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The heart and soil of value-based business: emerging circular business network and vernacular accountings

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ABSTRACT

The way individual actors in organisations are involved in local social orders and handle knowledge to manage everyday tasks may take various forms not sanctioned by formal organisational hierarchy, yet with the potential to affect a company's managerial work and guide the development of formal practices. This qualitative case study deploys the concept of vernacular accountings (Kilfoyle et al., 2013) to an organisation building a business in a circular economy (CE) context. The case illustrates locally self-generated accountings as an inherent part of an organisation's management system's development and as tools individuals apply to manage their occupational tasks to cope with a diversity of beliefs and traditions within CE networks. The case organisation is an intermediary of industrial side streams circulation in the agricultural sector, allowing for examination of the role human–nature relationships and local understandings play in developing organisational processes and accounting practices. Moreover, the study illustrates how vernacular accountings may reveal deficiencies in formal officially sanctioned systems and thus contribute to developing management accounting and control practices. In this view, the way individuals interact, participate in vernacular information economies and produce information to justify their decisions may play a key role in understanding management accounting and control in a nonconventional business environment. The study also emphasises the importance of understanding various orientations towards sustainability and nature embraced by participants in CE business networks, suggesting that vernacular accountings may hold the potential to capture this diversity.

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1. Introduction

The *circular economy* (CE) exemplifies a context challenging established logics of the linear economy, traditional business models (Frishammar & Parida, 2019; Kirchherr et al., 2017) and standard accounting practices (e.g. Crutzen et al., 2017; Svensson & Funck, 2019). New ways of organising existing operations and implementing novel business ideas emerging

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from CE-based principles often require adopting a long-term perspective in planning and decision making processes (Lacy & Rutqvist, 2015) and may change the boundaries and basic functioning of current management and accounting practices, thus necessitating approaches that consider the human–nature relationship in decision making (see e.g. Russell et al., 2017). These complexities reveals a new set of challenges in the utilisation and development of management accounting and control practices in the CE context, raising questions about the role of the human–nature relationship in accounting (C. Cooper & Gallhofer, 1992; Hines, 1991; Russell et al., 2017) and the robustness of the knowledge generated thereby (Bebbington & Larrinaga, 2014).

This case study examines an organisation operating as a mediator in the nutrient circulation business and applies a sustainability-oriented strategy and business model in which nature-related issues, such as soil health and carbon sequestration, are essential elements for success. Hence, the present study responds to recent calls saying that accounting research should—in sustainable development-oriented studies—address more accurately the link between environmental management accounting and planetary boundaries (Schaltegger, 2018) and engage with organisations by conducting interpretative and detailed case studies (Adams & Larrinaga, 2019; Laine et al., 2020). By broadening its horizons, accounting research can contribute to solving some of society’s fundamental problems (Roberts, 2018; Rockström et al., 2009) regarding complex decision making environments.

Building on a temporal perspective spanning approximately two years, this study shows how practices self-generated by actors in their local task environment—*vernacular accountings* (VAS) (Kilfoyle et al., 2013)—are applied in managerial work and influence an organisation’s management accounting practices in a business that embraces CE principles. The role of local knowledge creation, learning (Goretzki et al., 2018; Kilfoyle et al., 2013; Vaivio, 2004) and a loose coupling between rules and routines (Lukka, 2007) can have a major impact on a company’s management accounting practices, stability and overall success in overcoming emerging barriers. The aim here is to demonstrate how human–nature relationships in the CE context shape organisationally sanctioned systems and the work of local actors or workgroups and to illustrate the role of VAS in capturing the diversity of these relationships.

Previous research has pointed to the need for detailed descriptions of CE implementation cases and analyses of the barriers confronting these practices to sharpen CE understanding and discover what its implementation actually entails (Kirchherr et al., 2017). This paper first provides a rich description of an organisation whose business is tightly bound to CE-based principles, representing a stage of rapid growth and the introduction of accounting and control systems (see also Sandelin, 2008). Then, analysing knowledge creation and learning in the case context, it examines the challenges encountered by the organisation—guided by its sustainability-oriented values—when interacting with its stakeholders and mobilising a network to enable its business (see e.g. Tomkins, 2001). Accordingly, to thoroughly cover the case organisation’s CE business environment, the present study considers both organisational-level practices and interactions in meso-level networks created in the CE context. When the knowledge created to support managerial work emerges from divergent contexts, it is essential to find common ground for conversation to embed different understandings and establish shared goals (Bechky, 2003). Addressing the complexity of the business environment, the present study also

thoroughly depicts the divergent and, in some instances, discrepant perspectives that occur when novel industrial collaboration for side stream¹ circulation is established (see also Bocken et al., 2014; Frishammar & Parida, 2019), regenerative agricultural practices are promoted and the use of soil improvers is introduced.

Concurring with Kilfoyle et al. (2013) on VAS's potential in enhancing our understanding of organisational knowledge creation and learning, attention should be paid to the relationship between formally sanctioned and vernacular accounting practices: as Carlsson-Wall et al. (2019) emphasise, VAS is a dynamic practice whose distinction from formal systems remains inherently fluid. Acknowledging its ability to embody the divergent information needs and evaluative principles emerging in different occupational communities (see e.g. Bechky, 2003; Hall, 2010), it is deployed as the analytical lens for enhancing our understanding of how a human–nature relationship affects knowledge creation and learning in the context of CE and how locally emerging perspectives steer the development of an organisation's management accounting and control practices within and beyond organisational boundaries. Where previous research on vernacular accounting systems has mainly focused on well-established large institutions by analysing the role of these locally created systems—e.g. in the development of budgeting (Mättö et al., 2022) or forecasting systems (Goretzki et al., 2018)—the present study provides an alternative viewpoint in understanding VAS's role in managerial work and management control systems' development by focusing on an organisation coming to its prominence and a circular economy context where cultural controls, such as values, play a major role. Hence, this case and context also provide an intriguing area for assessing VAS's capability to facilitate productive compromising processes for finding common ground for negotiations and shared understanding (Chenhall et al., 2013; Goretzki et al., 2018).

The next section introduces the study's analytical framework, covering the human–nature relationships in accounting and the concept of VAS. Thereafter, the case and empirical setting, along with the research methods, are presented. The fourth section provides a detailed and contextualised analysis of the empirical case. Finally, the case study's key issues are highlighted, including theoretical reflections on CE implementation and the role of human–nature relationships in guiding vernacular accounting and their interplay with sanctioned management accounting systems.

2. Analytical framework: vernacular accountings

The primary objective of management accounting is often defined as “providing useful information to managers for managerial purposes” (Mendoza & Bescos, 2001, p. 257), which presumes that accounting systems—or the individuals operating these systems—are capable of assessing the provided information's usefulness. However, in managerial work, the development and use of accounting information has not only to do with decision making, but also with other, potentially more essential, managerial tasks,

¹This mostly organic matter—the case organization receives from e.g., pulp and paper mills—is often considered waste for the production facility and could have been called industrial waste. However, a conscious decision was made by the author to not refer to these streams as waste because of the negative connotations it could create when circulated resources are used in food production—sometimes an issue in policy reforms regarding circulation of different substances. In addition, the term side stream describes the process in which these streams are formed aside from the industrial primary production.

such as being aware of and responding to unusual events whose problem boundaries are typically elusive (Dane & Pratt, 2007; Hall, 2010; McKinnon & Bruns, 1992). This is especially relevant for alternative approaches to business, such as CE, challenging the current linear economic model. Following Kirchherr et al. (2017), CE should be understood as a model in which fundamental sustainability-driven systemic change is inherently embedded in organisational actions. In the present study, the concept of VAS, together with our current understanding of the human–nature relationship in accounting, provides an analytical lens for recognising and better understanding how individuals cope with managerial tasks in a CE context and their interplay with sanctioned management systems.

2.1. Human–nature relationship in accounting and the potential of CE

Nature is excluded from accounting calculations. And how could it be otherwise? All in nature are interdependent. People are part of nature, aren't they? But accounting, like any language, names, bounds and thus separates (Hines, 1991, p. 27).

Hines (1991) says that putting a price on and quantifying our environment “further alienate people from nature” (p. 29) and disregards the limitations of accounting and the language of numbers in capturing the natural environment. Accounting is commonly understood as dealing with issues of transparency to provide information for particular stakeholders, which entails managers coping with organisational decision making issues. However, as Quattrone (2022) notes, this transparency depends on the chosen perspective, that is, what is decided to be accounted for, measured and disclosed. In this way, the outcomes of accounting provide (political) representation—or a picture—covering only a limited part of an organisation's actions and impacts based on applied measuring practices or assessment principles, hence reflecting the ideological orientations and institutional arrangements in which the chosen practices are adapted (Brown, 2009; Hines, 1992; Quattrone, 2022).

Prior research has also remarked that although particular quantification practices and attempts to calculate a sustainable cost may play a role in valuing nature, monetising techniques are hardly capable of capturing nature's value(s), thereby trivialising and devaluing human–nature relationships (Kohn, 2013; Sullivan & Hannis, 2017). Acknowledging the risks involved in employing calculations in areas where they may appear as a root cause (see e.g. Gray, 1990, 1992), Gray (1992) suggests that applying techniques of nonfinancial accounting to identify and track elements in the three capitals² under an organisation's control could make biosphere interactions more visible and indicate the direction needed for sustainable actions. However, another concern is that numbers inherently embrace a performative agency when denoting nature (Sullivan & Hannis, 2017), which contradicts an alternative ontological stance that, in the realm of aesthetics and the spiritual, “humans are immersed in nature and nature is not conceived of as sort of machine that humans manage in order to for it to generate products” (N. Cooper et al., 2016, p. 225). Hence, people's interactions with nature and each other may play a role in creating the structures for ecosystem services and add meaning and value to such services

²Following the suggestions of environmental economists, Gray (1992) recognises three different types of capital: critical natural, sustainable or substitutable natural and man-made.

and benefits (Fischer & Eastwood, 2016). This perception of human relationships with nature and the role of coproduction of meaning and value for actions taken (or not taken) provides an alternative viewpoint for analysing the interplay between humans and nature beyond the human.

Recent research has discussed the mediating role of accounting practices regarding human–nature relations (Ferreira, 2017; Russell et al., 2017; Sullivan & Hannis, 2017), still pointing out that environmental accounting often remains “a nonfinancial variant” of conventional accounting, following “a linear, periodic, information model” (Russell et al., 2017, p. 1435). Conventionally, hard information is something that can be financially quantified and owned by the entity, while more subjective issues appearing separate from the entity, such as nurturing the environment, are considered soft and often ignored. This division of reality, here based on hardness, emphasises individual perspectives in the use of alternative information sources because it enables slicing reality into variables that may be used in certain controls and separates entities from surrounding complexity (Hines, 1992). There is indeed a shared “need to develop extended peer communities for judging the validity of knowledge generated” (Bebbington, 2009, p. 190) to discover sustainable solutions to the “wicked” problems (Frame & Brown, 2008, p. 226) of planetary boundaries (Rockström et al., 2009).

CE could challenge established logics of a linear economy, traditional business models and standard accounting practices by connecting different business actors, communities and value chains. It is unclear, however, for both scholars and practitioners what CE implementation actually entails in terms of specific actions (Kirchherr et al., 2017) and how established accounting and control systems correspond to the changes required for a CE transition.

Every CE application and network has its own characteristics and issues to tackle in pursuing this transition. It requires involving various actors internally and beyond organisational boundaries and, to some extent, creating novel value networks (see e.g. Urbinati et al., 2017), as well as methods to assess complex value creation and distribution within these networks (Iacovidou et al., 2017). Soil health, as a defining element for the case company and its CE network, has remained unexplored territory despite its significance for planetary sustainability (see e.g. Louw et al., 2014), and conventional methods to measure, account and control often dismiss such impacts’ values. Hence, following Cooper et al.’s (2016) suggestion, it is essential to examine the vernacular “to provide narratives of the values of nature that lie ready for inspection and interpretation in the cultural production around us” (p. 225).

2.2. Vernacular accountings

To tackle the challenges of turbulent and fast-changing business environments, accounting scholars have addressed the recognition of local managerial information needs and the role of the interplay between employees and the local economy in structuring useful knowledge when companies establish functional information systems and a holistic view of management control and planning (Goretzki et al., 2018; Hall, 2010; Wouters & Wilderom, 2008). Lukka (2007) notes that change and stability can emerge simultaneously and loosely coupled formal rules and informal routines may enhance the functioning of an organisation’s management accounting. This explanation resonates with Frow et al.’s (2010) suggestion that the possibility of using one’s own discretion

potentially promotes managers' engagement with organisations' strategic directions and priorities. Allowing managers and employees to thoughtfully bend the rules of formal systems and provide a certain level of transparency to support informal information sharing allows organisations to balance efficiency and flexibility (Ahrens & Chapman, 2004; Jørgensen & Messner, 2009) while overcoming potential resistance regarding the standardisation of different tasks and related tensions (Adler et al., 1999).

Besides formal management accounting and information systems, each manager develops and uses individual information systems supported by personal observations regarding issues considered relevant and by interpersonal relationships within the organisation and outside its context (McKinnon & Bruns, 1992). The use of informal routines and accounts representing managers' own discretion and locally developed knowledge in parallel with formal centrally designed information systems exemplifies the complexity and vastness of the information involved in managerial work (Hall, 2010), a phenomenon referred to as "the information mosaic" (McKinnon & Bruns, 1992). Local systems enhancing the construction of knowledge often exist before the implementation of formal information systems and constitute an important resource as operational tools (Cacciatori, 2012). In addition, Bechky (2003) proposes that focusing on formal routines and procedures may be "detrimental to problem solving in organisations" (p. 328) and that informal solutions for communication should be supported to find a common ground for conversation to embed different understandings and establish shared goals.

Vernacular accountings are defined as "those accounting systems that are regarded as legitimate by participants within local social orders and are regarded as "hard" or actionable information" (Kilfoyle et al., 2013, p. 385) and "are self-generated by organisational actors in the context of their work and not officially sanctioned within the organisational hierarchy" (2013, p. 382). In formal systems, the source of legitimacy is often connected to a hierarchical order operationalising accountabilities within an organisation, which is different from legitimacy derived from local social orders in which individuals create and recreate their understandings based on experiences and values. Appearing, for example, as mental models, narratives, artefacts and/or inscriptions, these accounting systems are based on modality—the degree of confidence placed by an individual in different accountings—and sources of legitimacy, differentiating between accountings legitimated by an authority in a hierarchical system from those "that gain legitimacy with respect to a local social order and the position of the individual within [it]" (Kilfoyle et al., 2013, p. 385).

Kilfoyle et al. (2013) distinguish between hard and soft modalities based on Ijiri (1975) conceptualisation, whereby a hard measure—or accounting—implies unequivocal and verifiable information, while a soft modality points to more subjective and context-dependent information. Soft accounting information is not considered actionable and its hardening incorporates a social process to enhance the quality and persuasiveness of this information (Rowe et al., 2012). Kilfoyle et al. (2013) further argue that when considering information's hardness, the main distinction is epistemological, emphasising that the question is not about the level of documentation or how the information is transmitted but whether the latter is perceived to be reliable enough to act on. Whereas the use of the term informal accounting systems lacks a consistent referent and appears, for example, in connection with less reliable accounting systems or more subjective judgments, VAS is isolated from the broader scope of "informals" based on the two aforementioned dimensions: modality and source of legitimacy (Kilfoyle et al., 2013).

Learning task-specific competencies and the creation of locally useful knowledge often occur outside formal schemes because the requirements of top management-driven systems often imply hierarchical and integrated perspectives—barely leaving room for local variations—necessary for managers to succeed in complex local operating environments (Dechow & Mouritsen, 2005; Kilfoyle et al., 2013). VAS can be seen as an information source or loosely coupled part of formal systems (McKinnon & Bruns, 1992) but can also work as knowledge-transformation devices, helping system designers address the integration of local knowledge (Goretzki et al., 2018). VAS may also appear as defensive resources capturing the interests of their users and supporting local actions when managers experience formal systems as inconsistent with their values, norms and beliefs (Kilfoyle et al., 2013). Goretzki et al. (2018) add that in accounting systems' development processes, VAS may be mobilised as negotiation devices, which potentially strengthens its capability to transform knowledge within organisations. From the standpoint of local actors, VAS enhances their position in negotiations while still maintaining an option to turn it into a defensive resource if they resist the formal system. In addition, Kilfoyle et al. (2013) introduce organisational practice as a type of VAS focusing on the role of distributed cognition that it facilitates, providing trigger points for actions, reducing the probability of errors and reducing the need for managers to maintain information in active memory (Kilfoyle et al., 2013). This addresses the notion that managers utilise information not only for decision making but also to develop knowledge considered relevant in their work environment, facilitating actions that consider possible unplanned future events (Hall, 2010). Finally, VAS also refers to the role of organisational culture, where it represents “symbols and artefacts that are part of culturally infused routines of task groups” (Kilfoyle et al., 2013, p. 392), enabling task groups to make sense of complex issues. This notion is in line with Lukka's (2007) proposal that management accounting routines and everyday actions appearing in the informal domain inherently embrace creative flexibility, possibly reinforcing and stabilising the existing formal system.

Carlsson-Wall et al. (2019) analyse the different interactions between coexisting vernacular and sanctioned systems, emphasising VAS's role as a dynamic practice in which the distinction from sanctioned systems remains inherently not static. VAS may also have the potential to shift the source of legitimacy when sanctioned systems are developed (Carlsson-Wall et al., 2019). Therefore, when actors from different occupational communities embrace divergent evaluative principles and information needs in their tasks (Bechky, 2003; Hall, 2010), VAS may also have the potential to facilitate productive compromising processes to find common ground for negotiations and shared understandings (Chenhall et al., 2013; Goretzki et al., 2018). In a sense, vernacular and sanctioned organisational management domains are constantly shifting and their interaction may cause tensions between officially recognised and locally created systems (see e.g. Carlsson-Wall et al., 2019), especially when the sanctioned system is considered inadequate in recognising the information needs stemming from the complexities of local task environments. Hence, when existing in parallel with sanctioned management control systems, these VAS are likely to emerge in complex task environments and may appear as a local inventory of knowledge reflecting users' views of the environment (Kilfoyle et al., 2013) and containing the potential to enable innovation (Chenhall & Moers, 2015) to address these complexities. Consequently, VAS's

mobilisation in an organisational context enables an analysis of how cultural controls, such as values, are interpreted and actualised in managerial work through its application, potentially capturing elements of the human–nature relationship. In addition, in the CE context, a diversity of business sectors and strategic approaches are brought together and varying managerial information needs may promote VAS's use to overcome locally emerging challenges.

3. Case and research method

3.1. Case organisation

The case organisation, pseudonymised as CiComp, was established in 2015 in Finland. The company operates as a processor and intermediary of industrial side streams for agricultural fertilisers and soil improvers. The company's total sales reached 5.2 million euros (2019), representing nearly 190% growth compared with annual 2016 sales and approximately 18% growth compared to the 2018 fiscal year. At the beginning of 2020, CiComp had 28 employees and its management board consisted of six members, including three founders. The organisation has clients in Finland's neighbouring countries, Sweden and Estonia, but its main operations take place in Finland. CiComp has divided its operations into six units: agricultural sales, industrial services, research and development, marketing and communication, logistics and administration.

This case is of theoretical interest because of CiComp's compelling position and endeavour to build a CE business network between traditional production sectors. This was considered a unique and interesting setting to investigate managerial work and management accounting practices in an organisation applying a CE-based business model (Frishammar & Parida, 2019; Svensson & Funck, 2019). Additionally, the company's focus on soil improvers strongly links it to soil health, an element of significance for planetary sustainability (see e.g. Louw et al., 2014) that has only recently garnered attention in accounting research. The case is also of interest for "how existing accounting methods and practices can be modified to explain the ecological and economic relevance of soil systems" (Maroun & Atkins, 2021, p. 38).

Access to the case organisation was based on the author's personal connection to the organisation's CEO. Further details of the organisation and its operating context are discussed with the findings for a contextualised analysis.

3.2. Research methods and data

The foundation of this study is a case- and practice-oriented research approach, following the idea that studying and understanding a single case thoroughly in a particular context provides the possibility of identifying novel theoretical connections and challenging existing ones (Cornelissen, 2017; Dyer & Wilkins, 1991). Communicating insights related to the contextual nature and in-depth understanding of the case is considered inherent in the case study method (Piekkari et al., 2009). In addition to describing a social phenomenon, the present study follows the notion that in interpretative research, the validity of explanations may be established through emic accounts (Lukka & Modell, 2010) while providing explanatory elements in its analysis on the basis of a rich

Table 1. Interviewee Data Summary.

Interviewees' positions	Number of interviews
Board members	4
Senior management	6
Operative / middle management	8

description of emic understandings in the context in which they are created (see also Ahrens & Dent, 1998).

The data were gathered in 2019–2020 and include interviews, observational field notes and various documents. In-depth interviews, loosely based on a list of semi-structured questions, served as the primary method for generating data, while observations were made during four case-related events. The documents included newspaper articles and the organisation's internal documents, such as charts and task descriptions. In total, 18 interviews were conducted with 15 people working at the operative level—middle or senior management—or as board members (see Table 1). The interviews lasted up to 73 min, with an average length of 49 min. The interview themes included internal organisational issues (e.g. business model, values, performance evaluation and how operations and personnel are managed and controlled), intra-organisational relations (e.g. cooperation in research and consulting, process development and partnerships) and extra-organisational issues (e.g. competitors, agricultural and industrial customer relations, political and societal aspects and the industry's future development). In addition, supplementary questions covered the interviewees' tasks, expertise and responsibilities, as well as new issues that emerged during the discussion or when initial responses needed elaboration. The interviews were carried out, recorded, transcribed and analysed in Finnish by the author. Selected quotations have been translated into English.

The transcribed interviews were coded, categorised and analysed using Atlas.ti software. The iterative process of data analysis began with initial coding and categorising in December 2019, after 14 interviews had been conducted. A value-oriented approach in target setting and development endeavours, as well as deficiencies in formal systems, were then interpreted as key aspects that gave reason to explore potentially underlying informal processes. Four additional interviews were conducted in 2020 with more focused themes and questions concerning the managerial practices, information use and sharing and the roles of different actors within CiComp's circular business network to complement the data and clarify or cross-check certain matters. Two further rounds of data analysis that entailed adjusting, merging and subdividing the codes were carried out after the second round of interviews. Interpretations were checked against earlier rounds of analysis to assess the level of understanding gained.

This approach resulted in comprehensive coverage and a detailed picture of the routines and practices within management accounting and controls, as well as other more ambiguous forms of action influential in the context of management accounting. The interpretations developed were discussed with CiComp's CEO. This helped verify and adjust the interpretations, reflecting understanding of practices observed in the data. During the process of manuscript revision in 2021, the dataset was revisited with a more focused theoretical lens of mobilising VAS and the role of the human–nature relationship in accounting to provide a rich understanding (Lukka & Modell, 2010) of the observed vernacular practices recognized in CiComp. Followingly, the empirical

material was reorganised and categorised into four sub-notions of VAS (Kilfoyle et al., 2013): self-created accounting tools, information sharing, organisational practices, and negotiation devices. Employing VAS thus resulted in thoroughly understanding how it may capture the diversity of human-nature relationships and their effect on management accounting and managerial work, especially within CE.

Although the study's timeframe was only two years, which could be considered closer to a snapshot than a longitudinal perspective, the analysis' contribution was providing insights into the changes and development of management accounting in a recently established and rapidly growing organisation continuously applying new management practices to handle emerging challenges in its business environment. Given the company's size and agility, it developed relatively quickly ways to respond to CE's challenges to conventional practices. Therefore, a period of two years was already illustrative of how the practices were changing.

4. Findings

The findings are organised as follows. First, the operating environment and business area of the case organisation are analytically described to provide a rich understanding of the context in which managerial work and management accounting practices occurred and how CiComp was positioned in the area of side stream circulation. Second, the role of values and recognised VAS practices in guiding individual managerial actions in the case organisation is discussed in relation to organisationally sanctioned systems and vernacular information economies relevant to the circular business network.

4.1. Business environment

In both prior press coverage of the company and the interviews, the founders emphasised their future vision, where nutrient circulation would involve more active participation by business organisations. They also noted that agricultural production and food systems in general required a push to implement systemic changes (see also Hodges et al., 2010; McKenzie & Williams, 2015) and more holistic approaches based on sustainable production practices and CE principles.

Figure 1 contains a simplified illustration of CiComp's operational environment, showing how the company was positioned in relation to manufacturing industries, waste management and conventional agricultural fertiliser production and sales.

4.1.1. Finland's agriculture sector

From the standpoint of an input supplier, Finland's agriculture market is very fragmented and the ageing farmer generation is often reluctant to consider any changes to their farming practices: "My opinion is that generally the most challenging [customers] are those farmers who have done everything in the same way for the last 40 years" (Middle management). However, the interviewees emphasised that age is not the only factor because the farm's profitability and solvency often define decision makers' willingness to try new experiments and adopt changes to farming practices. Agriculture's profitability in Finland has nearly halved in the past decade and the amount of capital needed in farming operations has increased while working hours have decreased (Natural

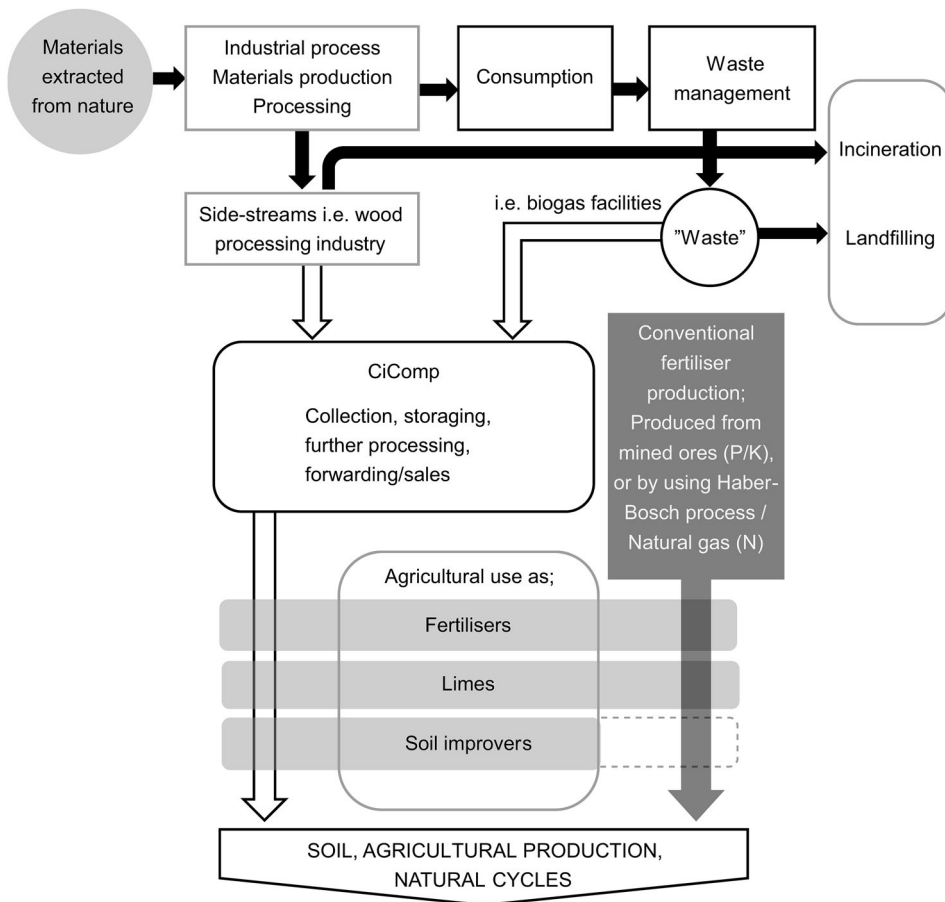


Figure 1. Simplified illustration of CiComp's operational environment.³ The linear model (with black arrows) was partly adapted from Worrell and Reuter (2014, p. 4).

Resources Institute Finland, 2019). Here, although CiComp was striving to promote implementation of more sustainable agricultural practices and input use, they identified profitability issues as their main challenge in terms of sales and their products' pricing policy: "Profitability of agriculture is kind of a two-sided issue: it encourages farmers to seek options and new solutions, but in turn, it makes farmers more passive" (Board member). An interviewee described the situation as follows:

One characteristic [of our business] is that our primary customer segment is struggling with considerable financial issues (...). In the end, their return on investment is tenuous and we must continuously consider how we can conduct sales and help them improve farms' return on investment (...) and also how to secure payments being made in the first place. (Board member)

³P refers to phosphorus, K to potassium and N to nitrogen, considered as essential nutrients for plant growth. CiComp's products represent all essential nutrients, with specific contents varying between different recycled products and their mixtures. In conventional processes, lime is most commonly produced by mining limestone or dolomite. The lime and soil improvement products that CiComp recycles are mostly side streams from the forest industries.

In terms of product distribution, CiComp was forced to balance between their environmentally oriented strategic targets and more practical questions regarding pricing, logistics, their educative role in agriculture and building demand for products often unfamiliar to agricultural customers. First, geographically centralised livestock production has created barriers between points of demand and supply for certain types of manure, which historically played a major role in the fertilisation of arable land. From CiComp's viewpoint, major logistical challenges emerged because of, for example, the lack of storage capacity for liquid fertilisers in areas where soil improvement products offer the highest potential benefits (e.g. arable land with prevalent clay soil). Second, the interviewees emphasised the ramification of constant profitability struggles, lack of knowhow or trust in outdated information—possibly manifesting as bad management accounting routines—and adverse farming practices (e.g. lack of crop rotation or intensive soil cultivation). Hence, CiComp's founders foregrounded the organisations' environmental values and need for a more holistic approach to soil health improvement in the agriculture sector, which should have resulted in the systemic change the company encourages. These ideas were frequently linked to broader sustainability issues, such as the condition of the Baltic Sea and the negative impacts that human actions—specifically mainstream agricultural practices—have on the vulnerable inland sea surrounding Finland (see Hoppe et al., 2016; Jansson et al., 2019; Withers & Haygarth, 2007).

4.1.2. Side stream circulation

CiComp has been operating between very different industry sectors, bringing them together “in a way they could not have established without us” (Board member). Side streams supply encompasses various industries, with forest and bioenergy the most essential for CiComp, though the geographical distance of industry sites and agriculture can cause logistic issues:

[Wood fibre-based products] are excellent and interesting, but because the forest industry and agriculture are in different parts of Finland, the biggest challenge is how to increase deliveries for agricultural use in a logistically sensible way and with reasonable costs.
(Senior manager)

It is possible to distinguish two stages of CiComp's industrial collaboration practices. First, the precontractual stage—wherein a contract has not yet been made or is up for renewal negotiations—is characterised by business-based negotiations, increasing competition and an overall predominance of economic aspects in securing primary industrial operations. In the contractual stage, an agreement has been reached and the general conditions for collaboration defined. The emphasis then shifts and the broader aspects of environmental impacts, soil health, carbon sequestration and CE principles are more profoundly featured in internal and external discussions. This is done, for example, by including the amount of circulated recycled side streams or sequestered carbon in an industrial corporation's sustainability reporting. CiComp's personnel understand the cautiousness of its industrial partners in securing their ongoing primary production: corporate cost and operational risks such as process deviations surpass, on the industry site, the potential significance of alternative side stream uses.

In addition, the business of nutrient circulation relates to several regulatory aspects beyond the present paper's scope. However, as with the current characteristics of CE

business, the interviewees regularly brought up frustration with policymaking and the known “grey era” in circular business: practices based on CE principles were mainly supported, and violations of the existing legislation were sometimes overlooked by government officials, who understood that the legislation does not always adapt to changes fast enough. In this regard, a senior manager at CiComp remarked:

The environmental and waste legislation at the European level is based on this linear chart: something goes into the factory, good products out, waste to landfills. This is the premise, and the Directive on Waste is still in this position and national legislation is based on this directive. So, as long as the Commission and the EU Parliament cannot agree to rewrite this waste directive according to circular principles, the national legislation will not change and we will stay in this deadlock (Senior manager).

The interviewees noted that side streams are often considered waste and cost factors in the industrial sector and that the history of side stream distribution through “wild intermediaries” has undermined the image of the recycled fertiliser business. As an example, a CiComp board member mentioned they were not able to compete for a side stream at a certain Estonian industrial site: “If in the current business model a ‘trucker John’ picks up the stuff, dumps it on a field and spreads it with a plough, there is a long way to bring these agronomic advantages to the table at that point.” Another known and controversial competitor is on-site energy use, which often sets the reserve price for the product. However, in Finland, both incumbent agricultural input suppliers and new emerging companies have become increasingly interested in available side streams because of increasing organic production (Natural Resources Institute Finland, 2019), the recognised importance of soil health and carbon management in arable land (Lal, 2016; Lal et al., 2015) and, to a certain degree, CiComp’s example as a forerunner in side stream circulation. Increased competition has generated pressure in pricing, which was eventually reflected in CiComp’s product prices and personnel working with product sales.

These challenges highlight the importance of research and product development striving to improve agricultural products’ usability and how they understand and measure their short- and long-term impacts. Thereby, CiComp has been actively involved in academic research projects and their in-house research and development unit conducts experiments in laboratories, test fields and farms. According to the company’s customer satisfaction surveys, CiComp is commonly perceived as an advisory organisation, showing how the organisation has approached its market and how communication and sales practices have been executed.

4.2. Nature, values and vernacular accountings

The second part of the findings more explicitly discusses the role of individual managerial actions in relation to organisationally sanctioned systems, values and vernacular information economies relevant for a circular business network. CiComp’s managerial practices are conceptualised as vernacular accountings, which are divided into four categories based on earlier VAS research (Carlsson-Wall et al., 2019; Goretzki et al., 2018; Kilfoyle et al., 2013): 1) self-generated accounting tools, 2) information-sharing systems, 3) organisational practices and 4) negotiation devices. Although the purpose was not to investigate organisational changes, the developments that took place while

the interviews were conducted provided the possibility to observe the changes as reflected by the interviewees.

4.2.1. Prominence of values

Values can be interpreted as the foundation of CiComp's business and current management accounting and control practices. Because of their eminent status in the organisation, they provide an opportunity to analyse human–nature relationships within managerial work. In the analysis, values—and related contradictions—also emerged as a source and maintainer of vernacular accountings. According to the interviewed founders, shared values—helping agriculture, respecting nature and advancing transitions towards more sustainable industrial practices—were considered the fundamental reasons for establishing the company:

The founders had very similar values, and we started this [company] purely on a value basis. Values were the first thing that created this (...). I think this would not have been possible without that. We did not talk about operative matters that much. It was purely about what guides the operations in the future. That was the only important issue. (Board member)

How CiComp then established guiding principles for employees' actions through comprehensive communication of organisational values caused occasional tensions between practical decision making and long-term strategic targets. Individual interpretations of the values, their translation to organisational culture (Verhezen, 2010) and emerging conflicts with profitability-based objectives led to contradictions and confusion. When the interviewees were asked which factors indicated CiComp's success,⁴ they responded in diverse ways:

It is about how we have shifted the paradigm and created a change in this industry. (Board member)

In the big picture, CiComp has succeeded if we can play a part in paradigm change—to make it faster or even to start it. (Board member)

We have these indicators, and surely, financial elements play an essential role there. (Senior manager)

Success is that we have brought a CE there, and, let's say, to be able to utilise these side streams. (Senior manager)

When the customer is satisfied, we have succeeded, but of course, we also measure our sales; that is clear because we are trying to do business. (Operative)

Positive feedback from customers is always a success (...) and if you do good sales and reach your goals, that is also a way to measure success. (Operative)

Variations in answers reflect the different ways in which the question was understood, but also demonstrate the influential role of individuals' beliefs and values. Moreover, because CiComp's reward system for employees was based only on financial profit, it may have influenced how values, objectives and related target times were interpreted. Another potential source of contradictions could be interpreted in situations where

⁴The question "What indicates that CiComp has succeeded in its business?" was asked at the beginning of the interviews without further explanation.

the continuously developing organisation did not yet have defined processes or instructions:

You cannot assume that in a firm this size you could have a process for everything—sometimes, things just happen, and you must react. (Board member)

The employees must then assess their actions in relation to very different types of premises (objectives based on profitability versus sustainability-oriented values) (see also Bukh & Svanholt, 2020), which may cause confusion because of the diversity of different understandings in considering these values and a varying emphasis between the organisation's other controls (cf. Malmi & Brown, 2008; Svensson & Funck, 2019).

On many occasions, the interviewees mentioned that values guide their actions and CiComp's operations in general, but their discussion of values typically remained on a relatively abstract level: "We surely face situations of conflict, but based on our values, we work out these the right way, not the easy way" (Senior manager). Despite top management's active communication of values, in a surprisingly large number of cases, the interviewees had problems recalling exactly what the organisation's values were, but the uniformity of values among co-workers was emphasised at all organisational levels and the strategic objectives discussed in a considerably consistent manner. It was evident that a new strategy—which the company developed during this study—and the defined values were important topics for the organisation. However, it also became clear that economic success played an essential role in CiComp's ability to reach its strategic objectives:

If we perform well financially, this gives us the freedom to develop, execute our strategy, to choose whether to do things. When there is economic pressure, we do not have this freedom. (Senior manager)

The tension between profit and values (see also Figure 2) at the operative level was not explicitly mentioned, although both aspects were considered essential across the organisation. However, the potential for discrepancies and the difficulty of strategic decision making were recognised in the organisation and articulated aptly: "If we refuse to carry out decisions based on our values—also those that might be painful and result in substantial expenses—the values never materialise" (Board member). The way CiComp's members unconsciously balanced profits and values begs the question of whether the reward and compensation principles are consistent with the organisation's values (cf. Svensson & Funck, 2019). It may be asked whether the source of legitimacy in managerial actions is gained from these management controls or local social orders in which individuals participate.

Figure 2 depicts the position of managerial work between organisationally sanctioned and local vernacular domains. In addition to cultural controls or belief systems, such as values, formal controls existed, for example, in logistics, administration and sales tracking. Despite their relatively broad use and constant development, many decisions involved guidance or interference from top management—e.g. the CEO or particular founders. Although this guidance often meant informal discussions and interactions, it was sanctioned and acknowledged in the organisational hierarchy, separating it from VAS. The managerial work at CiComp was characterised by short distance between the operative level and top management. This led to the empowerment of employees,

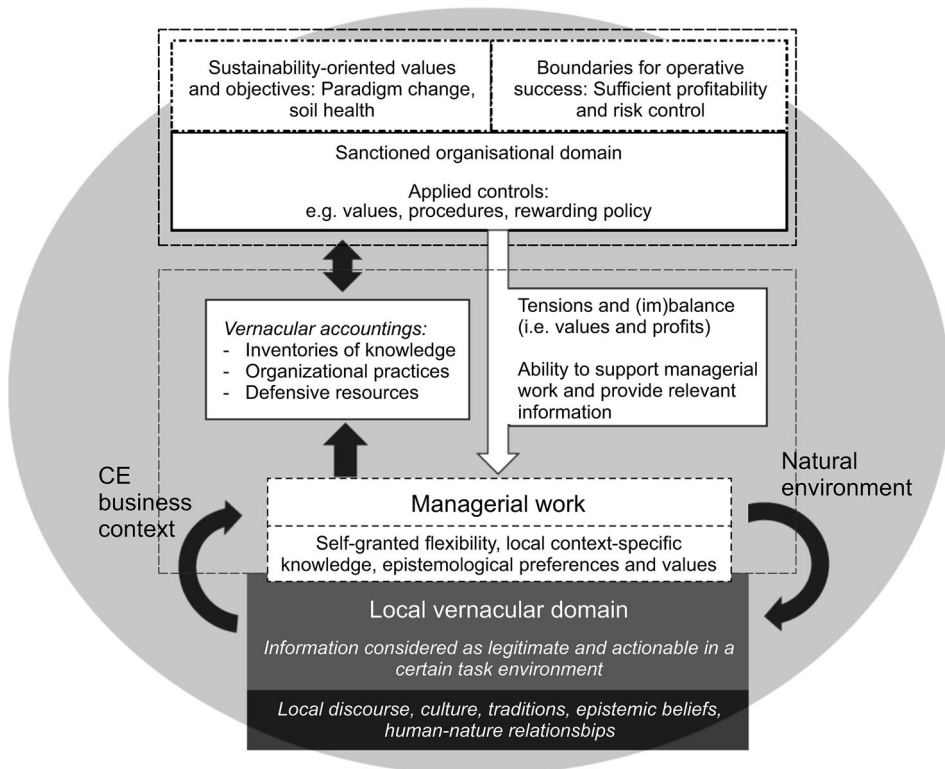


Figure 2. Positioning CiComp’s managerial work and vernacular accountings between sanctioned and vernacular domains.

enhancing information sharing between different occupational tasks and enabling local personal communications. In this way, the sanctioned systems were often in constant and dynamic interaction with locally created VAS used by managers for different purposes. Here lay the opportunity to further analyse the interplay between official and enacted organisational values, human–nature relationships and (non-)sanctioned management accountings.

4.2.2. Vernacular accountings in managerial work

4.2.2.1. Self-created accounting tools. To address the significance of the natural environment, the interviewees emphasised that no matter how fluent and comprehensive the process was, deviations caused by natural events, such as weather conditions, were always present as an uncontrollable element: “The premise in agriculture is to strive for better yields, and our goal is to seek the factor which limits yields there [in a certain field], but it is very difficult to exclude all other variables in field scale” (Senior manager). Hence, this natural variation caused by environmental circumstances made it problematic to create solid argumentation and calculative practices on product impacts to increase product demand. Although formal processes and assessment tools existed, they were not considered relevant for most customer interactions. Instead, the sales personnel stepped into vernacular modes of talk and practice.

Thus, involvement in agriculture's vernacular discourses created a justification for certain routines and mindsets diverging from formal processes. Consequently, inscriptions and calculations were generated to manage local task environments (cf. Kilfoyle et al., 2013). For example, an employee developed a calculator for lime sales to optimise customer profitability and product usage in relation to desired soil neutralisation. Later, this lime-calculator gained broader use in agricultural sales and was eventually recognised by top management. The parameters were checked and the online version became available for CiComp's partners and agricultural customers.

Although this exemplifies the successful distribution of a locally created accounting tool for broader use and its official sanctioning, senior management considered that self-granted initiatives can function only when "the problem is rather general, occurs repeatedly and you can solve it with some mathematical equation" (Senior manager). These actions raised doubts, and in some instances, the practices applied by the individual managers were recognised as harmful or problematic from top management's standpoint, leading to implementation of more comprehensive administrative controls (see Malmi & Brown, 2008), such as setting up procedures for customer interactions and a code of conduct for logistic partners to avoid deviations or misguiding actions:

If you use your own calculations, for example, in customer relations without backup from the organisation, how do you know if the calculation and provided information are correct? Then, we must consider the quality perspective—so, if you count something incorrectly and close your sales, it might be negative for the company. (...) The core process needs to be consistent to avoid deviations, but at the same time, there should be freedom to develop in case you recognise a demand for something. (Senior manager)

From CiComp's standpoint, it was argued that the acceptance of novel products in farms required either an already existing explorative attitude towards farm development and willingness to experiment with new practices, a shift in farmers' epistemic beliefs or a mimicking behaviour in local agricultural communities. In addition, attitudes towards sustainability (e.g. managing agriculture's environmental impacts) were considered to vary greatly depending on farm size, profile and entrepreneurs' personal characteristics. These aspects were raised by individuals dealing with challenges in managing a broad range of potential agricultural customers in various production lines across sizeable geographic areas. Based on their understandings regarding vernacular discourse and more general knowledge considering local circumstances and farm infrastructure, CiComp's personnel could create inscriptions to manage their occupational tasks, appearing mainly as lists of potential customers defined by their production type (e.g. organic farms), farm infrastructure (e.g. storing possibilities), age or expected attitude towards available products. In this way, applied accountings had the potential to facilitate more efficient task management at the individual and workgroup levels. Specifically, locally created knowledge was embedded in the specific use contexts based on the managers' personal assessments, enabling both proactive actions and creative responses to unanticipated local contingencies (cf. Frow et al., 2010).

4.2.2.2. Information sharing. CiComp's personnel described *front-row farmers* as early adopters and those who participated in seminars, educated themselves and were willing to conduct their own farm-level experiments to continuously improve production practices and profitability: "When they return home from these seminars, they discuss

them with other farmers in the village” (Middle management), “working as an example and dragging the rest along” (Board member). These seminars could be organised by CiComp, an advisory organisation or a research project dealing with, for example, soil health issues or the use of recycled fertilisers. For both agricultural practitioners and CiComp’s sales personnel, the information shared in the seminars—gathered from farm-level experiments and experiences and supported by academic research—constituted a base for knowledge seen as justifying the use of CiComp’s products. This knowledge was mostly deployed in farm-level communications by CiComp’s personnel and the ongoing interactions with agricultural customers provided a possibility to gain local understanding to adjust their practices and arguments to meet the level of understanding required to establish a forum for discussion with current and potential customers. Farm-level experiments were also considered to play a major role in supporting sales because product-use experiences spread efficiently in local farming networks and, through organised field events, in partner farms:

As we handle novel side streams, we have a burden of proof that the products work as claimed. We also need to have the required knowledge and ability to advise farmers in product use. (Senior manager)

Evident ambiguity in the use of soil improvement products led to the establishment of trustful relationships between sales personnel and actors dealing with agricultural decision making practices (cf. Tomkins, 2001). To enhance the approval of unconventional products, the knowledge considered relevant from salespeople’s standpoint was distributed among local communities. Hence, this interaction formed a chain of learning and knowledge distribution in which VAS appeared as information-sharing systems within personal networks based on first-stage relationships between CiComp’s personnel, front-row farmers and consultants working with agricultural clients. These relationships were characterised by shared experiences, informal measurements and field observations, discussions with other salespeople and information sharing and support from the company’s research and development unit. In a sense, the sanctioned and vernacular domains continuously overlapped, and although the actions were partially sanctioned, the vernacular domain provided an accessible platform to interact with customers and manage tensions caused by prejudice towards unconventional products.

A change in attitudes was also considered pivotal in the context of product supply. When negotiating and cooperating with the industrial sector, CiComp faced an environment where essential business-driven objectives can create boundaries for collaboration and sustainability-related issues were mostly considered as an additional benefit from an industrial corporation’s standpoint. CiComp’s managers realised that in the early stage, by means of integration in the industrial process, managing on-site further processing and collaborative planning in side stream handling, it would be possible to create products with higher agronomic value, secure side stream quality and engage industrial partners in longer-term collaboration. This was considered a prerequisite for product development—demanded by sales personnel involved in vernacular discourses—and reaching sustainability-oriented objectives—reflecting the founders’ viewpoints. To build a foundation for long-term collaboration, CiComp opened its books and shared information considering the pricing, product demand and challenges faced in the end-use context. Although aspects of sustainability began to receive wider attention from

the industrial sector and some change in attitudes seemed to occur, financial argumentation mostly dominated the negotiations:

We must show how finance works in the value chain and what the realistic value is for it [side stream]. Obviously, however, interest has also been aroused in the industrial sector. Although we are increasingly looking for solutions to improve the side stream's quality and are ready to invest in it, I believe this development will now go forward independently. (Senior manager)

In addition to information sharing and the establishment of top-down controls to oversee and coordinate process development, platforms for more autonomous information sharing between different units were introduced and managerial responsibilities were reorganised to enhance product knowledge in sales. Individuals' proactive behaviour facilitated the implementation of sanctioned systems, indicating that the lack of formal controls reinforced VAS's role in shaping the established sanctioned systems and enabled the enhancement of information sharing through a platform positioned to function in juxtaposition with the vernacular domain. In addition, to overcome emerging challenges, understanding how different participants considered the role of nature and whether they embraced sustainability-oriented values seemed essential to finding common ground for discussions throughout the circular business network CiComp facilitated.

4.2.2.3. Organisational practices. Measuring the products' long-term impacts on soil, yields, farmer's profits and so forth can be extremely complex: various uncontrolled factors need to be considered, changes in agricultural practices established and how farmers view the use of inputs may require adjustment. Sales arguments may be impeded by challenges in measuring the impacts of products claiming to have a soil-improving effect and bound nutrient release over time:

If we take an organic product, which releases nutrients, it is influenced by the carbon–nitrogen ratio, soil attributes, biological activity, weather conditions, temperature, moisture (...) so if you try to tell what the nutritional impact is (...), sure, we can say something (...) but it is really difficult to be exact. (Senior manager)

The interconnectedness of natural events, product impacts, and complex biological mechanisms in soil- and farm-level financial outcomes appeared as an ambiguous reality where decision making often relied on information received from authorities, such as advisers or salespeople. Although the actions taken at the farm could be considered controllable, experience showed that many farmers did not behave as expected and often compromised part of the potential benefits or caused unwanted effects by carrying out misguided actions at the farm. CiComp's managers applied a more systematic approach to deploying information about best agricultural practices at the farm level and involving agricultural customers in product development and experiments, with the objective of better understanding and measuring their products' impacts on arable soil and controlling farm practices in such experiments.

In addition, CiComp launched a "crop rotation fertilisation model," providing a tool for farmers and sales personnel to understand the needs of agricultural soil and surrounding infrastructure (e.g. dwellings) more holistically and over a longer time period, thus enabling more informed decision making and better practices, which

would presumably also improve benefits gained from long-acting soil improvers and fertilisers. Another tool provided for local use was the soil health assessment chart first developed by Aarhus University and translated into Finnish as part of a government-funded project (University of Helsinki, 2019), meant to provide knowledge and tools for farms to improve soil health in a resource-efficient manner: “The more holes we dig into the ground, the more we know what happens in the soil” (Senior manager). However, the use of these tools was not self-evident in practice, with sales personnel often finding that farmers regularly ignored more sophisticated planning and calculation methods. For these farmers, the arguments had to be translated⁵ or modified to meet the vernacular discourse used in agricultural sales (see also Bechky, 2003) and the epistemic beliefs emphasising one-season benefits and impact–cost ratios, which led, in some cases, to sales arguments deviating from the organisation’s instructions and to self-granted flexibility in the sales process:

In principle, we have been taught how to do it. We have this certain pattern [in sales] that we should follow—I never use it (...) for my customers. It is not so much about environmental issues; the first thing is the farm’s profitability. (Operational)

These actions—where individual managers took a pragmatic step away from the sanctioned controls, such as procedures for the sales process and utilised their own calculative practices and argumentation—can be considered an organisational practice (Kilfoyle et al., 2013) where the task group consisted of personnel working with agricultural sales. These individuals shared cognition by considering what type of communication resonated in the customer interface and created ways to bend the rules (sanctioned controls) to build their own procedures. In addition, the level of self-granted flexibility varied between different individuals, even though they recognised cost dominance and necessity congruently for comparison to conventional products in their interactions with customers. This situation caused frustration among the sales personnel because they seemed to share the organisational values, but their capability to follow these was limited. Despite endeavours to provide a possibility to conduct farm-level experiments, the tools to measure changes in soil health and guidance for enhanced crop rotation practices, the additional positive impacts of circulated products remained obscure or irrelevant for most farmers.

Through internal discussions, the value of local interactions and networks at the operational level and in strategic planning—including recruitment decisions—was recognised more broadly. During the data gathering period, all but one of CiComp’s salespeople also practiced agriculture, which allowed them to use their location-specific knowledge with potential customers to share personal experiences concerning the use of recycled fertilisers and create personal relationships with broader agricultural communities, including advisers working in both governmental organisations and private sector agencies. This involvement with local actors was encouraged by top management, but not formally controlled or monitored. In a sense, the vernacular organisational practice in sales procedures remained and more subtle guidance and support was set up to encourage an

⁵The term *translation* is used here to mean that when constituents with different occupational perspectives applied different terminologies, basic understandings and mindsets to “speak the same language,” some level of explaining, teaching and illustration were needed. It could include traits of both linguistic (intra-lingual) and metaphorical translation (Piekkari et al., 2020).

inherently slow change in customers' epistemic stances. This was done by acknowledging the role of salespeople as peer farmers (from the customer standpoint), providing the possibility to share first-hand experiences with others and create professional networks that could facilitate a broader change in attitudes.

4.2.2.4. Negotiation devices. Bringing together different types of industry sectors created an epistemic gap between purchases and sales and the recognised issues were brought up by individuals experiencing challenges in task management. Side streams occasionally did not meet the quality standards because of, for example, being too moist or containing too much plastic or other unwanted materials. In some cases, the side streams lacked the attributes needed for agricultural use, making them either unusable or entailing additional costs (e.g. drying, mixing, testing). The sales personnel felt that emerging problems, handling customer feedback and problem-solving piled up, even when the reason was elsewhere:

We [sales personnel] are mainly in contact with customers and when something goes wrong, it comes to us—no matter who made the mistake. This burdens sales personnel and ties up resources because you have to figure out what the problem is and find a solution. (Senior manager)

As a straightforward solution, CiComp's senior managers considered that the integration of industrial processes and management of further processing could serve as devices to ensure process functionality. Also, streamlining logistics by taking the information flow into the organisation's hands as early as possible was considered to enable more accurate production forecasts and better logistics coordination. To overcome the emerging challenges and better understand and manage the industrial processes, new recruitment was undertaken to increase knowhow of industrial processes, new practices for checking for harmful substances and evaluating product quality set up, and new software for logistics and sales launched to keep track of material flows and storage and to schedule deliveries.

In addition, to streamline the operative processes, certain responsibilities were rearranged. Based on the interviewees' remarks, implemented changes were a response to feedback received at the local operative level, which mentioned, for example, the excessive workload of a single senior manager responsible for organising sales and managing product range. Hence, the information shared worked as a defensive resource (Goretzki et al., 2018; Kilfoyle et al., 2013) for employees who recognised the former situation's shortcomings. Depending on the person, the establishment of new processes and controls provided an opportunity to negotiate for increased responsibility or diminished workload to better focus on the tasks considered essential. Later, sites with ongoing contractual commitments were divided among local sales managers, with each manager taking on more responsibility in terms of distribution and sales support for certain industrial sites' product ranges, hence enhancing their understanding of the qualities, agricultural values, downtimes, seasonal variations and other essential factors of particular sites.

Consequently, the interviewees stated that more efficient negotiations and information sharing between business units occurred. Discussion platforms were established to share informal and formal information on a daily and weekly basis. The distribution of locally created information was considered crucial to overcome issues with purchase–

logistics–sales dynamics, enabling personnel working with the industrial sector to understand agricultural demands and work with clients in the agriculture sector:

Earlier, it was more like a push method so that some stuff came from the pipe, and ‘goddam—we must take this somewhere’ (...) it required a lot of work to actually sell it and not just have it dumped somewhere. Now, we have reached a point where we can decline some purchases if we find that they have no way to succeed. (Senior manager)

As a result, they were able to decline unwanted side streams and fully understand—in both purchases and sales—the pricing mechanisms and cost factors affecting certain side streams. The way that CiComp’s practices developed from a push model—with product range and sales defined and pressured by purchases—into a pull model—addressing customer demands—shows how locally created information was distributed and rationalisation occurred in the organisation across its occupational tasks and in interactions with its stakeholders—meaning the actors operating in CiComp’s circular business network.

5. Discussion

The aim of the current study was to demonstrate how human–nature relationships in the CE context could affect management accounting systems and managerial work and to illustrate the role of VAS in capturing the diversity of these relationships, which may play a role in guiding the establishment of CE networks.

5.1. *The context and the role of nature*

One of this study’s contributions was offering a thorough understanding of a single organisation’s CE business context and implementation of CE practices (Frishammar & Parida, 2019; Kirchherr et al., 2017; Urbinati et al., 2017). The findings support Kirchherr et al.’s (2017) notion of CE as a multilevel system by showing how CE-based practices can be developed through a novel business model and provide an example of CE principles being deployed at different levels of the network (see also Ghisellini et al., 2016). The interviewees considered CE as primarily an environmental issue, but matters concerning CE were also reflected in more fundamental systemic changes in the studied business sectors, such as the long-term profitability and well-being of practitioners in the agriculture sector, in addition to CE’s potential to enhance sustainability. These notions are also in line with Kirchherr et al.’s (2017) definition of CE, emphasising its aim and ability to contribute to sustainable development efforts. Hence, the case also sheds light on developing a business model informed by various planetary boundaries (Rockström et al., 2009).

Previous research investigating CE operations at the meso-level has mainly focused on eco-industrial parks (see, e.g. Kirchherr et al., 2017; Sakr et al., 2011), while the current study discusses the meso-level case of a company working as an intermediary between two different industries at the regional level. In line with Sakr et al.’s (2011) suggestion about the role of the “champion” as a key factor in developing meso-level community relationships and networks, this case shows how an organisation positioned as an intermediary can create novel networks and effectively distribute information and awareness regarding CE-based practices’ potential benefits. Locally created knowledge and VAS

played a role because of their ability to capture local understandings and enable action (see also Goretzki et al., 2018; Wouters & Wilderom, 2008) but they could also create distance to CE principles in case the locally supported beliefs and traditions were majorly distinct from the aims defined for the emerging CE network.

Agricultural soil is a key element with the potential to steer the ensemble of accounting and control practices in the studied business environment, not only as an accounting object but as an inherent part of vision, strategy and sense-making, flourishing at both the organisational and network levels. Understandings and actions regarding soil in the studied case illustrate the human–nature relationship in accounting in various ways (see e.g. C. Cooper & Gallhofer, 1992; Hines, 1991; Russell et al., 2017; Sullivan & Hannis, 2017). First, soil was fundamentally present in the organisation’s values and long-term target setting because of its financial and environmental benefits potential (e.g. carbon sequestration and diminishing eutrophication). Second, aspects of soil health created ground for side stream circulation and the basis of proof regarding the agronomic value and profitability of using such products, here an essential part of formally sanctioned sales procedures. Third, as a nature-based element, soil appears as an accounting object affected by a variety of natural events and complexities where established management accounting systems mostly fail (see e.g. Milne, 1996). Hence, human–nature relationships were present in local interactions and environments where individuals often had to cope with conflicting epistemic beliefs, values and traditions to find common ground for discussions and cooperation beyond the organisationally sanctioned domain. The case organisation not only deployed tools to assess soil health and carbon sequestration but also promoted the development of proactive soil management to guide agricultural practices in a more regenerative direction. The development of these tools and understandings regarding soil appeared both in formally sanctioned processes and in individual employees’ efforts, who created their own routines, controls and interactions in social orders in which they were involved (Hall, 2010; Kilfoyle et al., 2013).

5.2. The role of values when navigating in “vernacular”

Organisational values defined and communicated by senior management are typified as (cultural) controls belonging to an organisation’s belief systems, which set explicit definitions for the organisation and designate its purpose and direction (Simons, 1995). Here, it functions as a contextual frame for other organisational controls (Malmi & Brown, 2008). Rules and routines addressing sustainability issues in managerial work and accounting practices are known to grow in maturity, but they still often lack the power to displace profit-seeking assumptions (Contrafatto & Burns, 2013). In this case, such guidance was mostly lacking or handled at an abstract level, resulting in a stronger emphasis on the information and understandings created in local vernacular environments. In turn, economic profitability as a basis for ensuring going concern (see, e.g. Carroll, 1991) was considered the precondition for supporting CiComp’s endeavour to reach its value-based objectives, embracing the possibility of contributing to the systemic change required in its business field. Inconsistently, compared with its long-term targets, CiComp’s compensation principles were based on short-term financial indicators, which affected employee understandings of the organisation’s objectives.

While balancing between different business sectors and logics (cf. Järvenpää & Lämsiluoto, 2016), the case organisation's approach to communication with different parties resembles the use of organisational façades (Cho et al., 2015), where operational aspects are framed differently for divergent stakeholders to manage and gain legitimacy with respect to their interests. This sets a possible direction for future research to investigate whether VAS could be used to erect façades (necessary for success), even if the formal controls or objectives seek a different front.

The endorsed idea of the freedom to choose and do the right things in the right way without predefined processes indicates the desire for a certain level of flexibility in operational decision making, assuming—from top management's standpoint—that actions taken follow the organisation's key values and objectives defined for profitability. Hence, organisational values may support consistency in autonomous decision making, but as the current study's findings have illustrated, when the defined objectives are considered contradictory, this may cause confusion, create distance between vernacular domains and sanctioned systems and reinforce multiple rationalities in the development of VAS (see e.g. Chenhall et al., 2013; Kilfoyle et al., 2013), especially when employees are required to balance different or vaguely defined expectations in their local task environments. Hence, the observable (self-granted) flexibility seemed to provide an open platform for employees to explore locally relevant information and practical knowledge and assess this information against their understanding of values and in relation to nature—not always in line with organisational values. This created distance between the sanctioned cultural controls and practical managerial work, where self-generated practices were applied to cope with CE business network development and diversity of epistemic beliefs confronted locally. Deploying the concept of VAS as an analytical lens, these practices were recognised as self-created accounting tools, information-sharing systems, organisational practices and negotiation devices often overlapping with the organisationally recognised sanctioned systems or playing a role in their development.

5.3. Vernacular accountings in the CE context

The findings illustrate how vernacular discourses assisted in the creation of common ground for discussions when novel products and practices were introduced to traditional business fields. The way individuals created tools to cope in their managerial tasks resonates with the concept of VAS, especially in the areas where formal systems fail to provide relevant information for local managers'—or their customers'—needs.

Traditions, conventions and intergenerational ways of doing things in agriculture represent the vernacular information economy, in which many of the case organisation's potential customers and stakeholders were involved. Although intergenerational knowledge and inherited practices often contain valuable insights and may simplify generational changes, familism in the agricultural context can have a negative impact on the diffusion of management accounting practices (Ndemewah et al., 2019), which evidently deepens the financial challenges farm enterprises experience and narrows the decision making perspective when confronting challenges in production practices and the management of farms' environmental impacts. CiComp's sales personnel sought to identify farmers open to stepping away from mainstream traditions and created calculative practices to enable arguments that would resonate with customers. However, for top

management, these self-generated tools appeared problematic if not formally examined and monitored and were believed to misguide the actions of both customers and managers. Although top management acknowledged the value of local knowledge and its dependency on local actors (cf. Goretzki et al., 2018), they were eager to tighten the controls when such local practices were predisposed to broader discussions.

However, VAS emerging through involvement in local social orders and interactions with local partners can fill gaps in the organisation's broader management control environment (Malmi & Brown, 2008). Here, information was shared across occupational tasks (see Bechky, 2003) to ensure that purchased side streams were suitable for agricultural use. The current study thus demonstrates how locally gathered and shared knowledge facilitated the emergence of an organisational practice (cf. Mättö et al., 2022) and played a role in changing how conventional understandings and discourse in the field of agriculture developed, even though information flow and the development of knowledge were not straightforward.

The complexity of product qualities, uncertainties caused by the biophysical environment and differing epistemic stances within a circular business network were shown to generate needs for enhanced local understandings and information sharing through discussions and compromises. This paper contributes to previous work on coexisting modes of evaluation, suggesting that accounts may also have the potential to facilitate compromises (André et al., 2018; Chenhall et al., 2013). By adapting local knowledge and making contingencies more tangible for other participants, VAS may stimulate a dialogue and create productive friction through which the refinement of accounting practices can be achieved (Chenhall et al., 2013; Goretzki et al., 2018). From a practical viewpoint, the study highlights the authorities' role in CE networks. Facilitating the involvement of a broader range of stakeholders involved in circular business networks and collaborating with specialists, such as researchers and advisers, in local task environments may enhance the legitimacy and usability of created knowledge and accountings.

Vernacular accountings were, in some instances, also used as defensive resources (Goretzki et al., 2018; Kilfoyle et al., 2013) to negotiate the changes and development of formal accounting and control systems (see also Otley, 1999) or to address known deficiencies, such as unbalanced managerial responsibilities, in the existing system. In line with Svensson and Funck's (2019) work, the present study's findings underline the importance of both formal and informal management controls adapted to a business model built on CE principles.

The way these systems developed in the case organisation resonates with Carlsson-Wall et al.'s (2019) findings, showing how vernacular systems may be integrated with formal management systems and turn management practice into a hybridised mode of interaction where different systems are incorporated either beyond interorganisational boundaries or across an organisation's internal knowledge boundaries to enhance managing uncertainties and coordination across different domains (Miller et al., 2008).

Hence, the present study supports the view that VAS can be adopted more frequently when formally approved systems cannot sufficiently facilitate common ground for both intra- and interorganisational interactions to recognise concerns and interests beyond an organisation's boundaries (Carlsson-Wall et al., 2019). Moreover, the present study extends the discussion on VAS's role in influencing organisational practices and

capability to facilitate the institutionalisation of locally created accountings (Mättö et al., 2022).

While previous studies utilising VAS have mainly investigated larger multinational organisations (e.g. Carlsson-Wall et al., 2019; Goretzki et al., 2018; Mättö et al., 2022), the complex context of an emerging CE business foregrounds VAS's fluid boundaries as an analytical concept: informal interactions may be inherently present throughout an organisation, and VAS may appear and disappear or even become a formal system at a fast pace. Thus, in some instances, it may be problematic to recognise which practices are officially sanctioned and which are not, because their distinction is not static (Carlsson-Wall et al., 2019). One week, a key figure in an organisation, such as the CEO, may formally recognise a certain aspect, and the next, focus may shift and turn elsewhere. Acknowledging the ambiguity of this typification, the current study has recognised and analysed how individuals navigate between the formal and vernacular domains and a variety of VAS practices, which are in constant development (Carlsson-Wall et al., 2019) and may result in both stabilisation of formal systems (Lukka, 2007) or remain in constant flux.

Hence, from a practical standpoint, in managing the complexity of the CE business environment, it seems essential to share information across occupational tasks (Bechky, 2003) and acknowledge the needs and capabilities of different customer segments, which often require involvement in vernacular information economies. To deal with these issues at the organisational level, balancing between flexibility and constraints may be needed, along with adequate consistency when setting up the controls package (Malmi & Brown, 2008; Sandelin, 2008). In addition, a certain level of ignorance, along with sensitivity, may be deemed necessary with regard to individual interactions in vernacular domains, which may trigger VAS development and potentially enhance the functionality of broader management accounting systems (cf. Mättö et al., 2022).

6. Concluding remarks

The purpose of a green start-up such as CiComp is to develop and spread radical and sustainable innovations to contribute to the social transformation leading to a sustainable economy (Bergset & Fichter, 2015). When knowledge of novel products is shared across occupational boundaries, the members of different groups need to find common ground for discussions (Bechky, 2003). The aspired role of accounting(s) lies in the creation of situational, cultural and contextual knowledge (see also Bechky, 2003; Kilfoyle et al., 2013; McKinnon & Bruns, 1992). Constantly recreated in interactions, these understandings highlight and obscure the distinction between the formal and informal.

Hence, management accounting systems are not a property of accounting function but a result of broader organisational interactions (see Dechow & Mouritsen, 2005). Recognising VAS's role, its development is connected to knowledge beyond the organisation's boundaries. This may be deemed especially relevant where novel products, business networks or value-oriented objectives confront traditional business fields and existing vernacular information economies.

This paper has illustrated how managing the complexity of a CE business environment and network requires information sharing across occupational tasks and how the lack of formal systems—or their inability to provide useful information—may trigger processes in which VAS are used as defensive resources or negotiation devices in the development

of managerial practices and redistribution of responsibilities. Moreover, the human–nature relationship in accounting appears as an endogenous factor affecting the development of sanctioned management accounting systems while still influenced by vernacular domains. VAS may thus play a role in capturing this often-unseen dynamism between the locally legitimised and organisationally sanctioned systems from the standpoint of nature and sustainability (see e.g. Gray, 1992).

In all, more holistic and interdisciplinary research from different business fields and company profiles is needed to better understand how natural elements, such as soil as a vital component of food production, guide organisational actions and the development of accountings. Nature poses fundamental uncertainties and uncontrollable elements for management systems, while different understandings of nature within management accounting and managerial decision making pose fundamental questions for the planet’s future.

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