenpeace International, for example, entertains a Youth Community to support and strengthen the position of younger employees at Greenpeace, who often observe precarious job situations in fixed-term or internship positions. Moreover, Greenpeace NROs seek diversity when hiring for IT positions. These efforts for Diversity in Tech link to the JEDIS (i.e., Justice, Equity, Diversity, Inclusion and Safety), a set of values that underpin Greenpeace’s campaigning and focus on the fair and equal treatment of all groups of people.



4.3 GREENPEACE'S GREEN INFORMATION SYSTEMS ACTIVITIES

Greenpeace's Green IS activities (see Deep Dive) provide two observations. First, **Green IS can support existing and establish new sustainability practices** (see Figure 4). For example, the Sustainability Reporting project at Greenpeace Germany automates data collection on Greenpeace's and its suppliers' sustainability using IS (i.e., support of existing sustainability practices). This established automated sustainability reporting at Greenpeace including the NGO's digital footprint. The reporting revealed that initiatives for sustainability in one organisational function can produce negative impacts in other functions. Thus, the NGO set up a cross-functional sustainability team that uses this reporting data to plan and decide on organisation wide sustainability initiatives. Moreover, Greenpeace considers suppliers' responses to make sustainable sourcing decisions (i.e., establishing new sustainability practices). Hence, Greenpeace's Green IS activities established a data-driven organisation-wide sustainability transformation.



FIGURE 4. GREENPEACE'S GREEN IS ACTIVITIES FOR DATA-DRIVEN ORGANISATION-WIDE SUSTAINABILITY TRANSFORMATION

Second, **digital work infrastructure changes involve Green IS activities**. Greenpeace considers how changes to their digital work infrastructure can reduce the carbon footprint of operating the NGO or its campaign activities (e.g., online meeting vs. travelling). However, such changes can also introduce or deepen digital divide or trigger technostress. Thus, planning and implementing changes to digital work infrastructures requires Green IS considerations.

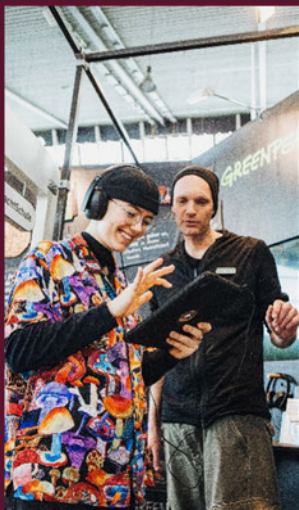
DEEP DIVE: EXAMPLES OF GREEN IS ACTIVITIES AT GREENPEACE

Sustainability Reporting

Sustainability reporting refers to a Green IS project at Greenpeace Germany that transforms a supplier questionnaire, used to assess suppliers' sustainability, from a PDF-based workflow into an automated sustainability reporting tool. The supplier questionnaire is handed to suppliers that Greenpeace Germany contracts. Based on the suppliers' answers, the NRO then creates its sustainability report. Originally, the questionnaire was shared as a PDF. The project implemented the questionnaire as an online form that enables automated extraction of suppliers' answers and integration into the NRO's sustainability report. Moreover, the suppliers' responses can inform sustainable sourcing decisions.

CollabLab

The CollabLab is a unit established as part of Greenpeace's Technology Vision within Global IT. The unit reports to the Global Technology Officer, upskills staff on collaboration tools, and screens new trends on emerging digital technology for collaboration. This involves identifying digital technology that can reduce Greenpeace's carbon footprint, for example, reducing business trips by offering alternatives in digital collaboration. Moreover, they work with the well-being team to ensure that changes to Greenpeace's digital work infrastructure reduce duplication of work, improve workflows and contribute to wellbeing at work.



4.4 GREENPEACE'S CAMPAIGNS ON DIGITAL TECHNOLOGY

Greenpeace has run (and still runs) campaigns that address digital technology's environmental impact (see Deep Dive). These campaigns on digital technology are **Green IT Campaigns**. The described campaigns present examples of how Greenpeace seeks to drive sustainability transformation of campaign targets regarding their design, operation and use of digital technology. Put differently, the NGO pressures campaign targets to improve their environmental sustainability of digital technology (e.g., energy consumption, source of energy, use of toxic chemicals, repairing, recycling or disposing of hardware). This observation suggests that campaigns on digital technology present Green IT Campaigns.



DEEP DIVE: EXAMPLES OF CAMPAIGNS ON DIGITAL TECHNOLOGY AT GREENPEACE

Green My Apple

Green My Apple refers to a campaign that targeted Apple Inc. demanding that Apple stopped the use of toxic chemicals in production. Moreover, the campaign pushed Apple Inc. to offer customers a free take back of old devices.

Rethink IT

The Rethink IT campaign targeted large technology corporations such as Apple, Alphabet, Meta, Amazon Web Services and Microsoft. The campaign identified three ways for these corporations to rethink IT: renewable energy, resource consumption and toxic chemicals. Accordingly, the campaign's activities addressed these three impact areas. The Clicking Clean report and the Guide to Cleaner Electronics were part of this campaign.

Right to Repair

Right to Repair refers to Greenpeace's campaign activities on pushing for new regulation that requires companies to change ways of production to increase products' repairability and the support that customers can obtain for repairing broken products (e.g., access to repair manuals, spare parts, tools, etc.). The campaign goals are reducing resource waste by extending the lifespan of products as well as reducing electronic waste.

Clean Up Bitcoin

The Clean Up Bitcoin campaign targets large banks and investment companies that hold large shares in the cryptocurrency bitcoin. The campaign goal: pressure Bitcoin investors to push for a change in the cryptocurrency's code and energy source to reduce—if not neutralize—its energy consumption.

REpowerICT

The campaign's goal is to convince technology corporations (e.g., Alibaba, Tencent, or ByteDance) to switch to renewable energy sources for powering their data centres. Success of this campaign means not only reduction of the companies' footprint but an increase in demand for renewable energy, which could expedite expansion of the renewable energy consumption market.



4.5 GREENPEACE'S DIGITAL TRANSFORMATION OF ACTIVITIES OF CAMPAIGNING

Greenpeace's digital transformation of activities of campaigning can be classified into external changes, structural changes and core activities changes (see Figure 5 and see Deep Dive). Digital transformation of economy and society alters how people interact, how businesses operate and the sustainability issues that we (humanity) face. These changes present **external changes** that transform campaign topics, campaign targets and interaction with supporters. Greenpeace responds to these in its Technology Vision introducing structural and value-creation changes. **Structural changes** pertain to Greenpeace restructuring internal operation of fundraising and engagement as well as campaigning. These changes not necessarily alter campaigning or communication practices but support respective changes and aim at cross-campaign support from fundraising and engagement as well as stronger continuity of campaign topics. Changes to campaigning and communication practices are **core activities changes**. Here, we see that the interviewees describe new forms of digital campaigning, namely, eco-innovations and digital activism as well as digital communication practices tailored to different communication channels (e.g., newsletter vs. different social media platforms).

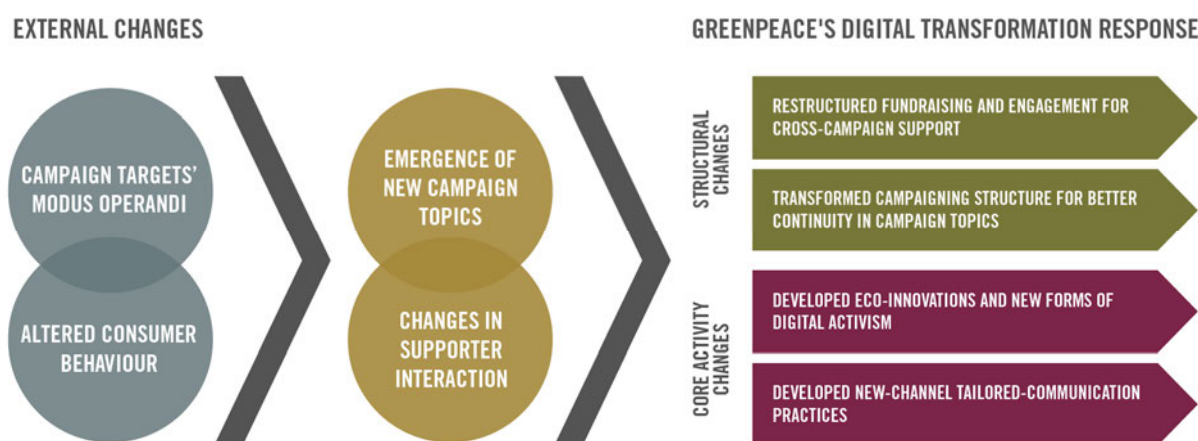


FIGURE 5. GREENPEACE'S DIGITAL TRANSFORMATION OF ACTIVITIES OF CAMPAIGNING

The interviewees also indicated that these digital campaigning practices are complementary to traditional campaigning. Similarly, they likened digital campaigning to communication or engagement. That is, rather than understanding digital campaigning as its own form of activism, digital campaigning refers to online communication on offline actions (i.e., taking communication into Greenpeace's hands) and engagement of supporters. These differing views among interviewees on the meaning of the core activities changes suggest that Greenpeace has initiated structural and core activities changes and thus, faces transition from pre-digital campaigning to digital campaigning.

DEEP DIVE: DIGITAL TRANSFORMATION OF ACTIVITIES OF CAMPAIGNING AT GREENPEACE

Campaign Targets (External Changes)

Digital transformation leads to new business forms and (entirely) digital markets. This means Greenpeace faces campaign targets that often operate without or remote physical sites. Similarly, consumers spend many hours on social media platforms. Which platforms they use, depends on their demographics, information needs and preferences. The interviewees emphasised that the Technology Vision aims to transform Greenpeace's campaign activities to match digital transformation of campaign targets and consumer behaviour.

Campaign Topics (External Changes)

The digital transformation of society and economy poses the question of digital sustainability, that is, digital technology's environmental and societal impact. This impact can be positive (e.g., improving resource use, connecting people, accelerating public services, etc.) or negative (e.g., energy consumption, lack of recycling, e-waste, fake news, etc.). The rising prevalence of digital technology and the entailed sustainability impact reflects in Greenpeace's campaign topics (see Campaigns on Digital Technology). Consequently, digital transformation of economy and society transforms the topics of Greenpeace's campaigns.

Fundraising and Engagement (Structural Changes)

Fundraising and engagement are critical for campaign success. **Fundraising** refers to identifying potential donors as well as to keeping contact with existing donors to maintain a stable source of funds for Greenpeace's operation. **Engagement** pertains to specific campaigns and campaign activities with which Greenpeace seeks to involve its supporters to apply pressure to campaign targets. Digitally transforming fundraising and engagement Greenpeace has restructured its respective departments and uses digital technology to establish continuous fundraising and engagement across campaigns.

■ Example of Digital Transformation of Fundraising and Engagement at Greenpeace France and Germany:

Greenpeace France restructured its fundraising and engagement department. The NRO moved staff overseeing fundraising and engagement applications into one technology team to break down silos between fundraising and engagement and to create synergies. For example, a single data pool for analytics on fundraising and engagement.

Greenpeace Germany established a central engagement team that supports campaigns regarding online engagement with the idea to establish cross-campaigns-engagement. That is, transfer Greenpeace supports from one campaign to the next to build a growing support base that Greenpeace can mobilize for future campaigns.

Greenpeace Germany transformed its campaigning structure in support of the digital transformation of campaigning, engagement and fundraising. Before, the NRO established teams for each campaign. They staffed these teams with experts on the campaign topic, engagement and digital communication. Once the campaign ended, the NRO resolved these teams and restaffed team members. The new structure comprises campaign circles on specific topics (e.g., forests, mobility, or energy) that, over a longer period, run multiple campaign pushes. These circles have dedicated staff for engagement or digital communication. This allows them to plan engagement and communication across campaign pushes. For this, they can request support from the restructured fundraising and engagement. Thus, the digital transformation of the campaigning structure combined with fundraising and engagement seeks to establish continuity within campaign circles to grow the supporter base for Greenpeace's campaigns.

Campaigning Practices (Core Activity Changes)

Greenpeace's campaigning practices often are forms of **offline activism**. The NGO used boats to circle whaling ships, climbed oil rigs or company headquarters to attach banners or set-up installations at landmarks. Offline activism seeks to stop specific business actions (e.g., constructing new oil rigs) by pressuring campaign targets or engaging supporters. It can create powerful images that draw public attention. Digital technology, specifically digital resources, allow for new digital campaigning practices, namely, **digital activism** and **eco-innovations**. **Digital activism** uses digital technology to create and deploy digital resources to voice protest, bear witness or create public upheaval and muster engagement. The interviewees stated that Greenpeace started exploring digital activism, but they see opportunities to further unlock the potential of digital activism as a new campaigning practice at Greenpeace. Besides digital activism, Greenpeace develops and uses digital resources as **eco-innovations** to trigger changes in consumer behaviour. Unlike digital activism, this digital campaigning practice does not deploy digital resources to pressure campaign targets but nudge changes in consumer behaviour.

■ Examples of Greenpeace using digital resources for digital activism:

Greenpeace employs digital activism to accomplish three different objectives. First, the objective can be to **pressure responsible stakeholders**. For example, programming apps that engage supporters to send multiple calendar-invites to pressure business executives into negotiations or online petitions to pressure politicians regarding legislation.

Second, the objective can be to **channel public attention to bear witness** on a company's malpractice. For example, flipping Amazon's smile logo on their website to resemble a sad face (interviewee's hypothetical example of digital activism and not a reference to an actual campaign activity), initiating shit storms (e.g., Beiersdorf took down their social media account in response to an upheaval on social media regarding micro plastics in cosmetics), establishing internet access points in public spaces that lead users to websites that inform about campaigns, or programming apps that facilitate supporters in reporting malpractice (e.g., reusable packaging obligation). The examples of hacktivism (e.g., Amazon, internet access point) can be considered digital civil disobedience. Moreover, channelling public attention can be done in liaison with new regulation. This can create digital echoes, that is, social media activity around new regulation that can pressure companies to follow respective regulation.

Third, the objective can be **investigative research**. Digital resources provide widespread access to data and information that can support investigative research as part of Greenpeace's campaigns. Thus, the objective varies in pressuring responsible stakeholders vs. targeting companies or conducting investigative research. And the digital resources can be specifically programmed apps, crowd platforms (e.g., online petitions), social media platforms or hacktivism (e.g., Amazon smile logo). Creating these digital resources involves digital skills and digital capabilities that Greenpeace develops as part of its Technology Vision but also finds in partners.

■ **Example of Greenpeace using digital resources as eco-innovations to accomplish campaigning objectives:**

For example, Schools for Earth presents a project within the education department at Greenpeace Germany that works by the United Nations Sustainable Development Goals (SDG 4.7; <https://www.un.org/sustainabledevelopment/>). Jointly with partners from Greenpeace IT, Heidelberg Institute for Energy and Environmental Research, external suppliers and pilot schools, the project developed a greenhouse gas emissions calculator that uses scientifically tested indicators to compute an estimate of schools' greenhouse gas emissions measured in CO₂-equivalents. Initially, the project provided only the calculator but then expanded into offering an online forum and educational resources. Moreover, the calculator received an update to show benchmark results as well as an integrated survey-tool which enables a simple digital survey of mobility habits of all school community members. This entailed that school representatives engaged in discussions on the online forum and in community zoom calls, to learn about measures to reduce their greenhouse gas emissions. The greenhouse gas calculator presents a digital resource as eco-innovation that enables schools to define and monitor concrete emission reduction targets in different sectors, such as energy use, mobility or food. It also provides orientation when planning effective interventions to reduce emissions and nudges schools into wider sustainability practices. Other examples for digital resources for campaigning are the fish guide, which originally existed as a report before Greenpeace volunteers developed an app version, or scripts for supporters to send calendar invites to

representatives of campaign targets. Respective digital resources present powerful means for digital campaigning.

Communication Practices (Core Activity Changes)

Communication practices refer to how Greenpeace communicates on the NGO's campaigns and campaigning practices. This communication is pivotal for engaging supporters. However, digital transformation changes these practices. In the past, news agencies reported on Greenpeace's campaign activities. Today, this occurs less frequently and new digital communication channels, namely, social media platforms, play a critical role in news dissemination. Moreover, they not only provide solutions to inform about campaign practices, but to simultaneously engage supporters. This indicates the importance of digital communication practices. However, selection of digital channels poses critical questions regarding Greenpeace's moral credibility (e.g., data privacy or environmental impact) and the plurality of digital channels adds complexity because Greenpeace may require operating multiple ones to reach different groups of supporters. Hence, digital transformation shifts Greenpeace's communication practices to digital channels, which poses critical ethical (i.e., moral credibility) and operational (i.e., which platforms) questions.





5

**QUO VADIS
DIGITAL-SUSTAINABLE
CO-TRANSFORMATION?**

5 QUO VADIS DIGITAL–SUSTAINABLE CO-TRANSFORMATION?

This section reflects the status quo of Greenpeace’s digital transformation against the notion of digital–sustainable co-transformation. This leads to considerations on the **nature of co-transformation** as requiring organisations to **balance value tensions** among the four dimensions of digital–sustainable co-transformation. For this, this case study provides **learnings on sustainable IS**, **learnings on value-based management** and **learnings on digital–sustainable co-transformation of organisational core activities**.

5.1 THE NATURE OF CO-TRANSFORMATION: BALANCING VALUE TENSIONS

The case study shows that Greenpeace’s digital–sustainable co-transformation produces value tensions. Co-transformation introduces the triple bottom line of sustainability (i.e., environmental, social and economic) to organisational decisions on digital transformation. Compared to digital transformation, which predominantly emphasises how technology relates to the economic dimension, co-transformation treats sustainability and digital transformation as one strategic concern. The case study shows that this fusion into one concern requires decision makers to balance value tensions among four value dimensions of co-transformation: the three dimensions of the triple bottom line and the technology dimension of digital transformation. These value tensions emerge as **valuations of decisions for co-transformation compete**. Here, valuation refers to ascribing values to decisions, meaning, which values these decisions realise (Stahl, 2024; Stahl et al., 2019).

Co-transformation decisions arise when organisations select digital technology to implement changes to their processes and core activities. For example, when choosing between two cloud providers, cloud provider A can value at better environmental sustainability but impedes technical integration (value tension between environment and technology dimensions); provider B can value to offer better collaboration services (economic dimension) but to operate an ethically questionable business model (social dimension). This leaves decision makers to choose the least bad option from competing decisions that cannot realise all desired values across the four dimensions (i.e., least bad view in decision making) or to balance decisions’ impact on these four value dimensions across multiple decisions (i.e., portfolio view in decision making). These value tensions underlie co-transformation decisions and present **value tensions of digital sustainability** (see Figure 6).

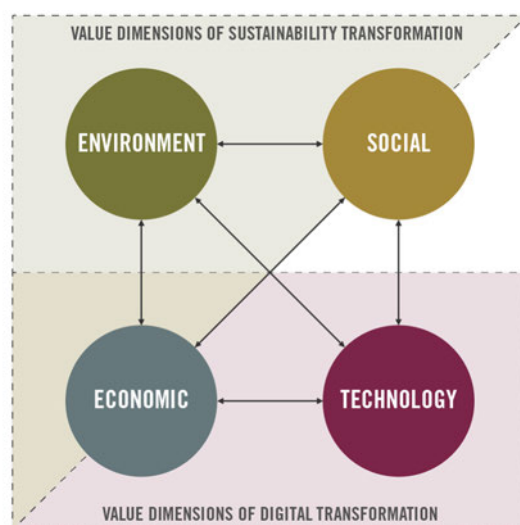


FIGURE 6. VALUE TENSIONS OF DIGITAL SUSTAINABILITY AMONG THE FOUR VALUE DIMENSIONS OF CO-TRANSFORMATION

The case study shows that co-transformation decisions require organisational decision makers to consider how these decisions help their organisation realise values of digital and/or sustainability transformation. While digital technology can help organisations realise values within the three sustainability dimensions (e.g., using digital technology for circular economy can realise values within the environmental sustainability dimension), it can undermine values of sustainability (e.g., generative AI can amplify biases, which violates values within the social sustainability dimension). However, deciding for sustainability can also impede the value dimensions of digital transformation (e.g., choosing sustainable but technically less advanced hardware or applications that require more maintenance). Accordingly, value ascriptions of co-transformation decisions eventually lead to **value tensions of digital sustainability among four value dimensions of co-transformation**, namely, environment, social, economic and technology dimension (see Figure 6).

■ FROM THE FIELD: VALUE TENSIONS IN USING GENERATIVE AI

Greenpeace internally discusses the use of generative AI. On the one hand, generative AI can speed-up administrative or campaigning practices. On the other hand, training and operating the underlying machine learning models consumes vast amounts of energy. Moreover, generative AI applications can amplify biases leading to discrimination. Hence, while generative AI can help Greenpeace speed-up campaigns and by this, accomplish campaign objectives to positively impact environmental and social sustainability faster than before, their use of this technology has environmental and societal impacts that emphasise the importance of considering the net effect of using generative AI. This illustrates the inherent value tensions of digital–sustainable co-transformation decisions and underscores the need to find ways to assess and compare generative AI’s impact on the value dimensions of co-transformation for deciding on the use or non-use of generative AI; and in the case of Greenpeace, campaigning on generative AI’s sustainability issues.

Value tensions of digital sustainability emerge from stakeholders' different value ascriptions. The interviews show that Greenpeace members ascribe values (e.g., environmental or social sustainability, campaign impact, and others) ingrained in its organisational identity to co-transformation decisions. Depending on their ascription, they evaluate these decisions. This **process of valuation**—evaluating decisions based on ascribed values—reflects in interview statements such as “choosing the least bad option among bad options” or “choosing the campaign with the greatest lever.” When referring to “these values” it is important to emphasise that these **values are context-specific and depend on the involved stakeholders** (Stahl, 2024; Zimmer et al., 2023).

At Greenpeace, these ascriptions occur as part of organisational processes (e.g., employees, managers or committees ascribe values to competing sourcing options for IT hardware) or from discussion forums (e.g., employees discuss about emerging trends and how Greenpeace should position itself toward them). Depending on the type of decision, Greenpeace has defined responsibilities on who (i.e., which managerial role or committee) makes the final call. Thus, stakeholders, who ascribe values, can be part of Greenpeace (e.g., managers, employees, members, etc.) or, for example, in case of campaigns, they can be campaign targets, governmental actors, etc. Thus, the values that underpin valuation depend on the involved stakeholders and context. Hence, taking co-transformation decisions presents two challenges: first, **identifying the involved stakeholders and their values** and second, **comparing decisions' potential to realize (or not realize, if not even undermine) these values.**

FROM THE FIELD: VALUE TENSIONS IN REFURBISHED HARDWARE

Greenpeace Germany sources refurbished hardware for end-user devices such as laptops and smartphones but also infrastructure components such as switches. They took this decision because sourcing refurbished hardware improves the environmental sustainability of the NGO's IT operation. However, refurbished hardware means to not always run on the latest technology, which can hold back performance or using new applications. Moreover, governing refurbished hardware required IT management at Greenpeace Germany to rethink how they manage and track refurbished devices. Choosing the better sustainability of refurbished hardware (compared to new hardware), IT management decided to start sourcing refurbished laptops. This pilot project revealed that managing refurbished devices requires IT to re-think sourcing criteria and device management. For instance, they moved from sourcing multiple devices with the same specs to sourcing refurbished devices based on the smallest common denominator of specs. This was critical to ensure compatibility with docking stations, operating systems and overall integration into the existing IT infrastructure. After successfully completing their pilot project, IT management decided to include infrastructure components into their refurbished sourcing program. Here, they stated doubts on the durability of refurbished infrastructure components. To keep an eye on this and account for the possibility that their value ascriptions may change, they set-up regular re-evaluations of their refurbished sourcing decision to assess whether this decision helps Greenpeace to accomplish its values of environmental, social and economic sustainability. To date, Greenpeace Germany stills sources refurbished hardware.

Moreover, value tensions can alter (or emerge) as **valuations of decisions or values can change over time**. For example, when Greenpeace switched to repairable smartphones, they re-validated this decision, when the operation of these smartphones showed that the desired value (i.e., repairability) could not be realised. This re-valuation led to reverting their decision (i.e., value change view in decision making). Similarly, their valuation of campaign topics (i.e., which campaign has the greatest lever on sustainability) can change over time. This reflects in the increasing importance of campaigns on digital sustainability. Digital enters all aspects of society and economy. The underlying technological advancements often pose new or intensify existing environmental or social issues (e.g., AI's energy hunger). Hence, decisions for co-transformation require means to assess and balance competing valuations and decision makers must consider that values, valuations and consequently, the resulting value tensions, can change over time. This requires projecting decisions into the future to assess how their impact could unfold and produce new value tensions or resolve present tensions (i.e., projection view in decision making).

5.2 LEARNINGS ON DIGITAL SUSTAINABILITY: CO-TRANSFORMATION BASELINE

The case study shows that Greenpeace views digital sustainability (i.e., Green IT and Green IS) activities as the baseline of their co-transformation. Digital sustainability activities manage the triple bottom line of IT hardware and IT services as well as the design and use of digital technology to support sustainable organisational practices. They ensure that organisations' digital infrastructure is **configured to operate (most) sustainably**. This addresses the digital sustainability dilemma underlying any co-transformation initiative. Hence, **digital sustainability activities are the baseline for digital-sustainable co-transformation**.

FROM THE FIELD: WHY GREENPEACE SPEAKS OF DIGITAL SUSTAINABILITY

The terms "Green IT" or "Green IS" suggest that IT or IS could be green. However, green emphasises environmental sustainability and, if green means without environmental impact, interviewees at Greenpeace stated that this was misleading: "IT can't be green, but we can improve its sustainability." Therefore, Greenpeace speaks of digital sustainability to underscore that respective activities seek to operate IT most sustainably as well as use IS to facilitate sustainable organisational practice.

Greenpeace's co-transformation provides three key learnings on digital sustainability activities. Jointly, these learnings reflect a process toward establishing an organisational digital sustainability process aimed at implementing digital sustainability initiatives for improving organisational sustainability (see Figure 7).

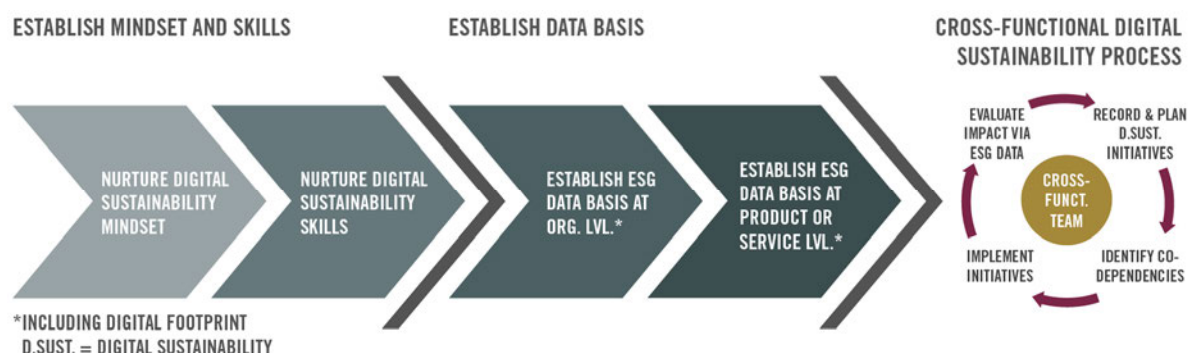


FIGURE 7. ESTABLISHING AN ORGANISATIONAL DIGITAL SUSTAINABILITY PROCESS

First, organisations should **nurture mindset and skills for digital sustainability**. Organisations with an **emerging digital sustainability mindset** should focus on establishing such a mindset. Employees must know and understand digital sustainability before they can recognize and act on respective issues in their daily routines. This involves digital sustainability issues regarding sourcing of IT and IS as well as their operation and use. Accordingly, not only IT staff but all employees require a digital sustainability mindset. Afterwards—or organisations with an **established digital sustainability mindset**, they should conduct employee training on skills for integrating digital sustainability activities into daily work routines. Greenpeace, for example, nurtures its members’ mindset and skills for digital sustainability through Digital Clean Up Days.

FROM THE FIELD: HOW GREENPEACE’S DIGITAL CLEAN UP DAYS NURTURES DIGITAL SUSTAINABILITY

Greenpeace regularly conducts Digital Clean Up Days. At first, the NGO organised these Digital Clean Up Days as asynchronous events. They informed and prompted members via central communication to think about the impact of their digital activities and to start reducing their impact by deleting unused data. Later, Greenpeace extended these Days into team events, where teams collected unused hardware, cleaned up their shared drive, or participated in sustainability trainings. These events established a digital sustainability mindset among Greenpeace’s members. For example, afterwards, Greenpeace’s engagement team established a regular routine to track supporters’ interaction with Greenpeace’s newsletter. If supporters stop interacting with these newsletters, the engagement team removes these supports from the mailing list to save on energy consumption and greenhouse gas emissions from email traffic. Thus, conducting multiple Digital Clean Up Days annually, Greenpeace seeks to nurture its members’ mindset and skills for sustainable IS.

Second, organisations should **establish data basis at the organisational level of their status quo of environmental and social governance (ESG)** including scope 3 emissions and digital footprint. This data basis can facilitate discussions on the status quo and governance of organisation-wide digital–sustainable co-transformation processes. That is, this data can help recognize value tensions of digital sustainability as well as making

the involved values and their realisation (or undermining) comparable. This data basis should extend to **aggregation of ESG data** (including scope 3 emissions and digital footprint) at **product or service level**. Organisation-wide data facilitates governance of organisations' co-transformation process. However, taking co-transformation decisions to the next level, that is, co-transformation of core activities that develop, operate or deliver product or services requires transparency on the ESG footprint of such individual products or services. Thus, after establishing data basis for organisation-wide ESG, organisations should extend this sustainable IS activity to enable aggregation of data at product or service level. This aggregation can then inform decisions on improving products', or services' sustainability. For instance, organisations can start from products or services with the greatest CO2 footprint, identify reasons for this CO2 footprint as well as measures for reducing it.

■ FROM THE FIELD: HOW GREENPEACE GERMANY OBTAINS SCOPE 3 EMISSIONS DATA

Greenpeace Germany asks their suppliers to fill-in an online form on their greenhouse gas emissions. This form includes questions to assess suppliers' digital footprint. After collecting these forms, Greenpeace aggregates its suppliers' responses to calculate its scope 3 emissions. Moreover, the NGO tracks its digital footprint using supplier data, if available. For example, some cloud providers like Microsoft Azure, Microsoft 365, Google Cloud Services and German Telekom provide data for their clients' use of cloud services. But even if suppliers cannot provide this data, organisations can calculate estimates based on expenses and publicly available emission factors². Among Greenpeace's members this established data-awareness for value tensions of digital sustainability. That is, they recognized the importance of capturing and assessing data on these value tensions to make informed decisions on balancing or resolving such tensions.

Third, tackling the digital sustainability dilemma and the co-transformation value-tensions organisation-wide requires a **cross-functional digital sustainability process**. For example, Greenpeace set up a cross-functional team that plans and evaluates organisational initiatives regarding their impact on the NGO's four co-transformation dimensions. This allows the NGO to identify co-dependencies among initiatives in individual functions and to govern these toward improving organisational level sustainability rather than individual functions' sustainability. The established data basis is mission critical for this digital sustainability process since this data allows for identifying critical sustainability issues, comparing initiatives and evaluating their impact. Hence, the established data basis and cross-functional collaboration is mission critical for making co-transformation decisions that improve organisations' net-impact on sustainability.

² For example, Carbon Saver Ltd. provides a database for scope 3 emissions factors based on official UK government data: https://www.carbonsaver.org/scope3_factors.php. The official UK government report: <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2024>.

5.3 LEARNINGS ON VALUE-BASED MANAGEMENT: GOVERNING CO-TRANSFORMATION

Digital-sustainable co-transformation requires organisations to choose from decision options that exhibit value tensions. The case study shows that often none of the available decision options realise values within all four co-transformation dimensions. That is, they undermine or exhibit conflicts among these four dimensions (note: absence of value realisation means undermining this value). Hence, governing co-transformation and the underlying value tensions of digital sustainability requires organisations to establish value-based transformation management. **Value-based transformation management** means involving and being responsive to stakeholders, recognizing and identifying competing valuations of possible decision options among these stakeholders and making decisions that strike a balance across the four co-transformation dimensions. Striking this balance, the case study shows that Greenpeace takes four views in decision making: least bad view, portfolio view, projection view, and value change view. Figure 8 illustrates these four views in decision making.

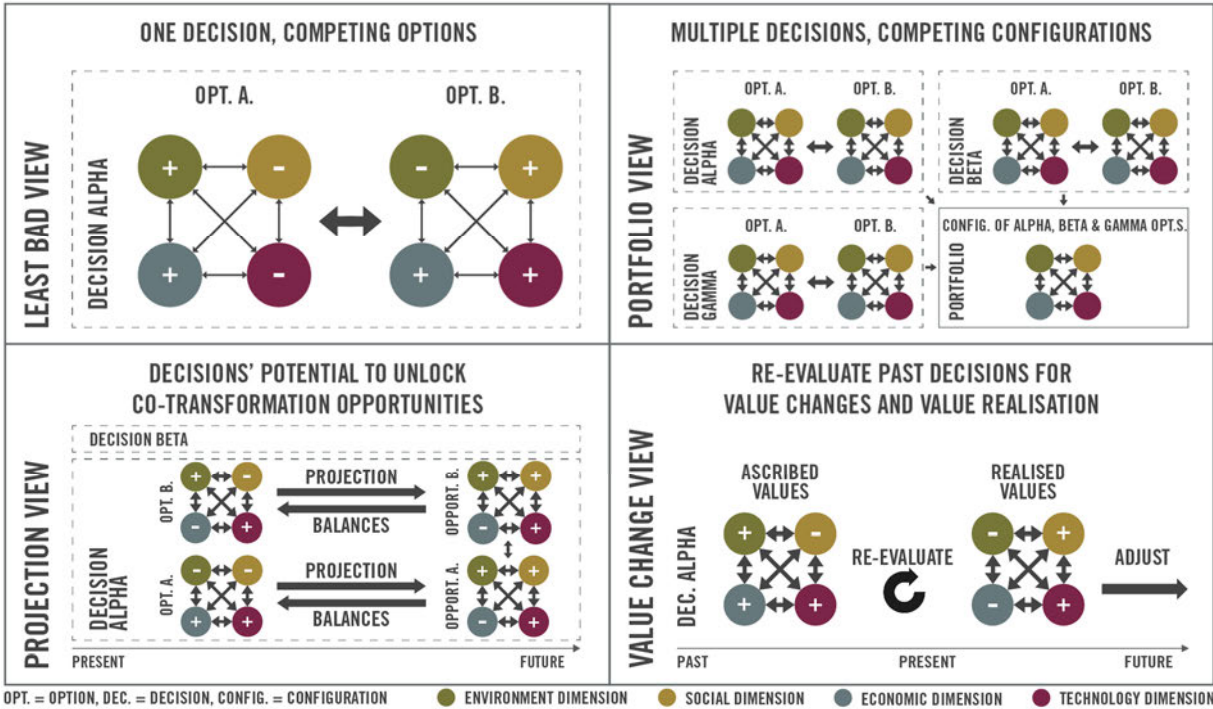


FIGURE 8. THE FOUR VIEWS IN DECISION MAKING FOR BALANCING CO-TRANSFORMATION DIMENSIONS

The **least bad view** applies when taking decision individually, that is, choosing the decision that exhibits the least bad value tensions of all available options. The **portfolio view** considers multiple separate decisions that can (but must not) exert co-dependencies. This view seeks to balance value tensions across this portfolio of separate decisions rather than choosing the least bad option for each decision individually. The **projection view** assesses how decisions taken in the present will unfold in the future; what future implications on the co-transformation dimensions will this decision have? This can

produce foresight of decision options that may seem unfavourable in the present but unlock future opportunities for co-transformation. Similarly, this can reveal decisions options favourable in the present as producing new or additional value tensions in the future. The **value change view** emphasizes that values can change and/or valuations of decision options can turn out as misconceived once implemented and operated. Accordingly, this view involves re-evaluating past decisions and comparing ascribed and realised values as well as taking adjustments; if necessary. This requires documenting decisions and setting intervals for re-evaluation.

Before organisations can use these views on their co-transformation decision making, they must establish value-based transformation management. The case study of Greenpeace suggests the following learnings on **establishing value-based transformation management** (see Figure 9), which organisations can apply to **governance of co-transformation decisions** and **supplier management** (see Figure 10).

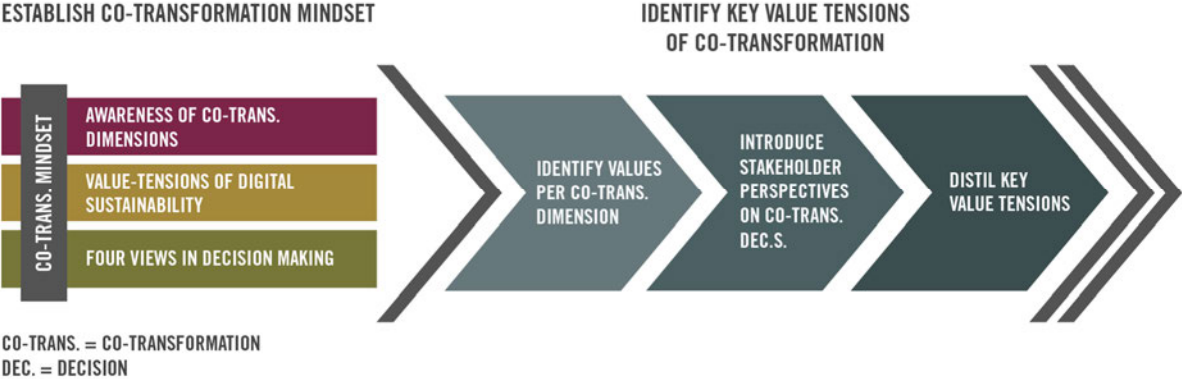


FIGURE 9. ESTABLISHING VALUE-BASE TRANSFORMATION MANAGEMENT: MINDSET AND KEY VALUE TENSIONS

Organisations with an **emerging co-transformation mindset** should nurture decision makers to nurture and hone their co-transformation mindset. This means establishing awareness among decision makers for the four dimensions of co-transformation, the inherent value tensions of digital sustainability, and the four views in decision making on these value tensions. Greenpeace started this process by assessing their status quo via a SWOT analysis on how they currently handle co-transformation of digital and sustainability. Subsequently, they identified values per dimensions of the four co-transformation dimensions that they recognize in past or ongoing co-transformation decisions regarding their structure, processes and core-activities. They then introduced stakeholder perspectives considering different personas and roles within and outside Greenpeace and how they would value respective co-transformation decisions. From this, they distilled key value tensions inherent to the digital–sustainable co-transformation of their organisation’s identity, structure, processes and core activities. The resulting co-transformation mindset and awareness of the organisation’s status quo and key value tensions presents a prerequisite for ascribing values and choosing among competing co-transformation decisions.

FROM THE FIELD: HOW GREENPEACE CREATES VALUE SHEETS OF KEY TENSIONS OF THEIR CO-TRANSFORMATION

Greenpeace created value sheets of the key tensions that the NGO identified for their co-transformation. These value sheets state and outline the respective key tension, for example, Greenpeace is not part of the technology system change (i.e., key tensions statement). The value sheet describes this tension as Greenpeace cannot change the technology system and the digital technology that this system develops and disseminates nor the digital transformation of economy or society that these technologies trigger. However, their campaigns target this system aiming at transforming it to an economy for common good. Since these campaigns use the digital technology that this system produces, Greenpeace faces the tension between ethical aspiration (“not use big tech at all”) vs. solution-oriented/impactful campaigning (“use it but challenge it and tie its use to our digital sustainability ambitions”). This tension exhibits values of justice and credibility that reemerge when Greenpeace discusses Big-Tech companies’ monopoly, business models and how the NGO buys into these when using their digital technology (e.g., social media platforms, advertisements, etc.) to reach supporters about campaign topics. Lastly, the value sheet contains a qualitative assessment of the status quo of how Greenpeace handles this key tension, which also states target state for this tension.

Afterwards—or organisations with an **established sustainability mindset**, they should define policies for governing co-transformation based on identified key value tensions. These policies define who—managerial roles, committees, etc.—take which decisions and who must be involved—which stakeholders—when discussing and assessing competing decisions value ascriptions. These discussions should assess decisions’ impact on the four co-transformation dimensions and build on the value sheets and how these define the organisations positioning toward respective key tensions. When considering the inherent key tension, decision makers can consider the four views in co-transformation decision making. Moreover, they should document the reasoning for decisions and define regular intervals for re-evaluation and how to adjust or even revert decisions based on changing valuations.

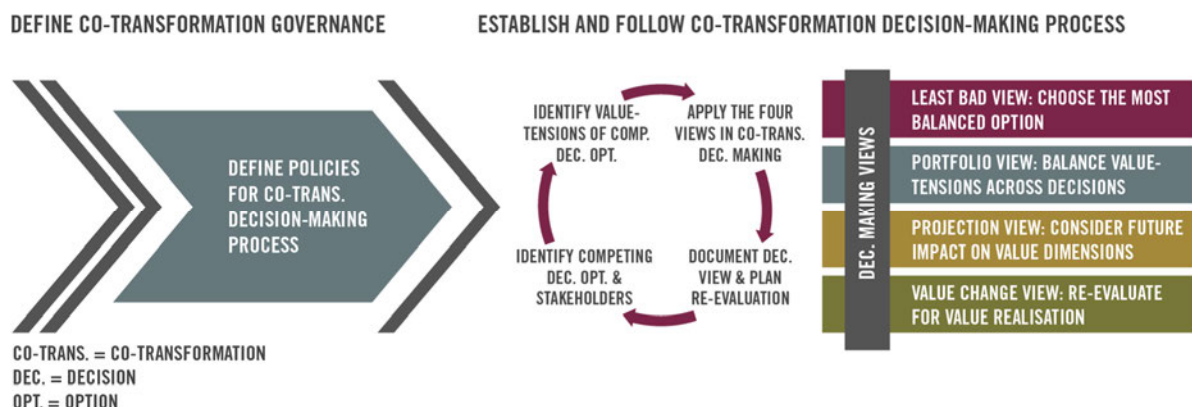


FIGURE 10. ESTABLISHING VALUE-BASE TRANSFORMATION MANAGEMENT: CO-TRANSFORMATION DECISION MAKING

FROM THE FIELD: HOW GREENPEACE DECIDES ON KEY TENSIONS OF SOCIAL MEDIA USE

Greenpeace faces a key tension when deciding on the use of social media platforms for digital campaigning practices. Using these platforms means buying into their operators' business models, which often push data protection laws to the fringes. At the same time, Greenpeace recognizes the importance of communicating on these platforms for engaging with the NGO's supporters and mobilizing them to join in forms of confrontation. This decision—using social media and which platforms—affects multiple stakeholders within and outside Greenpeace. Internally, campaigners, fundraising, engagement and IT are relevant stakeholders in this decision. Externally, Greenpeace volunteers, different supporter segments, or campaign targets and their social media use are relevant considerations. Greenpeace considers these stakeholders' views and preferences, the impact of the NGO's social media use (per platform) on its co-transformation dimensions (e.g., how specific platforms or communication practices improve campaign impact), when deciding on this key tension of social media use. They also regularly re-evaluate this decision for which they conduct surveys among volunteers and supporters as well as run A/B tests on communication and engagement practices. While Greenpeace discusses this matter internally, social media use lies within engagement and thus, they make the final decision after considering stakeholders' views on the competing options as well as different social media platforms' footprint of greenhouse gas emissions.

Greenpeace applies value-based management to its supplier management. **Value-based supplier management** refers to managing supplier selection and relationships based on organisations' defined values and key tensions of their co-transformation. Supplier relationships take time to build and assessing suppliers' goods and services in terms of quality and sustainability requires trust. Building these relationships through value-based supplier management can help establish trust and by this, long-standing and healthy supplier relationships.

Value-based supplier management requires organisations to establish data basis on suppliers' ESG (see Learnings on Digital Sustainability). Moreover, organisations with an **emerging co-transformation mindset** should nurture a co-transformation mindset among their procurement staff and hone their skills to identify and assess value tensions of digital sustainability among their suppliers or competing supplier options.

Afterwards—or organisations with an **established sustainability mindset**, they should unlock value-based supplier management where procurement staff makes decisions on suppliers that balance involved value tensions or even advise suppliers on possibilities for improving their sustainability. This can involve calculating business cases for suppliers based on CO2 tax (if applicable), which can also trigger negotiations with suppliers on how they can reduce their CO2 emissions. This improves the sustainability of suppliers' entire client network.

FROM THE FIELD: HOW GREENPEACE PRACTICES VALUE-BASED SUPPLIER MANAGEMENT

Greenpeace Germany uses its supplier questionnaire not only for reporting the NRO's ESG figures but for value-based supplier management. They ask suppliers to provide strategic plans for reducing their CO2 emissions over the next years. Moreover, Greenpeace Germany engages in talks with suppliers on how they can improve their sustainability impact by, for instance, switching their energy provider or cloud hosting location. Taking supplier decisions, the NGO considers not only economic factors such as expenses or suppliers service level, but also their sustainability impact. These activities not only improve Greenpeace Germany's ESG figures but that of their suppliers and their client network. They also contribute to a positive client-supplier relationship.

5.4 LEARNINGS ON CO-TRANSFORMATION OF CORE ACTIVITIES

Digital–sustainable co-transformation changes organisations' core activities. That is, co-transformation aims at **improving organisations' core activities** regarding the **four co-transformation dimensions**. The nature of these core activities depends on the type of organisation that engages in co-transformation. Organisations with core activities focusing on creating and offering products or services face different changes and value tensions than organisations with core activities focusing on campaigning or more generally, on contributing to society in a non-profit manner (like Greenpeace). Moreover, their sustainability mindset—whether emerging or established—indicates the existing integration of sustainability into their organisational practices.

Digital–sustainable co-transformation of core activities requires organisations to strategize a **three-layered co-transformation process**. The first two layers—or baseline—pertain to digital sustainability and comprise of Green IT and Green IS. The third layer refers to co-transforming organisations' core activities via sustainable digital innovations and building a sustainable, digital organisational identity (see Figure 11). Accordingly, organisations engaging in co-transformation should strategize for transformation initiatives in and across these three layers and how these initiatives can improve their sustainability impact.



FIGURE 11. THREE-LAYERED DIGITAL-SUSTAINABLE CO-TRANSFORMATION STRATEGY PROCESS

Organisations with an **emerging digital sustainability mindset** should start by establishing a strategy process that charts a path for transforming their organisational IT infrastructure and organisational processes through digital sustainability activities. These transformations should establish a digital sustainability process and thus, the baseline and data basis for co-transformation initiatives.

Afterwards—or organisations with an **established sustainability mindset**, they should build on this internal data basis and complementary external market data to envision how they can innovate their core activities using digital technology to co-transform these activities and become a sustainable digital organisation. For example, organisations can match core activities that create specific products (or services) to these products' (or services') revenue and ESG footprint. This provides the basis for asking:

- How does greater turnover impact these products' (or services') ESG-footprint (proportional increase or remains level)?
- How can use of digital technology reduce these products' (and services') ESG-footprint?

Moreover, when it comes to organisations' strategy and market positioning, managers can ask:

- How their organisation benefits from positioning as an early adapter of new digital technology, vs.
- mindfully adapting digital technology for positive environmental and social impact?
- Whether their organisation targets cost efficiency at the expense of environmental and social impact?

FROM THE FIELD: CO-TRANSFORMATION OF GREENPEACE'S CORE ACTIVITIES

Greenpeace's co-transformation changes the NGO's core activity of campaigning. The interviews suggest a **threefold campaign classification**: offline, hybrid and digital campaigns; the difference lies in the dominant modus of activism. **Offline campaigns** comprise campaigning practices of offline activism paired with communication and engagement practices both offline and digital. **Hybrid campaigns** combine classic campaigning practices with digital campaigning practices. However, the digital campaigning practices complement the offline ones, that is, these campaigns' modus of activism is offline first but extends online. **Digital campaigns** build on digital activism first. Digital campaigns thus differ from hybrid campaigns in that they plan and start from digital activism—online first—to create pressure but extend to selected forms of offline activism. Similarly, communication and engagement are dominantly digital. Why does this matter to a campaigning organisation like Greenpeace?

Digital campaigns may allow for new internal collaborations and global campaigns. Digital campaign practices can be conducted from anywhere and anytime. This creates opportunities to explore new internal collaborations across NROs to engage in global digital campaigns. This may lead to a **digital campaigning ecosystem** that involves internal and external partners to create digital resources for digital activism, communication and engagement. The goal: these digital resources can be re-used to save resources and create continuity across campaigns. That is, these resources **should be malleable or designed for reusability and joint use by Greenpeace's national and regional offices (NROs) and other NGOs**³. Reusability improves the environmental sustainability of digital campaigning, while the design for joint use avoids spending on similar digital resources as well as provides opportunities for leveraging synergies among NROs. These synergies from global digital campaigns require NGOs like Greenpeace to establish organisational structures and processes that can support and facilitate such campaigns. For example, establishing awareness for the sustainability issues in different regions and how these issues link and potentially reinforce each other. Accordingly, such campaigns can enable addressing the complexity of interplaying sustainability issues.

³ For example, Greenpeace Nordic provides <https://digital-activist.org> to grassroot movements



6

CONCLUSION

6 CONCLUSION

This case study investigated Greenpeace's digital transformation as digital–sustainable co-transformation. The insights show that addressing sustainability and digital transformation as one strategic concern, requires organisations to consider four value dimensions: environment, social, technology, and economic dimension. Thus, co-transformation means triggering changes to organisational structures, processes and core activities to improve organisational impact on these four dimensions. Greenpeace's co-transformation demonstrates that this produces value tensions of digital sustainability. That is, tensions among the four value dimensions of co-transformation.

To address these value tensions of digital sustainability, Greenpeace established a cross-functional digital sustainability process and value-based management for governing co-transformation. The first provides the baseline for digital–sustainable co-transformation, that is, sustainably operated digital technology and data basis for assessing co-transformation decisions' impact. The second integrates the four value dimensions of co-transformation into Greenpeace's decision-making processes. Both guide Greenpeace's co-transformation of core activities making strategizing for digital–sustainable co-transformation a three-layered process comprising of Green IT, Green IS (subsumed as digital sustainability) and sustainable, digital innovations.

Hence, this case study shows that recognizing sustainability and digital transformation as one digital–sustainable co-transformation introduces complexity into organisational decision-making processes. This complexity requires value-based governance that identifies values, values decision options according to these values, recognises key value tensions and balances these tensions across co-transformation decisions. Managers must find ways to establish such governance in their organisations' decision-making processes.

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LIST OF FIGURES

FIGURE 1. THE DIGITAL SUSTAINABILITY DILEMMA 8

FIGURE 2. DIGITAL–SUSTAINABLE CO-TRANSFORMATION FRAMEWORK..... 10

FIGURE 3. GREENPEACE'S GREEN IT GOVERNANCE AND ACTIVITIES PER GREEN IT LAYER..... 19

FIGURE 4. GREENPEACE'S GREEN IS ACTIVITIES FOR DATA-DRIVEN ORGANISATION-WIDE SUSTAINABILITY TRANSFORMATION..... 24

FIGURE 5. GREENPEACE'S DIGITAL TRANSFORMATION OF ACTIVITIES OF CAMPAIGNING 29

FIGURE 6. VALUE TENSIONS OF DIGITAL SUSTAINABILITY AMONG THE FOUR VALUE DIMENSIONS OF CO-TRANSFORMATION..... 36

FIGURE 7. ESTABLISHING AN ORGANISATIONAL DIGITAL SUSTAINABILITY PROCESS..... 39

FIGURE 8. THE FOUR VIEWS IN DECISION MAKING FOR BALANCING CO-TRANSFORMATION DIMENSIONS... 41

FIGURE 9. ESTABLISHING VALUE-BASE TRANSFORMATION MANAGEMENT: MINDSET AND KEY VALUE TENSIONS 42

FIGURE 10. ESTABLISHING VALUE-BASE TRANSFORMATION MANAGEMENT: CO-TRANSFORMATION DECISION MAKING 43

FIGURE 11. THREE-LAYERED DIGITAL–SUSTAINABLE CO-TRANSFORMATION STRATEGY PROCESS 46

LIST OF TABLES

TABLE 1. OVERVIEW OF INTERVIEWEES, THEIR ROLE AT GREENPEACE AND INTERVIEW DURATION..... 13

TABLE 2. IDENTIFIED THEMES ON STATUS QUO OF GREENPEACE’S DIGITAL TRANSFORMATION AND QUO VADIS OF DIGITAL–SUSTAINABLE CO-TRANSFORMATION..... 15

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