Becoming Sustainable Together:

ESG Data Commons for Fintech Startups

Short Paper

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Abstract

Environmental, social, and corporate governance (ESG) reporting has become an important instrument for the sustainable transition of the next generation of business-startup. Nonetheless, poor ESG data quality impedes effective reporting, especially in domains such as Fintech where top-down ESG metrics may overlook pertinent material issues. This action research study applies a design probe in the form of the notion of an ESG data commons to explore possible strategies to improve ESG data quality in Fintech startup. By reporting on the initial results of an ongoing study of a Danish Fintech startup cluster, we develop a practice-based approach that highlights the changing processes, teleoaffective structures, and sociomaterial dynamics of ESG data commons. We contribute to information systems (IS) research in two areas. First, we contribute to the call for a data-driven approach to ESG reporting. Second, the study extends the IS design literature by applying data commons as a design probe.

Keywords: ESG, data commons, startup, Fintech, practice theory, action research

Introduction

The growing concern for the environmental and societal impact of investment activities has resulted in pressure from both policy and market to ensure the sustainability of future businesses (Bogers et al. 2020). For example, the EU actively strives for sustainable economic reconstruction, reforming the financial system in line with the principles of sustainable development (Janicka and Sajnóg 2022). As a result, new regulations on impact investment and sustainable corporate reporting have mushroomed (Arvidsson and Dumay 2022), and corporate strategies increasingly take environmental (E), social (S), and governance (G) factors into account (Esty & Cort 2020; Nirino et al. 2021; Raimo et al. 2020). ESG reporting can be broadly defined as the disclosure of non-financial information of business impact in the areas of environmental, social and corporate governance for investors, customers, and wider stakeholders (United Nations Global Compact n.d.). The quality of the resulting ESG data is key to establishing baseline, identifying benchmarks, setting goals, and tracking business performance in sustainability. Despite the growing interest in ESG reporting, it is preceded by similar concepts around sustainability reporting such as the Triple Bottom Line (i.e., people, planet and profit) and corporate social responsibility. Nonetheless, ESG is particularly relevant for the IS community as it is linked to the data-driven and analytics-based approach to track businesses' sustainability performance.

In principle, ESG data aims to aid investors' decision-making by substantiating businesses' sustainability performance. For instance, in the Fintech sector, which employs digital technologies in financial services, an increasing number of venture capital investors screen Fintech companies' ESG performance prior to their investment decisions. Nonetheless, ESG data do not always play a major role in the current investment decision-making due to the lack of data availability and accuracy as well as feasibility of implementing ESG reporting in startups.

We argue these barriers are a result of top-down designed ESG reporting: first, policy-based, or global standard-setting ESG metrics lack specific dimensions and data requirements that are pertinent to the material issues in the industry such as Fintech (Esty and Cort 2020). Second, existing ESG reporting requirements in policies and global standards are often designed for the data capacities in large or mid-sized companies, neglecting the conditions and needs of early-stage Fintech startups with few resources and lacking know-how (Principles for Responsible Investment 2022). As such, ESG data does not always represent the accurate sustainability performance of businesses or fulfill its promises to steer the sustainable transition of the next generation of business - startup. Neglecting the relevance of contexts such as company's size, location and industry for ESG reporting can lead to risks such as greenwashing (Kurtz 2020) and public deception (Kotsantonis and Serafeim 2019).

Despite the increasing concern among both practitioners and academics on ESG data for specific business contexts (e.g., Vergara and Agudo 2021), knowledge about the information systems that generate ESG data is largely absent in the IS literature (Melville 2010; Seidel et al. 2013). An exception is a recent special issue on analytics-driven approach to societal changes in the Journal of Association for Information Systems (Ketter et al. 2020). A few IS researchers pointed out that while the increasing availability of large-scale ESG data affords opportunities for IS design in sustainability transformation, it also introduces methodological and data integration issues that impedes such data yielding meaningful insights.

This call-for-research prompts us to look into the literature in participatory design, which emphasizes collaborative partnerships in enacting change (Dittrich et al. 2002; Gregory 2003; Teli et al. 2017). We are particularly inspired by the notion of data commons, which focuses on creating common good (e.g., climate action) by pooling and utilizing available data. In our study, we follow the definition of data commons as an infrastructure that support the collection, storage, sharing, analysis, and management of data with the end goal of creating a common pool of data within a specific community. Existing research largely builds upon Ostrom (1990) 's work on the organization and governance of common pool resources such as pastures and fisheries, and focuses on the design considerations in the governance principles and the technical infrastructure of data commons (Grossman et al. 2016). For instance, Contreras and Reichman (2015) 's research on data commons pointed out that while centralized data repositories with curation, analytics, and quality control can significantly enhance the value of the data they contain (e.g., a centralized register for ESG data in the EU), identifying centralized standards may be impractical due to political, legal and organizational issues. They argue that more distributed structure (e.g., single-access portal connected to multiple independent repositories), which have more flexibility in adapting to local needs, may offer more meaningful results with lower cost yet higher resource commitment. A more distributed commons approach that is sensitive to context is particularly important for ESG data as they are not ready-to-be managed resources due to difficulties in curating universally relevant ESG metrics (Evans 2016; Zygmuntowski et al. 2021).

In this study, we apply the notion of a data commons as a conceptual design probe (Brandt et al. 2012). A data commons probe allows us to envision the design of data-driven ESG reporting as co-construction of knowledge in analysis and co-construction of changes in social practices with Fintech startups as a specific business community. It helps us to move away from top-down IS design that attempts to model hard-to-achieve centralized ESG data standards into reporting systems. We further adopt a practice-based approach that enables us to map the potential consequences of our design probe. Empirically, we have done so in a 7-month action research study (February – August 2022) that aimed to design a digital ESG reporting infrastructure for Fintech startups, together with a Fintech cluster, a venture capitalist investor, and an ESG reporting platform and data provider in Denmark. In this context we ask: *What processes, goals, and material structures emerge when pursuing a data-driven ESG commons in a Fintech Startup community?* Our findings contribute to the IS research in two areas. First, we contribute to the call for a data-driven approach to ESG reporting (Ketter et al. 2020) and Green IS research (Melville 2010; Seidel et al. 2013). Second, the study extends the IS design literature by applying data commons as a design probe.

A Practice-Based Approach to ESG Data Commons

Practices constitute the fundamental building blocks of our social reality (Feldman & Orlikowski 2011; Østerlund & Carlile 2005). Data commons and other structures are not made up of predefined entities external to one another. Instead, they come into being through everyday activities. Practices produce and reproduce social reality, make distinctions and draw boundaries. A practice-based approach highlights three aspects of data commons: (1) the change process, (2) the teleoaffective structures, and (3) the sociomaterial dynamics of development.

First, a practice-view allows us to approach data commons as an ongoing process where a nexus of doings and discourses unfold over time and space (Schatzki 1996). A data commons becomes more than a shared pool of resources managed by a set of stakeholders. Instead, we can conceive it as an ongoing collective becoming that produces and reproduces an ecosystem of data and metrics among a network of participants. Over time the data structures, actors, boundaries and metric evolve as the practices associated with a data commons adapt to situated contingencies. Data commons continually mutate into something else and as such they are as much defined by their current structure as unfolding structures of absences. In their early stages in particular, we can expect data commons to be as much "defined by what they are not (but will, at some point, have become) than by what they are" (Cetina 1997, p. 15).

Second, practices constitute teleoaffective structures (Schatzki 1996; Dittrich 2016) that go beyond explicit rules. Goals, ends, purposes and projects (i.e., telos) drive people's practices but so do beliefs, emotions, modes and motivations (i.e., affective). We can expect the same to be true when it comes to data commons. Stakeholders might share diverse goals when cooperating around data. At the same time, we can expect their actions to be driven by a range of beliefs and motivations associated with their data repository. They might share some of these motivations and desires, others not.

Third, a practice-based approach foregrounds the material and posits that the social and material are constitutively entangled in everyday life (Orlikowski 2007). We can expect the activities associated with a data commons to involve both social and material structures in the form of databases, design artifacts, objects and infrastructures. Nicolini et al. (2012) show how the information systems literature offers a number of sociomaterial approaches highlighting various aspects of the objects integral to organizational practices. These objects serve different purposes, and their roles might change over time (Nicolini et al. 2012). Some objects could be infrastructural in nature, taken for granted or "black-boxed," only becoming visible in case of breakdowns. Other types of objects include activity objects, epistemic objects and boundary objects. We can expect different types of objects to become central at different stages of a data commons.

From the outset several *activity objects* associated with each stakeholder group may stand out. Activity objects, or tools, provide direction, motivation and meaning for the activities they support (Engeström 2015). Their emerging nature makes them open to changes and mergers with other groups' activity objects. This can trigger creative remedial work, which can lead to learning, the production of new knowledge and practices (Nicolini et al. 2012). Some activity objects play a central role in a community's activity while others become part of the general infrastructure. The latter group of objects stand out as mundane artifacts supporting collaboration without highlighting boundaries or contested issues. In other words, we can expect a data commons to draw from an ecology of supporting objects of this type, spanning from email systems, homepages, data bases, etc. As system development gets under way, epistemic objects become important. Characterized by their lack of completeness, *epistemic objects* embody what one does not yet know (Rheinberger 2005). Epistemic objects allow heterogeneous groups to rally around the development of new knowledge (Cetina 1997). A void in our understanding of a common data need may motivate not only individuals in the Fintech space but also collectives in a communal search for new knowledge and data objects. *Boundary objects* emerge later when an artifact starts serving as a translation or transformation device at the boundary between different communities (Star & Griesemer 1989). They inhabit different social worlds where they satisfy the information requirements of each. They can do so by taking on different meanings in each community yet offering a common structure. In other words, boundary objects provide a common language that allows different communities to share their knowledge in a way that can be understood by their counterparts. It further allows different groups to learn about their differences and dependencies.

In short, we can expect that the building of a data commons is an ongoing process of collective becoming that involves the alignment of multiple communities, their goals, beliefs, and motivations. The development

process will likely engage a number of objects. Early on, each community's existing activity objects are relevant. Some of these might be infrastructural in nature and not in the center of attention. The development process will require the establishment of epistemic object that speaks to the teleoaffective structures of each community. Only as the data commons take form can we expect to see new boundary objects emerge that can serve as translation devices between different stakeholders.

Method

Early 2022, the local Fintech cluster organized a research and development innovation sprint and invited the research team to discuss the ESG reporting needs in the Fintech industry. This developed into a research project financed by the cluster to develop an ESG data framework for Fintech startups. The research design followed an action research approach (Checkland and Holwell 1998; Van de Ven 2007). The process started with preliminary research (1) to understand the domain is followed by (2) action planning, (3) implementation and observation of the action and (4) reflection on the process and the observed changes (Robson & McCartan 2016). The current article reports the initial results from the preliminary research. The idea is that based on the preliminary results, concrete interventions (e.g., workshops) will be designed at a later point to explore the suitability of data commons approaches to the co-construction of ESG reporting schemas and metadata providing a guide to implement these schemas.

The preliminary research in this case consists of interviews with representatives from relevant stakeholders and document analysis. We developed the interview guideline together with the industrial members of the project including members of a Fintech startup and a large venture capital fund. We also used these interviews to identify additional stakeholders whom we plan to interview later. The interviews seek to understand current ESG reporting practices, and pain points and needs from different stakeholders´ perspectives. In the interviews we asked participants to visualize the relationships between Fintech startup, cluster, venture capital, government, and relevant data objects. We used these visualizations to further explore and question their ESG commons imaginaries. Table 1 lists the conducted and analyzed interviews. The interviews took place either virtually or in person and were recorded and transcribed.

In addition, the research team obtained four venture-specific ESG frameworks from different actors in the ESG reporting space (i.e., Venture Capitals, ESG data and service providers, and ESG consultants). We identified the common denominators across these ESG frameworks and used them to tease out black-boxed data practices among our participants in the interviews.

Organization Type	Stakeholder/Role	Duration
ESG Data/Service Provider	Co-Founder	60mins
Startup 01	Founder and CEO	45mins
Investor	Investment Associate	60mins
Cluster	Head of Development	30mins
Startup 02	Co-Founder	30mins
Data/Service Provider 02	Senior Consultant	30mins

Table 1. An Overview of Conducted Interviews

Each interview and subsequent analysis included at least two research team members. We also discussed the preliminary findings with our industry partners. We applied a thematic analysis approach to our interview data. Specifically, we started with familiarizing with our data by taking and sharing notes across the author team, which resulted in a set of initial codes such as "neglected mid-level resources", "dispersive ESG definition and reporting styles", "existing reports on financial services", and related excerpts of interviews. We then organized and assembled these codes into broader themes such as "imaginaries of ESG", "ESG pain points", and "existing data practices". We further reflected on these themes and excerpts by testing different theoretical lenses and revised these themes. For instance, we added the "existing data objects" as a new theme based on our reflection on the existing data. Here, we strive to present as rich a description as possible given the space constraints to allow the reader to follow and criticize our analysis.

The concept of data commons, that we introduced together with the project in the beginning of the interview ended up functioning as a conceptual design probe (Brandt et al. 2012), offering an alternative to the top down developed ESG reporting practices and inviting our interview partners to envision an ESG reporting that supports startups to become more sustainable.

Findings

In this section, we present the outcome of our action research using the notion of ESG data commons as a design probe. A practice-based approach particularly allows us to explore three aspects of an ESG data commons: (1) the change process, (2) the teleoaffective structures, and (3) the sociomaterial dynamics of development. Our research partners included investors, ESG consultants, sustainability technology providers, Fintech cluster and startups. Following their changing discourses around ESG data, we elaborate on what (1) processes, (2) goals, and (3) material structures emerge when pursuing a data-driven ESG commons in a Fintech Startup community.

An On-going Process: Becoming an ESG Data Commons

In the email which the cluster contact sent to whom later became our industrial partners in venture capital and sustainability data, he expressed great enthusiasm, we "really hope this [research project] materializes as I think it's a super important topic and that we are in a unique global position to help define how to measure and work with sustainability for early-stage Fintech solutions from both founder and investor perspective." Later, it became clear that it was not a vision of a clearly defined, specific ESG data solution that drove the desire for an ESG data commons; but rather *an absence of the ESG data*, *a hope for a "better" solution,* and *the possibility of shaping a "better" solution*. This view was also raised by the two industrial partners in the project: The sustainability technology provider was motivated by the surprising discovery that ESG data didn't exist for non-listed companies. The other partner, who works in a sovereign fund, found the project idea attractive because other existing ESG reporting approaches are "still immature" and "there's no golden standard on how to do this yet."

The idea of an ESG data commons for a better ESG solution has helped fuel cooperation among the team members by stimulating an emotional bond, which further created solidarity between the research team and the industry partners and fueled high-paced progress. The project team assembled in less than two weeks, with industrial partners committed to participating in research meeting every second week, sharing contacts and their expertise on ESG data and practices. Our partners did not view the variety of disciplinary/professional expertise as competition of authority or interest. Rather, they saw collaboration between multiple stakeholders as a must for achieving the common pursuit of a better ESG reporting for Fintech startups. The head of development at the local Fintech cluster illustrated this sense of collectiveness in his introduction email to all the project partners: "I think a great potential constellation of this project would be [university] + [sovereign fund] + [sustainability technology provider] + [Fintech cluster]. The setup for this project would be that [Fintech cluster] funds the researchers' efforts, while you two contribute with market experience (time). The result will be public and non-proprietary."

Despite the shared desire for the ESG data commons to be a "better" ESG solution, terms such as ESG at this stage were used interchangeably with sustainability and social impacts by different partners. Data was vaguely related to access to datasets or data providers, without specifications of where these datasets came from, who provided the data, or how data were used. Our partners and interview informants thus interpreted the purpose of building an ESG data commons based on their own distinctive interest and needs: the Fintech cluster regarded it as a solution that can strengthen the brand of a Fintech cluster; the sustainability technology provider viewed it as a way to generate use cases and datasets for developing their platforms, sustaining their market life and attracting investment; some startups thought of the commons as an enabler for democratic investment in general; and the venture capital investor considered an ESG data commons as a potential breakthrough that may solve the bottleneck in screening startups. In short, a data commons approach to ESG reporting started with articulating a collective sense of urgency to tackle shortcomings in ESG reporting among startups, cluster and investors in Fintech. This shared sense of urgency manifested as a desire for a "better" ESG solution – an ESG data commons. Nonetheless, there is confusion around the terms and divergence in understanding the purpose of building an ESG data commons, which requires change and sensemaking.

A Teleoaffective Structure: Imagining an ESG Data Commons

This project involved stakeholders whose actions to be driven by a range of beliefs and motivations associated with ESG data. For example, some startups that specifically targeted social and environmental outcomes had a different set of imaginary, motivation, and practice than that of those mainly driven by economic outcomes. Below, we will discuss different stakeholder's imaginaries on ESG data as a form of teleoaffective structures underpinning the joint development of ESG reporting.

In the process of prototyping an ESG data commons, we used visualizations of ESG ecosystem and ESG data categories (i.e., stakeholder mapping and ESG metrics) as objects to tease out specific viewpoints about what an ESG data commons is. This led to three ESG data commons imaginaries that we identified during interviews. One startup envisioned the ESG data commons as an "*automated platform*" collecting data from companies' information systems without taking company resources or employees' time. This imaginary is driven by the fact that the company is thriving to survive financially, even though it has recently received seed funding prompting a focus on tracking how their business optimizes resources. The Fintech cluster and ESG consultant envisioned the ESG data commons as a *one-pager* that summarizes the investor's most popularly requested ESG data categories and the ones that need continuous tracking. Their imaginaries are grounded in their roles as advisers for businesses. However, neither of the imaginaries is congruent with our research imaginary of ESG data commons, which is a *collective sense-making process* of Fintech business and ESG data categories.

Subsequently, concerns about an ESG data commons emerged from these incongruent imaginaries. For instance, one startup expressed concern about *information leakage* risks when aggregating data at a cluster level, as the startups often found themselves in competitive relationships with each other when seeking financial resources. Another raised the *legitimacy of distributed accountability* when collecting ESG data and doing ESG reporting at a cluster level. The concern is rooted in the firm's financial reporting practices. As our startup informant explains, "we are going to be held accountable for our own ESG reporting. […] probably a joint report for cluster is not going to satisfy the Danish business authorities." Venture capital investors further questioned the cluster's motivation to share accountability with startups, based on their working experiences with the Fintech cluster. As he explains, "I have a hard time figuring out how it should be structured. […] Why is it that the cluster needs to be like the anchor point? I mean, the relationship between the cluster and the company here: it's a person responsible for companies that don't comply, don't report or… how does that relationship work, right? […] What is the incentive for the cluster to spend the time and energy to collect all that stuff? And what do they get out of it?" Sustainability technology providers, working primarily with venture capital investors and ESG consultants, agreed on the idea of ESG data commons, but had a different thought on *the subject of collective*. As the provider explains, "I could imagine that it could be a bottom-up approach or getting everyone together, but when there are so many stakeholders involved. I guess it's difficult. […] The trick is to get the top people [i.e., investors, policy makers, consultants, advisers] on board because otherwise it would never become a standard."

The visualisation also prompted the stakeholders to rank different ESG authorities, depending on their positions in the Fintech ESG ecosystem. Among the policymakers, for instance, the Fintech startups prioritise the Danish Business Authorities (DBA), Danish Financial Supervisory Authorities (DFSA) over the European Commission and the United Nations. In the market space, the Fintech startups prioritise venture capital over limited partnership. This is because DBA directly controls a company's business operations, DFSA's regulations and requirements directly influence the licensing of financial services, and venture capital's decision gives them the capital for their growth. The ranking by investors, Fintech cluster, ESG consultant and sustainability technology providers, differs as it mirrors their different roles and positionalities in the political, market and/or knowledge networks. Despite the differences in the imaginaries of ESG data and reporting among different stakeholders, they help to reveal the teleoaffective structures of each stakeholder group, which help us to make sense their relations to ESG.

Materializing ESG Data Commons

The research team has noted the importance of the social and material aspects in shaping the idea of ESG data commons, which includes ESG data frameworks and databases. During our interviews, the cost of ESG data collection appeared to be a primary concern for Fintech startups. There was a general sentiment that ESG frameworks were mostly irrelevant for Fintech, and they constituted "new activities" that created extra

administrative and financial burdens for startups, considering the broad span of ESG categories enforced in the EU Taxonomy, financial regulations, and various venture capital's own ESG framework. As one interviewee expressed: "measuring all those things costs money, takes time". Thus, we drew on the shared categories from existing ESG frameworks to tap into the taken-for-granted data practices in Fintech startups, cluster and venture capitals. By doing so, we wanted to identify what existing data practices may be relevant for building an ESG data commons and resolving the tensions around the identified imaginaries. Overall, there were two datasets, which were closely linked to ESG reporting and forming an ESG commons but generally overlooked by stakeholders, stood out.

First, the existing data collection by business authorities. As soon as we started breaking down the ESG data by categories, we were able to uncover several existing non-financial data collection practices and data objects that support startups' daily operations, which could feed relevant data to an ESG commons. All our stakeholders pointed out that governance, legal and regulatory data are already part of companies' existing financial reporting scheme. "Diversity and inclusion" and "team and working environment" are crucial for hiring talents. In the Fintech cluster, we have also uncovered an excel sheet that they use to collect company facts as startups become a member of the cluster. This data gets compiled into a portfolio presented to potential investors. Further exploring their reporting practices, Fintech startups and investors also described different reporting styles and categories being relevant at the different stages of a startup's trajectory. For instance, for early-stage startups, ESG reporting may be in the form of an interview that takes place during the due diligence stage prior to investment, which seemed to be more manageable than the imaginary of ESG data report as an equivalent of a financial report.

Second, previously considered as irrelevant to ESG data. One startup founder, for example, mentioned the activities they do for capital efficiency (e.g., optimizing the use of data storage and servers). They did not realize this set of data were also ESG data that help to show their business has reduced energy use in their operations. Moreover, many startups used to consider "supply chain" and "environmental impact" irrelevant for Fintech, as these two categories are more fitting for industries such as logistics or manufacturing. But once we probed into their supply chain of core services (e.g., the assets their customers invest in) or supporting technologies (e.g., servers and data storage that are necessary for running digital services), they were able to see the relevance of their daily operation to ESG data.

Existing data practices and objects thus shape our emerging ESG data commons approach. In our design we break down ESG data categories, ranking the importance of these categories, and connecting the most important ones to core business operations, core supporting technologies, and the investment stage of the Fintech startups. The finding from the data collections disproves the myth of the absent ESG data. Rather, it highlights the challenge to establish the connection between the imaginaries about ESG and the actual data practices. This also echoes that the process of building a data commons is an ongoing process of collective becoming that involves the alignment of multiple communities and their aspirations.

Discussion and Concluding Remarks

Applying a practice-based approach to ESG data commons as a design probe highlights three important features of an ESG reporting process and its challenges. First, building an ESG data commons is a collective becoming process that requires change in different stakeholders' understandings. Second, such change can be made possible through understanding the stakeholders' imaginaries about ESG data commons. The goal of developing an ESG reporting solution guides the stakeholders but so do their desire and motivation to shape a better future where Fintech can contribute to society with environmental, socially, and governmental just approaches. Visualization can help to reveal and make sense of tensions in imaginaries by revealing how stakeholders order different social and material components in the ESG ecosystem.

Third, a number of data objects emerged from our data-practice mapping. Drawing on Nicolini et al (2012) such objects can help us understand the collective becoming as part of the change processes initiated by action research. Nicolini et al (2012) argues that four types of objects play different roles and become central at different stages of a cross-disciplinary project. In short, we might be able to depict the change processes at the center of our action research as a gradual transformation of ESG reporting from one type of object to other types of objects in the collective becoming of an ESG reporting structure. Our findings suggest that a set of loosely structured and incomplete ESG reporting schemas serve as epistemic objects that help the stakeholders rally around their divergent but entwined goals and motivations. Our early mapping of data

practices highlights several existing activity objects (e.g., cluster membership data collection, or server optimization) used by different stakeholders that may resolve the tension between divergent motivations.

In this way, our findings contribute to the IS research in two ways. First, the preliminary research responds to the call to develop an analytics-driven approach to ESG as well as Green IS research. It does so by identifying the important constituents of a data commons approach. What has become clear to us is that ESG data commons is not a set of readily made resources to be governed but comprises a network of metrics and activities that continue to change and shift depending on the delimitation of the stakeholders and their practices. To further develop ESG data commons prototyping, one approach would be to look for the internal contradictions or shortcomings in the existing data frameworks that might hint at new approaches to ESG reporting. We also plan to look for infrastructural objects such as standard financial reporting structures that rally interest around by showing how they relate to ESG reporting metrices. Our end goal through this project is thus to establish a shared epistemic focus between our stakeholders, and to translate data structures as identified networks of existing and emerging data artefacts and activities into boundary objects that can facilitate work across different stakeholders and practices. Second, the notion of a data commons serves as a productive design probe. The openness of the data commons concept elicited a range of ESG imaginaries from the different stakeholders. Together, these imaginaries allowed us to better map the different stakes and possible design elements that could inform future ESG design work.

In conclusion, the challenge in ESG reporting for startups in the Fintech domain where top-down ESG metrics may overlook pertinent material issues, is not the lack of ESG frameworks or willingness to fulfill them. Rather, it is the lack of methods that connect the practices of business development for startups and their stakeholders such as venture capital and cluster. A practice-based approach to ESG data commons sets the first step to address this need and calls for future research to experiment and strengthen this approach in the sustainable transition of next generation of businesses. Future studies should investigate the emerging organizational form, process, and governance of ESG data commons that arise from such design process.

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