



Ethical implications of employee and customer digital footprint: SMEs perspective[☆]

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ARTICLE INFO

Keywords:

Digital footprint
Transparency
Data privacy management
Business value
Social value
Ethical implications
SMEs

ABSTRACT

In a world where Small and Medium Enterprises (SMEs) increasingly leverage their Digital Footprint (DF) for business growth, ethical concerns surrounding employee and customer DF pose a significant challenge. This research investigates how SMEs can navigate this complex landscape, balancing the creation of business value with the broader social value of managing data. Drawing upon Kantian ethics, which emphasizes the duties of organizations to respect individuals' autonomy and protect their rights, the study addresses a critical gap in understanding the ethical implications of DF for business value creation and employee experiences. Using a social constructivist approach, the research reveals the importance of DF awareness and proposes a novel conceptualization of DF as a dual entity: (i) an independent actor influencing consumer decisions and (ii) a collaborative activity within and beyond the organization. This broadens the traditional view of DF and informs a new framework for ethical DF management in SMEs. This framework emphasizes four core pillars – data transparency, data protection, data privacy, and data transformation – supported by stakeholder involvement. The study also highlights overarching factors three key actions and DF strategic implications at the end.

1. Introduction

Digital Footprint (DF) refers to the trail of data that users leave behind when they are online, a concept attracting increasing scholarly interest, particularly in the context of 'digital transformation'. This transformation affects individual behavior and performance, influencing all aspects of human life (Henriette et al., 2015; Bencsik et al., 2023). From social media personalization to predictive healthcare, digital transformation leverages digital footprint (DF) data to influence individual choices, purchasing habits, and even workplace productivity. For example, in education, personalized learning platforms adjust to students' DF to promote tailored educational experiences (Buitrago-Ropero et al., 2023; Schwartz et al., 2020). Similarly, in workplaces, digital tools used for monitoring productivity shape employee behavior, often leading to enhanced performance but also increasing stress (Leonardi & Treem, 2020). This underscores the importance of understanding the ethical implications of DF in SMEs, as these practices can significantly impact both customer and employee experiences, shaping trust, well-being, and business value creation.

Digital technologies, while evolving into sets of relations crucial for sustaining a competitive advantage (Faraj and Leonardi, 2022), can be highly invasive. Temporary data about individuals, difficult to keep private, accumulates and unpredictably impacts privacy (Stark, 2016; Jansen and Hinz, 2022). As a growing proportion of organizational online activities generate DF in electronic databases (Hitt, 2019), managing these DF becomes critical, especially given increasing privacy concerns as organizations process and analyze these data trails (Mai, 2016; Loutfi, 2022). Given the pervasive impact of digital technologies, our study draws upon Kantian ethics, a framework that emphasizes the duties and moral imperatives of organizations in respecting individuals' autonomy and ensuring their rights are protected (Bowie, 2017). Despite the increasing importance of DF, there remains a critical gap in comprehending its ethical implications for business value creation and employees' experiences within SMEs. Exploring the ethical implications of DF in SMEs is essential because it impacts trust, employee well-being, and business value creation (Bowie, 2017; Stark, 2016). Unethical DF practices can damage trust with customers and employees, leading to disengagement and turnover, while ethical management of DF can offer

[☆] This research is funded by UK Research and Innovation (UKRI) with the reference number of ES/V017551/1.

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<https://doi.org/10.1016/j.jbusres.2024.115088>

Received 23 March 2023; Received in revised form 11 November 2024; Accepted 20 November 2024

Available online 28 November 2024

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SMEs a competitive advantage (Herschel and Miori, 2017; Harrison et al., 2010). By ensuring compliance with data privacy regulations, ethical DF practices promote innovation, loyalty, and long-term growth (Freitas and Mira da Silva, 2018; Eggers, 2020). Understanding these implications helps SMEs balance digital transformation with responsible practices for sustainable success.

With rapid digitalization, the term ‘DF’ has created an array of related concepts, prompting scholars to revisit similar constructs across different domains of various fields impacted by DF, including but not limited to psychology, education, and business. Each domain faces unique challenges and opportunities in the management and utilization of DF. Terms like ‘digital shadow’ or ‘data shadow’ describe the information individuals leave behind during online activities such as checking emails or shopping (Howard, 2006). Another relevant concept is ‘web tracking’, which refers to cookie tracking via HTTP for mass surveillance (Englehardt et al., 2015). Data shadows continually evolve into DFs used for various predictive purposes, such as in marketing campaigns (Koops, 2011). The lack of a clear conceptualization of DF in the business and management domain has significant ethical implications, particularly for SMEs. Without a shared understanding of what constitutes an organization DF, it becomes challenging to establish clear guidelines for data collection, storage, and use. This ambiguity can lead to ethical dilemmas, such as the misuse of personal data or the violation of privacy rights. Moreover, SMEs may struggle to effectively manage their DFs without a solid conceptual foundation. This can result in unintended consequences, such as regulatory non-compliance or reputational damage.

For this study, an SME is defined as a company that employs fewer than 250 personnel, with a maximum annual turnover of €50 million or a balance sheet total not exceeding €43 million. This definition aligns with the European Commission’s (2003) criteria of SMEs, making this study particularly relevant in the European context. SMEs are distinguished from larger corporations by their liability of smallness, which affects resource deployment and allows them to develop closer connections with customers, fostering more agile decision-making processes (Eggers, 2020). Additionally, the democratization of data access, as noted by Faraj et al. (2021), has made it easier for SMEs to collect and analyze digital data, further enhancing their decision-making capabilities.

These characteristics present unique challenges and opportunities for SMEs, influencing their ethical actions and strategies in managing DF. While the Digital Market Act, unveiled by the European Commission in March 2022, offers new opportunities for SMEs to compete with larger tech companies, the rapid digital transformation has also introduced complex ethical challenges. Advancements in data accessibility and digital tools highlight significant concerns around privacy, accountability, and transparency, often overlooked in existing research on larger corporations. These challenges, particularly concerning privacy, accountability, and transparency, align with Kantian principles, which mandate that organizations respect the individual autonomy and act with a duty of care to prevent harm to stakeholders (Floridi, 2016; Herschel and Miori, 2017).

The Digital Market Act has enabled SMEs to compete by allowing messaging services like WhatsApp to communicate directly with various users, a rule that benefits them over tech giants like Amazon and Google (Espinoza, 2022). Despite these advancements, both the existing literature and the professional world require further insights into how SMEs address the ethical implications of the DF they create (Guha et al., 2018). Issues like privacy, accountability, and transparency, pertaining to both geographical and social flexibility as well as mobility, require careful consideration (Ekbja, 2016). The data that both individuals and organizations leave behind have significant implications for privacy, security, and business ethics (North and Oliver, 2014; Frewer, 2003). Existing research primarily focuses on the characteristics of being digital – digital platforms (Nzembayie et al., 2019), digital infrastructures (Von Briel et al., 2018), and the digitization process (Tilson et al., 2010) – but

neglect the ethical implications of DF on business value creation and employees’ experiences in today’s digital society. These factors, combined with the challenges of managing DFs, present a complex landscape for SMEs navigating the ethical dimensions of digital transformation.

Recognizing this gap, this study aims to explore innovative ways of managing ethical issues associated with DF among SMEs, primarily focusing on business value creation while acknowledging the broader context of social value. Grounded in Kantian Ethics, we emphasizes duties, autonomy, and respect for individuals (Bowie, 2017), a perspective that guides our analysis of how SMEs can manage their DF in a manner that respects the rights of employees and customers while balancing business value creation. We conducted a multi-method study through the lens of social constructivism, including interviews with senior executives, discussions via podcasts, and a webinar poll questionnaire involving industry professionals and academic researchers. To this end, this study aims to address two research questions pivotal in understanding the intersection of DF and its ethical management within the SME context.

1. *How do SMEs manage the ethical challenges associated with the DF of employees and customers?* This question explores the strategies and practices that SMEs employ to navigate the ethical complexities surrounding DF.
2. *What are the implications of DF for business value creation in SMEs?* This involves examining the balance between harnessing commercial benefits and upholding ethical responsibilities. Through this question, the study investigates how DF is leveraged by SMEs to create business value, while also considering the ethical dimensions.

Our findings enabled us to have better conceptualization of DF, which allowed us to unpack the ethical implications of DF in organizational settings, especially with regard to transparency strategies and employee privacy.

2. Literature Review: Understanding digital footprints for SMEs: A foundation for ethical considerations

DFs are comprehensive data profiles of entities, such as employees, customers or teams, constructed from digital exhaust, which refers to the metadata logs generated by everyday digital activities like web browsing, emailing, messaging, or attending virtual meetings (Leonardi, 2021). DF are dynamic in nature, constantly updated with new data, and can be utilized to predict behaviors and preferences, providing valuable insights for businesses. In the context of SMEs, DF awareness involves understanding and recognizing the creation, usage, and implications of digital data profiles. This awareness is crucial for safeguarding sensitive information from unauthorized access and for leveraging DF to analyze consumer behavior, enhance marketing strategies, and improve overall business operations. Effective DF management enables SMEs to refine their business strategies by making informed decisions based on data-driven insights.

As discussed previously in the introduction, the expanding discussion on DF offers deep insights across various domains, including psychology, education, and business. For example, in the domain of psychology, research has significantly advanced our understanding of how personality traits can be predicted through social media activity, leveraging advanced machine learning techniques to identify patterns correlating with established personalized psychological profiles (Valanarasu, 2021; Hinds and Joinson, 2019). This parallels the findings of Azucar et al. (2018), who provide a meta-analytical perspective on predicting Big 5 personality traits from social media footprints, emphasizing the reliability and applicability of digital traces in psychological assessments. In the educational sphere, DF plays a pivotal role in enhancing educational strategies and students’ assessments. Buitrago-Ropero et al. (2023) explore the role of DF in enhancing educational strategies and student assessments, suggesting that digital traces can provide critical resources

for educational insights and decision-making, facilitating personalized learning experiences and improved educational outcomes. In the business and management domain DF is instrumental in understanding consumer behavior and tailoring marketing efforts. Advances in Artificial Intelligence (AI) enable the prediction of consumer choice, and the personalization of the marketing mix based on DF analysis (Schwartz et al., 2020). Learning from the examples from different domains shared earlier, we can see the implication of predicting personality traits of DF, and personalization strategy that not only can help tailoring marketing efforts to increased customer satisfaction and operational efficiency, but it also raises multifaceted ethical concerns.

2.1. Ethical implications and challenges of DF in SMEs

The utilization of DF raises substantial ethical concerns, particularly regarding privacy and surveillance. In workplace settings, excessive monitoring through DF can lead to employees experiencing stress and burnout as they may feel compelled to modify their behaviors under constant observation (Leonardi and Treem, 2020; Cristea and Leonardi, 2019). Additionally, users often lack control over their own data on social media platforms, rendering them vulnerable to exploitation and unauthorized use of their personal information (Faraj et al., 2018).

Utilitarian perspectives might argue that such personalization enhances overall consumer satisfaction and operational efficiency. However, deontological ethics – defined by action being considered morally good under a series of rules and principles due to the action itself and not because of the consequences – would question the morality of price personalization based on income, suggesting it could be an intrusion into individual privacy or even a form of discrimination. Furthermore, the ethical principles of “doing good” and “avoiding harm” become even more critical as AI’s predictive accuracy improves, potentially influencing both individual and aggregate consumption in ways that may not always be ethically justifiable (Hermann, 2022). Therefore, applied ethics provide a crucial framework for evaluating the interdependencies and complexities of ethical principles as AI technologies become more pervasive and sophisticated in the marketing domain.

Given the distinct DF and varied technology adoption rates of SMEs compared to larger businesses, there is a crucial need for research that specifically targets these differences in the context of business operations, such as digital marketing applications (Ritz et al., 2019; Westerlund, 2020). For example, SMEs might rely more heavily on direct social media engagement with customers rather than on broader digital advertising campaigns which larger corporations can better afford. This can create DF that is deeply interactive but narrower in scope, focusing more on community-building than widespread branding (Bocconcelli et al., 2017). Limited data might mean less detailed information, but it does not exempt SMEs from being targets of cyberattacks (Armenia et al., 2021). Without robust data protection measures, even small data breaches can have disproportionately large impacts on customer trust and potentially significant business disruptions. This gap highlights the need for research that specifically investigates how DF can be processed for business operations, in this instant focusing on successful digital marketing in the unique contexts and challenges SMEs face.

To address privacy and ethical concerns, robust regulatory frameworks have been established. The European Union’s General Data Protection Regulation (GDPR) emphasizes transparency and strict regulation of profiling and automated decision-making processes (Matz et al., 2020; Falchuk et al., 2018). Compliance with such regulations is critical for SMEs to ensure ethical DF management and to avoid legal repercussions, including substantial fines for breaches of privacy (Plimmer, 2013). By ensuring transparency and accountability, compliance with GDPR can contribute to mitigating the risks of biased outcomes and social inequalities associated with the use of DFs across different socio-demographic groups. Research has shown that inadequate consideration of ethical concern can exacerbate social inequalities and result in biased outcomes (Micheli et al., 2018; Lutz, 2019;

Comunello et al., 2024).

SMEs, with their distinct DF patterns and varying technology adoption rates compared to larger corporations, face unique challenges in ensuring equitable and inclusive use of digital data in their business management and operations practices (Ritz et al., 2019; Westerlund, 2020).

2.2. DF in workforce management

The integration of DF in workforce management practices presents complex ethical dilemmas, particularly in the context of SMEs. As digital transformation reshapes business practices, it also blurs the boundaries between personal and professional life, raising critical questions about privacy, transparency, and the ethical use of data. The McKinsey Global Institute predicted that by 2020, digitization would significantly impact labor supply and productivity (Manyika et al., 2015). This shift has been reflected in how human resources departments and recruiters are increasingly gathering information through channels such as cloud computing, mobile phones, blogs, electronic subscriptions, and social media (Bharadwaj et al., 2013), rather than relying solely on interviews and information provided by candidates (Boudlaie et al., 2019; Hitt, 2019).

These new methods of soliciting data and information online, while efficient, also expose employees’ and candidates’ personal information, behaviors, and attitudes, potentially compromising their privacy and equality in the workplace as it gives employers unintended access to a wealth of personal information (Friedrich et al., 2011). While research on these ethical challenges exist, many only looks at outlining its danger and how it raises ethical consideration on how it could influence hiring decisions or performance evaluations (Fitzgerald et al., 2013), neglecting the need for more insights on what organization do to mitigate this issue.

Research has started to focus on human resources management strategies, particularly on the need of using structured, relevant data—such as performance evaluations and work-related digital interactions, while ensuring that sensitive personal data, like race or health conditions, remain private (Friedrich et al., 2011; Fitzgerald et al., 2013). However, discussion on the lack of control users have over their data makes them vulnerable to exploitation, especially when these digital traces are used in workforce management (Faraj et al., 2018).

The blurring of the traditional boundaries between employees and employers is also becoming a key factor in employee selection processes (Gloor et al., 2020) and can impact future employability. Employers’ growing reliance on digital footprints for decision-making can inadvertently lead to [unknowingly] discriminatory practices or privacy violations, particularly when data outside the professional domain is considered (Beduschi, 2021). Social media platforms, a significant source of DFs, offer unparalleled insights into large-scale behavioral patterns (Abril et al., 2012). However, users often cannot control their own data, making them vulnerable to exploitation (Faraj et al., 2018). With the global mobile device user base expected to grow significantly, from 6.4 billion in 2021 to 7.5 billion by 2026 (World Economic Forum, 2023b), the use of digital footprints in workforce management is only likely to increase. Hence, understanding how SMEs ethically identifies DF organizational actions is key, especially since the European Commission can impose fines of up to €500,000 for breaches of employee privacy (Plimmer, 2013).

As digitalization continues to shape our social and business lives, its potential economic impact cannot be overstated. According to a World Bank Report (2016), internet access could generate an added \$2.2 trillion in GDP and create over 140 million new jobs globally. The global mobile device user base is expected to grow from 6.4 billion in 2021 to 7.5 billion by 2026, indicating significant growth in digital engagement opportunities for SMEs (World Economic Forum, 2023b). The ethical implications of DFs in the value creation of SMEs are a nascent yet vital area of study (Azucar et al., 2018; Arya et al., 2019). This study aims to

address this gap by further exploring the ethical implications of DF for SMEs, focusing on awareness and its impact.

2.3. Ethical organizational actions and strategies for DF

The integration of DF into workforce management within SMEs is full of ethical complexities, particularly when viewed through the lens of Kantian ethics. Kantian ethics, with its emphasis on duties, autonomy, and respect for people, offers a robust framework for addressing the moral challenges posed by the use of DF in organizational contexts (Bowie, 2017). This ethical perspective provides critical insights into how SMEs can navigate the tensions between leveraging DF for business benefits and upholding the dignity and rights of individuals, especially employees and customers.

Most firms worldwide acknowledge the critical role of adopting new technologies and enhancing digital connectivity in their competitive journeys. The development of digital infrastructure is crucial in fostering sustained economic growth and enhancing how SMEs adapt to changing market conditions (World Economic Forum, 2023a; World Economic Forum, 2023b). SMEs' challenges in adopting Industry 4.0 technologies include reluctance from customers and OEMs, strategic planning gaps, awareness deficits, limited managerial support, and excessive costs (Kumar et al., 2020). These factors, crucial in SMEs' journey towards ethical digital transformation, underscore the complexities addressed in our research. Moreover, the large volume of personal data can potentially blur the boundaries between organizational and personal information further (Abril et al., 2012; Lightfoot and Wisniewski, 2014). Employees' DF, created through social media posts or emails, along with employee behavior analytics gathered from multiple sources, raises questions about how much legitimate access employers should have beyond the scope of the workplace and working hours (Lucero et al., 2013). This raises the key question of who owns this DF. Kantian ethics, particularly its principles of duty and autonomy, demands that organizations act in ways that respect the inherent dignity and autonomy of all stakeholders involved (Guyer, 2003; Floridi, 2016). This is particularly relevant in the context of DF, where decisions on data collection and usage directly impact individuals' privacy and security.

Many organizations are taking exceedingly small and vague steps to carve out their place in the digital world (Dupret, 2017) because changing employment relations are placing stress on the boundaries in organizational life, with significant tensions arising around what is considered appropriate, normative, or legitimate (McDonald and Thompson, 2016). For instance, social media platforms used by employees for work or personal purposes will remain visible and accessible after they leave the organization (Dumeresque, 2013). Similarly, in the recruitment process, employees' information shared on social media should be personal and private but is becoming increasingly accessible by the potential employer in the public domain (Berkelaar, 2017). Inevitably, the usage of open information via digital platforms will generate glimpses of organizations' activities and whether they are consistent with ethical principles such as equality, fairness, information privacy, and social welfare or environmental care (Turilli and Floridi, 2009; Loutfi, 2022; Volkmar et al., 2022). Focusing on the benefits of digital transformation rather than on the human-technology relationship could potentially create blindness in terms of ethical implications (Coeckelbergh, 2013). Under Kantian's Duty of Enlightenment, there is a moral imperative for organizations to educate and inform stakeholders about the practices in which they are involved (Kant, 1784). This principle aligns with the ethical need for transparency in how SMEs manage DF. Organizations have a duty to ensure that employees and customers are fully aware of how their information is collected, used, and protected. By doing so, they enable stakeholders to make informed decisions regarding their data, thereby enhancing trust and ethical standing.

Businesses gather extensive data via digital platforms to assess consumer behaviors and trends, often overlooking crucial aspects of data

privacy (Federal Trade Commission, 2014). Notably, in 2019, Google faced criticism from the French Data Protection Regulator for non-compliance in managing DF (Guinchard, 2020). Similarly, Facebook and Cambridge Analytica were legally challenged in 2018 for improperly handling the personal data of over 71 million individuals for political means (Bowcott and Hern, 2018). These examples underscore a broader crisis in data privacy and transparency, intensifying the need for ethical data management. The situation is particularly complex for SMEs due to the liability of smallness, spanning multiple facets such as IT infrastructure, data analytics, organizational structure, managerial approaches, financial strategies, consultancy needs, labor market dynamics, data security, and legal compliance (Coleman et al., 2016). The Kantian principle of Autonomy and Respect for Persons emphasizes the need for organizations to respect individuals' control over their personal data and to implement privacy policies that protect stakeholders' dignity (Floridi, 2016). For SMEs, this means developing and enforcing stringent privacy controls that not only comply with but exceed regulatory requirements such as GDPR. These policies should be designed to empower stakeholders by reinforcing their autonomy and ensuring that their rights are respected. Hence, it is crucial for SMEs to find optimal organizational models that can integrate open innovation with big data analytics to enhance their data analytical capabilities. Drawing parallels between the implementation of new IT solutions and quality enhancement initiatives can also guide SMEs in strategizing their adoption of technology and big data, ensuring ethical management and utilization of digital resources.

Information transparency is another important ethical aspect of digital adoption, especially from the perspective of Kantian's Ethics, where the boundaries between personal and organizational data are increasingly blurred (Abril et al., 2012). Rapid technological advancement could lead organizations to a productivity boom but also condense social inequality (Schwab, 2017; Khoury and Ioannidis, 2014). Hence, using DF ethically provides organizations with a control mechanism to set the rules of conduct at the individual level while promoting ethical actions at the organizational level. This includes outlining a clear awareness of creating value by changing the perspective from the company to the customers, the wider workforce, and other stakeholders (Schwartz et al., 2019). Companies can also introduce a process to outline the consequences of violating privacy actions (Golder and Macy, 2014; Beckett, 2017). For instance, in 2000 Dow Chemical in the USA fired many of its employees due to sexually abusive emails sent from their company accounts (Kidwell and Sprague, 2009).

Crucially, the ethical complexities of using DF involve trust, particularly with the balance of power in information access and sharing (e.g.: Loney-Howes et al, 2022; Golder and Macy, 2014; Muhammad et al., 2018). In today's digital society, however, contemporary understanding acknowledges that humans can also extend trust to technology (Frevert, 2013). For instance, a strong focus on Customer Data Responsibility can serve as a unique selling point that not only enhances brand value but also fosters consumer trust and loyalty, especially as customers increasingly cede privacy and decision-making to digitally enhanced service providers (Wirtz et al., 2023). Where organizations have unprecedented access to both stakeholder and employee data, questions arise around the equitable distribution of informational power. For instance, when employers have access to extensive data about subordinates but not vice versa, it creates a power imbalance that can damage trust (Barati and Ansari, 2022). A similar dynamic exists between organizations and external stakeholders such as consumers or business partners (Purdy, 2012; Harrison et al., 2010). If organizations leverage DF for their own benefit without clear disclosure or ethical considerations, they risk breaching trust, the basis of any sustainable relationship. The Kantian focus on respect for persons demands that such practices are conducted with full transparency and respect for individual autonomy, ensuring that stakeholders are not merely means to an end but are treated as ends in themselves. The Kantian framework provides a moral compass for SMEs navigating these challenges,

particularly in balancing the benefits of digital transformation with the ethical implications of data usage. This approach also demands that this power be exercised ethically, with a focus on fostering mutual trust and respect among all parties involved. Therefore, any discussion about the ethical use of DF must also address the need for a power balance that fosters mutual trust among all parties involved.

2.4. Balancing business value creation with ethics and social value in DF management

As digital technologies become more embedded in organizational operations, their ease of use and perceived usefulness become the core components of the Technology Acceptance Model (TAM) (Davis, 1985), used to further explore the acceptance and utility of DF analysis within SMEs. However, from a Kantian perspective, it is crucial that organizations prioritize ethical responsibilities, ensuring that the adoption and utilization of these technologies respect the dignity and autonomy of all stakeholders. Kantian ethics, with its emphasis on duty, respect for individuals, and the moral imperative to act in ways that can be universally accepted, provides a robust framework for integrating business value creation with broader social value.

This significantly impacts the extent to which stakeholders are willing to engage with these technologies (Lähteenmäki et al., 2022). A transparent approach in managing DF, aligned with ethical guidelines, not only upholds privacy and fosters trust but also resonates with the broader agenda of social value creation (Micheli et al., 2018). Furthermore, by ensuring democratic oversight and institutional accountability in handling DF, organizations develop their ethical imperatives as well as enhance their competitive positioning (Arya et al., 2019). The interplay of TAM's principles with ethical DF management highlights a balanced pathway to achieving both business value and social impact, transitioned from social informatics to social intellect (Fichman et al., 2022). This shift is driven by exploring social dynamics, modeling social behaviors, creating artificial social agents, and managing social knowledge (Squazzoni et al., 2014). These developments have given rise to behavioral targeting, which relies on data collection, and has made mobile in-app advertising a dominant format due to its unique tracking capabilities (Rafieian and Yoganarasimhan, 2021).

In managing DF and creating social value, it becomes evident that no universal methodologies can guarantee complete data privacy for internet users while simultaneously allowing them to benefit from new technologies (Couldry et al., 2016). Continuing commitment to a Professional Ethics Code is crucial for all stakeholders in networked activities, promoting responsible behavior and enhancing corporate reputation and stakeholder trust (Gordon et al., 2022). This commitment not only cultivates social value but also upholds the principles of democratic oversight and institutional accountability, both essential for ethical DF management and social value creation. Democratic oversight involves the active participation of democratic institutions, such as parliaments, civil society organizations, the media, and other entities, in formulating, implementing, monitoring, and reforming policies (Caparini and Cole, 2008). This process ensures that government actions, especially in areas like security and law enforcement, are transparent, accountable, and adhere to democratic principles (Pino and Wiatrowski, 2016). However, each society has unique norms for democratic oversight, making full harmonization impractical (Blokker, 2015). Accountability is vital for transparency and trust which have improved data access and political accountability, while power imbalances can block marginalized groups from accessing data (Carter, 2014). Citizens' ability to access and utilize data is influenced by their technological capabilities, digital literacy, education, and social capital, ensuring that data is meaningful and valuable to its intended audience (Carmi et al., 2020). Misuse of DF, such as intrusive data collection and behavioral targeting, undermines these principles by exacerbating power imbalances and limiting data access.

Social value creation focuses on measuring broader outcomes,

including non-financial results like individual and community well-being, social capital, and environmental impact (Mulgan, 2010). One crucial aspect is reducing inequality between key decision-makers and other stakeholders (Murphy and Ackerman, 2011). For example, employees' mobile devices can track locations; web tracing can measure sexual orientation, political views, email and phone records; social media tracing can assess social engagement; and biometric data can be gathered from health tracking devices. These activities are often continuously monitored for analysis using big data and predictive algorithms, impacting individuals' careers (Gal et al., 2020). Many employees are unaware of the scope and nature of the data collected and how this can undermine their privacy (Workman, 2009). The key to social value creation is careful consideration of what information to collect (Aharonson and Bort, 2015), and who will have access, to ensure democratic oversight and institutional accountability (Lightfoot and Wisniewski, 2014). This approach fosters flexible organizations that actively measure social impact (Yu et al., 2018). This aligns with the principle that individuals should not be treated merely as means to an end but as autonomous agents capable of making informed decisions (Kant, 1784). By providing clear and accessible information about DF practices, SMEs not only foster trust but also contribute to **social value creation** by empowering individuals and communities with the knowledge needed to navigate the digital landscape responsibly. In this context, **social value** is generated by enhancing the digital literacy and autonomy of stakeholders, allowing them to make decisions that protect their privacy and personal data. This empowerment aligns with broader societal goals, such as reducing the digital divide and ensuring equitable access to the benefits of digital technologies. By fulfilling the Kantian duty of enlightenment, SMEs play a pivotal role in promoting social inclusion and equity in the digital age.

Ethical management of DF extends beyond classical compliance; it fosters a culture of trust and transparency that resonates with stakeholders (López Jiménez et al., 2021; Felzmann et al., 2019). Such practices also translate into tangible business benefits (e.g.: Bag et al., 2023; Putra et al., 2022). Therefore, integrating transparency strategies in data privacy management (Granados and Gupta, 2013) bridges the gap between ethical considerations and business value creation. This approach reduces risks associated with the unethical use of technology while establishing a symbiotic relationship between business success and social responsibility, demonstrating the importance of ethical DF management in achieving both business and societal impact (Yu et al., 2018). While there is substantial research on the ethical implications of DF in larger organizations, the specific challenges and ethical considerations faced by SMEs in managing DF have not been thoroughly explored. Existing research has primarily focused on the ethical implications of DF in larger organizations, because resources and infrastructures allow for more sophisticated data management and privacy policies. Studies in this domain typically emphasize issues such as data breaches, consumer privacy, and algorithmic biases, with larger organizations having the capacity to implement comprehensive data governance frameworks (Henriette et al., 2015; Bencsik et al., 2023). These organizations often have dedicated teams for data privacy and compliance with regulations like GDPR, which influences the ethical handling of DF. In contrast, SMEs often face unique challenges due to their limited resources, which restrict their ability to invest in robust data governance and ethical practices surrounding DF (López-Fernández et al., 2016; Horváth and Szabo, 2019). Research on SMEs in this area remains scarce, but it suggests that ethical issues such as lack of awareness, insufficient data protection measures, and challenges in complying with regulations may be more pronounced in these smaller organizations (Fernández and Camacho, 2016; Withers and Ebrahimpour, 2018). Additionally, SMEs are often dependent on external platforms and third-party vendors, which can complicate their ability to control how data is collected, stored, and used, increasing the ethical risks associated with DF (Bocconcelli et al., 2017). Since data from user-generated DF were not traditionally included in the types of data used for consumer credit

evaluations, many initially considered it to be unimportant (Loutfi, 2022). This gap is particularly noticeable in how SMEs manage the balance between leveraging DF to capture business value while maintaining ethical standards in data management. Our study aims to address this gap by exploring how SMEs manage the ethical implications of DF, focusing on their strategies for balancing business value creation, ethics, and social impact. This exploration is critical for understanding the unique position of SMEs in the rapidly evolving digital landscape.

3. Data and research methods

3.1. Research method

This study adopts a social constructivist perspective based on Vygotsky and Cole (1978) who state that cognitive development initially transpires in a social context before it is internalized at the individual level. Social constructivism posits that knowledge and understanding are co-constructed through social interactions (Amineh and Asl, 2015). This approach is particularly relevant to our investigation into the digital transformation experiences of SMEs, as it allows for a nuanced exploration of subjective perspectives and interpretations. The qualitative methods used, including in-depth interviews, podcasts, and webinar poll questionnaires, were chosen to enable an in-depth, contextual analysis of the complexities inherent in digital transformation processes. This qualitative methodology, rooted in constructivist approaches, seeks to deeply describe contexts where social behaviors occur, emphasizing the interaction between researcher and subject to uncover the phenomenon's meaning (Dyer and Wilkins, 1991; Ponterotto, 2005). Supporters of the constructivist paradigm argue for the existence of multiple realities, contrasting with the singular objective reality of positivism (Schwandt, 1994). Constructivism posits that understanding and meaning are co-constructed through social interaction, with language playing a pivotal role in shaping reality (Leeds-Hurwitz, 2009; Prasad and Prasad, 2002). Roth (2000) asserts that individuals make sense of others and construct knowledge through social engagement, internalizing this knowledge after interacting with their environment and peers. Similarly, Derry (1999) and McMahon (1997) highlight the significance of culture and context in understanding societal events and in the construction of knowledge. This theoretical framework aligns with our study's focus on understanding how individuals and groups construct meaning and knowledge of DF within their specific cultural and social contexts.

3.2. Data collection

This research aimed to investigate the proposed themes through the interviews and explored further the implications of DF on individual experience and organizational performance and outcomes. We conducted 21 in-depth interviews, 6 in-depth discussions via podcast, and webinar poll questionnaires with 26 experts (including both individuals and consultants supporting SMEs digital transformation or leading the SMEs); the respondents' characteristics are displayed in Tables 1, 2, and 3. Incorporating these methods in our data collection approach was essential to attain a comprehensive understanding from diverse perspectives and ensure methodological triangulation. Interviews allowed for in-depth, personalized insights, fostering a detailed exploration of participants' thoughts and experiences. Discussions via podcasts provided a more informal and conversational platform, enabling participants to share insights in a relaxed setting, revealing nuances that might not surface in a structured interview. Webinar poll questionnaires allowed for a broader survey of opinions from a larger audience, facilitating the collection of quantitative data and trends and providing a statistical dimension to complement the qualitative richness derived from interviews and podcasts. The real-time nature of the webinars also allowed for immediate reactions and preferences, capturing dynamic

Table 2
Summary of Responses from the Webinar Poll Survey.

DF Campaign – Webinar Poll questions	Participant responses		
Do you believe that you have any ownership and control over your DF?	Yes (46.15 %)	No (34.62 %)	Maybe (19.23 %)
Do you think that the DF differs between big and small businesses?	Yes (88.46 %)	No (7.69 %)	Maybe (3.85 %)
Which of the following categories do you believe could be impacted most by unethical use of DF?	Customer (42.31 %)	Employee (7.69 %)	Organization (50 %)
Which of the following ethical implications could be the most highlighted issues in relation to DF?	Privacy (69.23 %)	Transparency (26.92 %)	Surveillance (3.85 %)
Do you think that SMEs can handle the DF ethically?	38.46 %	they need more support (61.54 %)	

Note: The webinar poll survey was collected from 26 participants.

Table 1
Summary of Characteristics of Interview Participants.

Respondent	Gender	Age	Experience	Type of Business	Industry Type	Current Role	Location
C1	F	50–60	>30 years	Human Resources Consultancy	SME	Partner	UK
C2	M	40–50	>20 years	Durable Goods	Large	Consultant	Global
C3	M	40–50	>20 years	Software solutions	SME	Director	UK
C4	M	40–50	>20 years	IT Company	Large	Executive Director	Global
C5	M	30–40	>15 years	Strategy Consulting	SME	Virtual IT Director	UK
C6	F	30–40	>15 years	Digital Education	SME	Director	UK
C7	M	50–60	>25 years	IT Services	Large	Data Officer	Global
C8	M	40–50	>25 years	IT Services	Large	Consultant	Global
C9	M	40–50	>20 years	Automobile	Large	Digital Sales Director	Global
C10	F	30–40	>15	Blockchain	SME	Consultant	US
C11	M	40–50	>25	Consultancy	Large	Consultant	Global
C12	M	40–50	>20 years	Waste Management	Large	Director	UK
C13	M	20–30	<10 years	FMCG	Large	HRM consultant	UK
C14	M	40–50	>20 years	Banking and Financial Services	Large	Director	UK
C15	M	40–50	>20 years	Higher Education	Large	Lecturer	Global
C16	F	40–50	>20 years	Higher Education	Large	Research Fellow	UK
C17	F	30–40	> 10 years	Consultancy	SME	consultant	India
C18	F	30–40	> 10 years	IT Services	Large	consultant	UK
C19	M	30–40	> 10 years	Consultancy	SME	SME owner	UK
C20	M	30–40	> 10 years	Consultancy	SME	consultant	UK
C21	M	40–50	>20 years	Consultancy	Large	consultant	UK

Table 3
Highlights of the findings from 6 podcast series.

Data points	Academics Perception
Digital transformation	<ul style="list-style-type: none">● Lack of knowledge about the digital transformation process among SMEs● Agile and rapid use of technology● The front end, middle end and back end should be connected and integrated for a successful digital transformation process● In today's society many users have no other option but to adapt and to kind of take up digital tools and digital platforms
GDPR and Data policy (Privacy, data protection and data security)	<ul style="list-style-type: none">● Need rigorous policy to govern the data usage much more efficiently. DF can also contribute to resource optimization. By analyzing digital interactions, decision-makers can identify areas of inefficiency or underutilization and reallocate resources accordingly.
Commercialization of data	<ul style="list-style-type: none">● Navigating the data policy is hard● There is a need to create awareness about the commercialization of data● Data collection is based on purpose and motive
DF	<ul style="list-style-type: none">● Designing digital policy framework to protect the data and to create awareness among SMEs● Need more awareness among employees about DF and its implications from ethical perspectives

responses that might evolve over time. In addition to the diverse data collection methods, our approach focuses on methodological triangulation within the qualitative paradigm. This triangulation enriches our understanding of DF, allowing for a more nuanced and comprehensive analysis that reflects the participants' varied experiences and perceptions. Together, these methods created a robust and multifaceted dataset, enriching the overall research findings.

A diverse group of executives with over 5 years of experience in their SMEs' digitalization process were selected to ensure some level of representation. Respondents were selected from both UK-based and global companies across various industries to understand the effect of digitalization and its ethical implications on various domains. Most of the respondents have many years of experience working in both SMEs and large multinational organizations. In order to gain a comprehensive understanding of the dynamics between SMEs and larger organizations, respondents from larger organizations were included to explore their experiences in engaging with small businesses. Specifically, the study aimed to examine how larger organizations support or interact with SMEs, whether through partnerships, supply chains, or broader industry trends. Respondents from larger organizations were thus instructed to focus their insights on SME-related interactions rather than their own companies' internal practices. This approach provides valuable insights into the reciprocal relationships that shape the business environment for SMEs, highlighting both challenges and opportunities for collaboration with larger counterparts. Before conducting the interviews virtually via zoom or telephone conferencing, our questions and protocol were approved by the Institutional Review Board (IRB) to expand our data collection. A structured protocol was followed for the discussion outline (see [Appendix 1](#)), with each interview conducted around one hour and recorded with the respondents' permission. Clear and consistent information was obtained in all 21 interviews, which consisted of eight questions focused on the DF and its ethical implications on individual and organizational performance and outcomes. All the questions were open-ended, aimed at obtaining additional perspectives from the participants. The predefined questions encouraged respondents to extensively discuss the DF, their potential impacts, and ethical implications. The discussion outline comprised four main sections: definition, process, outcome, and comparative perspectives on DF management, each

aligned with the proposed themes of this study. The first section, 'definition', assessed the awareness level of DF from industry executives' perspectives. The second section, 'process', was initiated to learn more about the management of DF and its impact on employee and customer relations, focusing on equality and transparency strategies. The third section, 'outcome', explored the varied perspectives of employees, customers, and the organization, while the fourth section sought the respondents' views to address differences in DF management strategies between SMEs and large organizations. Based on these discussions, five themes were identified and subsequently described in detail.

3.3. Analysis

Our approach of combining thematic analysis (qualitative data patterns) and narrative analysis (individual stories) aligns well with our social constructivist perspective, enabling us to explore how individuals and organizations construct their understanding and responses to DF issues.

We employ thematic analysis to explore recurring patterns and themes within the interview data. Thematic analysis goes beyond mere word counting; it delves deeper to identify both implicit and explicit perspectives embedded within the data, ultimately revealing the core themes ([Guest et al., 2011](#)). Initially, we began with open coding, carefully examining the interview transcripts, podcast dialogues, and responses from webinar polls. This stage involved dissecting the data into discrete elements, allowing us to label and identify emergent concepts, themes, and categories related to DF and its implications. Applying [Zimmer and Golden's \(1988\)](#) method, the comments from 21 in-depth interviews, 6 in-depth discussions via podcast, and webinar poll questionnaires with 26 experts were grouped into predefined categories through the following procedures.

First, the researchers coded the participants' answers into a list of themes. Next, these themes were grouped into exclusive and comprehensive categories. One independent sorter then grouped the themes under specific categories. Subsequently, the researchers and sorters discussed the reasoning behind the classification and developed an agreed categorization. To ensure reliability, two academics from the field were assigned as judges and grouped the themes under the agreed categories. By identifying recurring themes across the data, we explore how individuals and organizations construct their understanding and responses to DF issues. This combined approach, using thematic analysis for patterns and narrative analysis for individual stories, provides a richer and more nuanced understanding of the complexities surrounding DF. Our thematic analysis, particularly suited for uncovering underlying patterns, revealed five key categories:

1. Acknowledgment of DF: Explores how awareness of DF influences individuals and organizations, including personal branding and organizational reputation.
2. Integration of DF into Business Models: Examines how businesses leverage DF to enhance operations.
3. Strategic Outcomes of DF: Explores how DF management can influence broader business strategies.
4. Ethical Consequences of DF: Addresses ethical considerations related to DF.
5. Social Effects of DF: Explores the broader social implications of DF.

[Fig. 1](#) illustrates the research methodology encompassing several stages including data collection, coding, and analysis.

Following this, we engaged in axial coding which involved reassembling the data, connecting the dots between the open codes. This process was instrumental in identifying patterns and establishing relationships between the themes, focusing on the context, causes, and consequences within the data. The final stage of our coding process was selective coding, where we searched for the most significant core themes. This involved selectively sampling the data to refine these

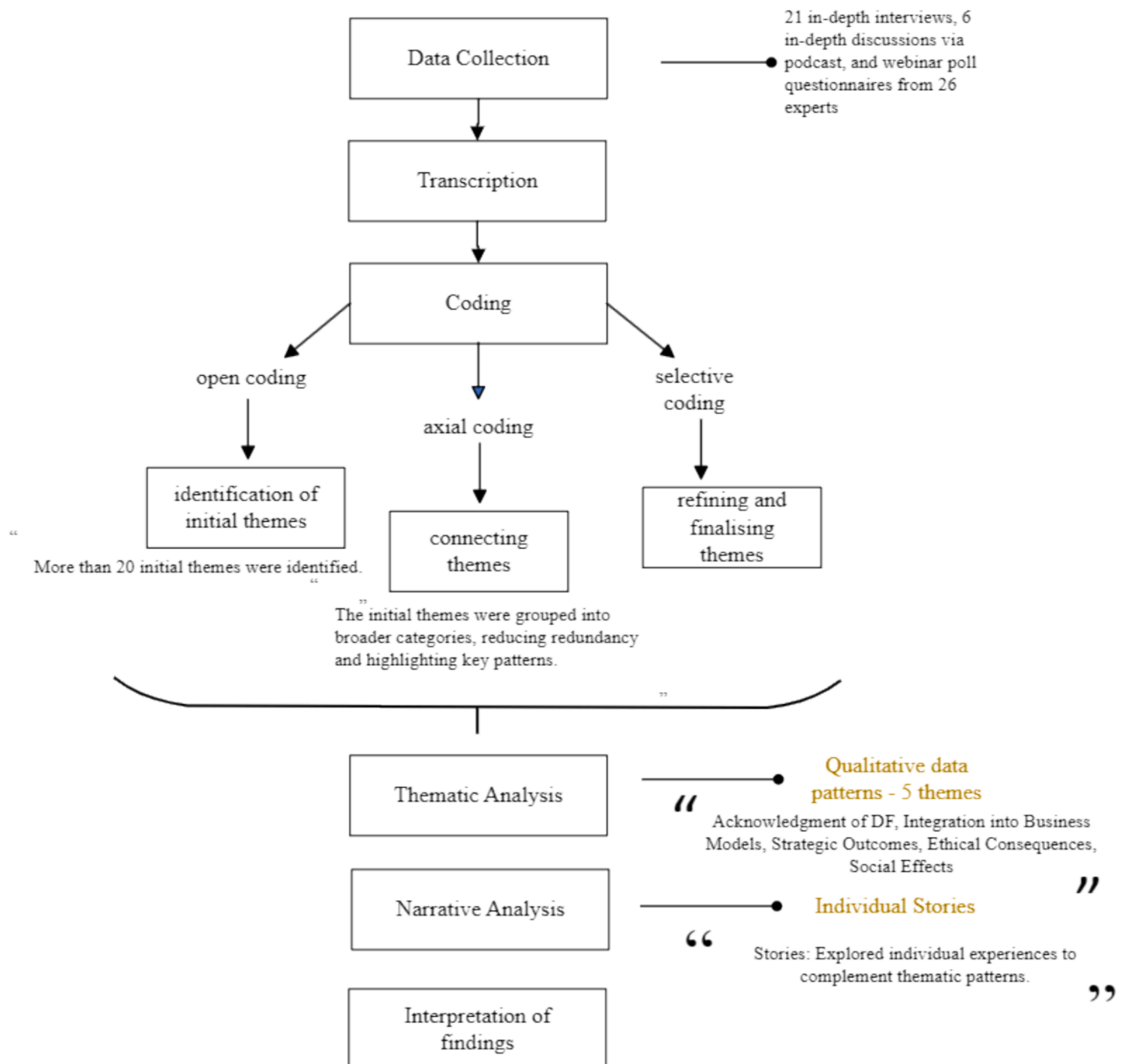


Fig. 1. Research Methodology Chart.

themes, ensuring their robustness and consistency across the dataset. This comprehensive coding process not only enhanced the depth of our thematic analysis but also seamlessly integrated with our narrative analysis, which provided a richer, multi-dimensional understanding of individual stories and experiences, i.e.: how individuals and organizations construct and interpret their experiences with DF and how to manage it. The narrative analyses provide a holistic perspective to the respondents' stories by extracting core meanings to understand the continuity of the story (Sparkes, 2005) under a social constructivist lens, a central aspect of our study.

4. Findings

4.1. Understanding DF: Individual and organizational perspective

Our findings illustrate several characteristics that can help SMEs understand the meaning and importance of DF and how it can aid in

making more informed and effective decisions. First, our findings show that it is important to define that DF can potentially be considered as an aspect of an individual's identity that reflects the digital representation of one's actions and behaviors. The interviews confirm the importance of DF as they align with digitalization, although several of our interviewees acknowledged the crudity of the term; they highlight it as "a *coarse term*" composed of relatively large parts/characteristics.

"It depends on the stage of the organizational life" [C3].

"I would call a DF a digital twin" [C2].

"DF means many things and it has multiple dimensions; it depends on what data you are looking at" [C8].

"Any data which is created by a centralized identity is the footprint of the identity. It could be in the internal or external systems" [C11].

Although DF plays a critical role in shaping the identity of businesses and individuals in the digital world, the ethical implications surrounding its management vary significantly between large organizations and

SMEs. Larger organizations face more substantial ethical risks concerning privacy, accountability, and inclusion, primarily due to their extensive use of data and resources. As noted by one respondent, larger companies have more “resources, teams, and expertise” at their disposal, which also heightens their exposure to ethical concerns like misuse of data, potential discrimination, and data privacy violations. They emphasized that: *Given the different levels of “resources, teams and expertise within the organization, SMEs face lower levels of risks than larger companies”* [C5].

For SMEs, the ethical landscape is somewhat different. While they might operate on a smaller scale, the strategic use of DF can offer significant competitive advantages, especially for businesses that leverage technology innovatively. SMEs may face fewer risks, but they are equally accountable for the ethical use of their digital presence. As another respondent highlighted, SMEs are often at the forefront of using DF to create impact, suggesting that these businesses need to understand how they collect, manage, and utilize their DF to maintain ethical standards and avoid misuse of data. As another respondent noted that: *“It also depends on the type of business, and how the SMEs are using technology to create DF. A small business would be in a forefront using DF to create impact...while a big traditional business [not]”* [C4].

Our interviewees also highlighted that SMEs need to understand the importance of DF, specifying that:

“We are talking about DF of an entity. As DF is the identity of an organization or person in a cyber world.” [C2]

“When it is done for organization the sharing, they have done for enhancing the brand.” [C5]

“My perception of what a DF is the composite of what I do in any online or digital medium; the majority of those are strictly online” [C10].

“This aspect [of DF] is critical for SMEs success. It is the most competitive tool for every industry” [C3]. From an ethical perspective, DF must be managed with careful consideration of data privacy, transparency, and inclusivity. DF represents the online identity of an organization or individual, and its misuse can lead to reputational damage, violations of consumer trust, and even legal ramifications. For SMEs, the need to understand the significance of their digital identity is essential for both brand building and sustainable growth in an increasingly competitive market.

Our interviewees reflected that SMEs need to understand the role of DF in driving better consumer decisions and providing better information to stakeholders. Understanding DF offers insights into user behavior, preferences, and trends, enabling decision-makers to tailor strategies and offerings that align better with customer expectations.

“Even if you are a small restaurant, it’s important that you are very significantly visible in the social channel which is driving decisions.” [C4]

“[DF] is where people around the world may get better information about organizations and individuals.” [C12]

“For business, it is mostly about how they are seen by the wider world. For individuals it is – what you are. DF are great leads for marketing.” [C5]

Being present on social platforms is not sufficient for a company to succeed in attracting customers; it needs a workable digital business strategy which covers all the functional and process strategies by connecting them to digital resources (Bharadwaj et al., 2013). For instance, when customers use more digital tools like social media, email subscriptions, and buy and sell exchanges, they result in network effects that become the key drivers of value for businesses (Easley and Kleinberg, 2010). Following DF is one of the key successes of identifying these network effects.

Second, our findings also show that it is important to recognize DF as a traceable activity, generated independently or collaboratively both within the organization (digitally) and outside on the web.

“Anything which the corporate is doing in new media – Social, web, mobile is the DF of the organization. There are many channels which are getting added and some are reducing in their importance.” [C4]

“DF is the activity around the web. What gets captured via cookies, sharable algorithms like Facebook. For individuals it is mostly the user identification.” [C15]

For SMEs, DF is also about the traceability of documents, with one of our interviewees stating that *“The traceability of documents becomes difficult during audit [with physical papers]. Here digitization helps. Communication collaboration channels [also] leaving out DF”* [C1].

Having determined the means in which SMEs can understand DF better – as (1) an aspect of an individual’s identity, emphasizing its role in shaping how individuals are perceived in the digital realm; and (2) a traceable activity within the organization (digitally) and outside on the web – we tried to identify how it shapes ethical organizational actions of SMEs’ value creation. This means creating teams that are diverse in terms of skills, backgrounds, and viewpoints, ensuring a more comprehensive understanding of data and its implications for business strategies (Shabbir and Gardezi, 2020).

Third, our findings support the idea that firms can access large amounts of information about their employees through digital platforms. One respondent mentioned that *“Organizations extract a lot of employee data through digital solutions [C1]”*. Moreover, our interviewees indicated that some employees may be extensively concerned about digitalization and DF which may affect their experience and performance within the organization: *“Similarly, older employees, quitter employees who struggle with technology may get biased against. People with neural disability may not be good extroverts, there is greater risk of bias and discrimination and not thought through and if organizations don’t support such employees [C16]”*. However, they emphasized the employees’ awareness and how they need to be more careful about their DF, suggesting that: *“It is the employee’s responsibility. The fluidity of data is a lot more. Employees need to be cognizant of the data. Nowadays one needs to be careful about what you put in. You should not be using what you don’t want your organization to know”*. [C19].

4.2. How DF shapes ethical organizational actions

Being aware of what information is shared by employees and customers will help organizations manage their online presence and protect their DF. For instance, our interviewees highlighted incidents where the organization, *“are encouraging employees to use wearables...employees use Fitbit, and that data is accessible to organizations. The question is from an ethical perspective how much data can be used for decision making around employees?”* [C1].

“On the face of it the organization needs to tell us what they are collecting right? and second is, if they collect data what is it, what is the system, which basically tells you where this information sits right? And again, that goes back to the HR part and that is where we get to know now how they tell us that that’s true policies which are basically HR policies about data, because everything that must be done with an employee is basically the responsibility of the HR department” [C9].

Aligned with the interviewee’s concerns, tech industry professionals highlight that sharing personal or entity-based data can be linked to other individuals’ data. This interconnectedness can lead to the unintentional dissemination of excessive personal information by third parties (Evening Standard, 2018).

Some of our interviewees emphasized the importance of risk and data usability, which they say can ensure that SMEs embed a clear DF awareness for their employees. The DF analysis can enhance risk management by identifying potential cybersecurity threats and vulnerabilities, allowing decision-makers to implement proactive measures.

“There is a different type of risk. Employees are continuously monitored for their breaks, to whom they talk to? How much time do they spend on

toilet breaks? This poses privacy issues. The line of privacy is a risk. ... SMEs are thinking about tech solutions. It is becoming a necessity. It is making employees far more engaged. Employees need to be cognizant of the data." [C1]

"The idea is to create awareness and show the possibilities [that organization] can promote simulation and can create win-win for [stakeholders]. Large organizations can set examples of DF managed ethically." [C2]

"I mean for starters the odds of an SME using the higher tech is much smaller... they don't have the capacity to manage the large sets of data... they do however have access to backend services from organizations like LinkedIn... There's a number of services that they could access and the ethics around that it's a little bit of a wild west... you know should personal life decisions have a negative impact on employer decisions. I don't know that they are prepared, and... the chances of an algorithm making the employment decisions for in SMEs are very small." [C10]

According to the most recent compromise text on the Digital Services Act (DSA), the European Commission will have powers over the supervision and enforcement of the obligations of large online platforms and search engines (Euractiv, 2021). This has led to sensational actions; Facebook shut down its Face-Recognition system, removing the capacity for automatic identification of people in photos and videos. Apple added an App Tracking Transparency policy requiring apps to seek permission before tracking user behavior for personalized advertisement and marketing purposes. While these actions were taken by large corporations, they underscore the importance of digital privacy and data protection for all businesses, including SMEs. For instance, SMEs that operate online stores or utilize digital marketing strategies may face similar challenges with user data privacy and consent. Implementing measures such as clear privacy policies, obtaining user consent for data tracking, and ensuring compliance with relevant regulations can help SMEs with their digital adoption and building customer trust.

Our findings highlight how the blurry boundaries of DF require clear data protection management in SMEs. The launch of Tekscan's Footprint Plus highlights the need for clear data protection management, as the technology's ability to collect and link detailed personal data for enhanced customer experiences poses significant privacy risks without stringent data safeguard (Cision, 2017).

"Use info in a constructive way. Right way. When misused where the GDPR compliance comes in." [C13]

"This is more understood. Because data protection has always been around. We need to understand how it is impacting society and people. How fair it is, [and] how they should be protected... There is blurring of lines between personal data and organizational data. Breaks, toilet times, work hours are also used by employees and SMEs also remain at risk if they misuse the data. The legal risk is the same." [C1]

"The worst challenge is you cannot control what others may post about you. SMEs can do a few things – observing the trends and their customer behaviors, the message in your content being consistent and clear that will target the right crowd, good customer service and asking for feedback from customers. The management should be educated and trained consistently, making sure that you are adhering to compliance standards, active on social media, etc." [C6]

Interviewee C1 also pointed out the risk of bias or discrimination if the DF is not managed properly. They reflected on the potential jeopardy faced if they were not aware of the ethical issue within the organization, stating that: "The issue is not about algorithms, but the way algorithms are created. If organizations don't understand the ethical issues or discrimination it creates within the organization... there is greater risk of bias and discrimination and not thought through and if organizations don't support such employees." [C1].

Third, our interviewees highlighted the danger of data leakage, emphasizing how strong data privacy management is required to handle such incidents. Indeed, many countries have begun to recognize that

personal data leaks entail criminal liability and multi-billion fines (e.g.: Interfax News Agency, 2021).

"How organizations can manage digitization processes There are a lot of sources of data leakage...It operates based on trust. Some regulations are in place and employees sign agreements to restrict data, what they put on social media and the information about organizations." [C18]

"There is a different type of privacy risk. Where are the privacy issues? The fluidity of data is a lot more...With increase in AI and digital solution there is increase in DF. The kind of footprint leaves make it difficult to manage. It is impossible to maintain privacy." [C10]

Finally, some interviewees emphasized stakeholder engagement (including customers, employees, shareholders, vendors, and communities) that needs to include clear data transparency.

"Organizations must take care of 5 important stakeholders, Customers, employees, shareholders (investors), vendors and communities. Organizations must devise their strategies around these 5 stakeholders". [C5]

Another interviewee focused on how handling DF through engaging with stakeholders brought transparency to the organization.

"Ethically one needs to think about balance of power; digitization has brought transparency, balance of power between leadership and employees. It has given more power in the hands of employees [stakeholders] which is a good sign. Another thing is it gives options for employees. It is democratizing decision making for employees. It is a huge benefit which gets overlooked when we talk about ethics and risks". [C1]

4.3. Ethical implications of DF in business value creation

The interviews confirmed the importance of DF and its ethical use, with several interviewees highlighting how an organization's efficient use of DF can lead to business value creation.

"Huge value by DF. Each data may not mean much but data put in perspective then it can create value." [C1]

The participant suggested that the true value of DF lies in the collective insight gained from analyzing various data points: individual data may not carry significant meaning on its own, but viewed in context and collectively, it can generate substantial value through meaningful and valuable insights.

Some interviewees emphasized that the value can be quantified in different dimensions including monetary terms, productivity levels, and job satisfaction. This implies that an effective, well-designed digital system not only contributes to cost effectiveness but also enhances efficiency, allowing for better time management to yield tangible benefits across financial, operational, and human satisfaction aspects.

"Value can be measured in terms of money, productivity, job satisfaction. If you have a good digital system, then you can manage time." [C2]

Furthermore, they noted an improvement in reaching and creating customers, attributing this to the ability to engage in targeted communication. This implies that businesses now have more effective means, such as personalized communication, to connect with potential customers. They also mentioned how companies with impressive online presence but lacking a traditional physical setup underscores the evolving nature of business engagement.

"Reach to create customers has significantly improved. You can do targeted communication... Lot of companies may have fancy websites but not even an office." [C2]

Another interviewee highlighted the interconnected nature of businesses, emphasizing how activities of other businesses can impact one's own business trajectory. This suggests that consistent and transparent communication can positively influence potential customers, emphasizing the importance of an active online presence and transparency in

Table 4

Summary of how SMEs DF differ from Larger Organizations.

Research Objectives	Summary	Research Gap	Future Research Questions
What is DF	- DF is a coarse term and means different things to different people and it is also dependent on the industry sector.	Do we need a universal definition for DF or are we happy to accept the current explanation of what it means	Is the DF terminology industry specific? How is it being used in different industries and why does it matter to build a common understanding?
How does DF differ between SMEs and big organizations?	- SMEs lack resources and understanding of the legal part of DF data - No clear process of data safeguarding	Lack of education, information and resources for SMEs	How do we support and educate SME to manage their DF ethically?
Processes questions Transparency of data management	- There is a larger concern from employees about their DF and its' ethical implications - No clarity on data ownership	No clear communication and consent between individuals and SMEs for process involved in ethical data management	How do we support SMEs in creating process to manage all stakeholders' data and DF ethically?
Outcome questions	- DF can considerably impact on customer satisfaction, employee experiences and business growth.	For SMEs to achieve sustainable and efficient market share they need to focus more on ethical data management	How to democratize the individuals' engagement with businesses and their decision-making process through ethical management of DF?
Comparative perspectives on DF management	- There is limited understanding of the risks involved in ethical implication of DF in SME operations and individual engagement.	Risk assessment of the ethical implication of DF in SME performance	How to measure and implement ethical considerations around DF in SMEs?
Pre- and Post-COVID	- Technology has become more accessible and digital data has become more fluid.	SMEs lack digital infrastructure for digital data protection and management	How can SMEs access resources for digital infrastructure advancement?

building trust with customers, both of which contribute to business growth.

"Many times, I have seen even other businesses can affect our business trail. As a small business, a constant posting about your business might help, that will lead to some potential customers. Being transparent will also bring trust within your customer." [C6]

"The data of people and processes must be used to fill the gap of organizational performance and value creation for employees, stakeholders and society. Organizations must create valuable insights from the DF to create value". [C7]

Accordingly, digital ethics has grown in importance in corporate agendas, with industry professionals devising strategies to cope with digital risks. Specifically, customer awareness and understanding of how their data is being used is essential to build trust and loyalty. Hence, eliminating the gaps in knowledge around digital tools and products helps to decrease risks. Communicating ethical approaches such as collecting data to generate more accessible services or understanding customers' needs better could also potentially create opportunities and impact for society.

Table 4 summarizes the factors and underlying mechanisms of DF implications found to be important in shaping SMEs' ethical organizational actions. Hence, SMEs' understanding of DF can shape ethical organizational action through i) data privacy management, ii) data transparency management, iii) DF awareness, and iv) data protection management. These actions do not work in isolation; they feed upon each other in complex ways so that the greater the extent to which they have all been present, the more favorable it is for the organization to operate ethically. Hence, it is important to note that anonymizing or encrypting data is not enough to protect individuals' privacy. The new protocols and institutional processes should be in effect by raising procedural, legal, and ethical questions about how to protect individual privacy (Golder and Macy, 2014).

Interviews with business professionals and researchers through our podcast series highlighted that digital adoption presents significant opportunities for businesses in terms of enhanced market research and product development through user data collection. Understanding DF facilitates personalized customer experiences, allowing decision-makers to tailor products, services, and communication based on individual preferences and behaviors. It also introduces intricate challenges in accountability and data ownership.

"People are concerned about data ownership and management in the digital world. The Data user has the data ownership rather than the person who had created it." [P1]

"There is a knowledge gap in society about DF awareness, whereas most SMEs are in the process of Digital transformation with inadequate digital education." [P6]

"There is a need for creating a Digital policy framework to protect individuals, communities and society. There is an urgent need for strict policies and regulations to protect the usage of data." [P4]

"In every business that becomes digital they must ensure that the front-end, middle-end and back-end should be connected and integrated for a successful digital transformation process sustainably." [P2]

The respondents emphasized that rapid digital transformation and adoption has led to concerns around employee wellbeing, data protection and data security; all crucial issues that need continuous attention. Moreover, it is unclear whether the DF data that we leave behind is personal or open. The podcast interviews confirmed that the ethical aspect of data is an ongoing issue.

"How the DF is protected through Data protection laws is yet an issue. Also, Cookies play a major role in the commercialization of data. From the data security perspective, the usage of the internet has simultaneously increased online crimes and cybersecurity." [P3]

The data collected from 26 participants through the DF Campaign webinar survey poll showed that 46.15 % believed they have ownership and control over their DF and 34.62 % felt they have none. In addition, 88.46 % emphasized that DF management differs between large and small organizations. Half of the participants indicated that organizations are most impacted by unethical use of DF, whereas 42.31 % believed that customers are most impacted; only 7.69 % said that employees are the most impacted category. Furthermore, 69.23 % of participants mentioned privacy as the most highlighted issue in relation to DF, 26.92 % believed transparency is the most important concern and 3.85 % considered surveillance as a crucial DF issue in SMEs. Finally, 38.46 % of the participants believed that SMEs could handle the DF ethically while 61.54 % felt that this is possible only if SMEs receive more government support.

Therefore, for managing the ethical implication of DF SMEs are required to enhance data privacy policies by ensuring that robust data privacy measures are in place to protect sensitive information and comply with international regulations such as GDPR. This is particularly important for larger organizations, but SMEs should also prioritize this to foster trust. Additionally, it is crucial that both large organizations and SMEs invest in training and educating their employees to raise awareness about the ethical use of DF, including how to prevent data misuse and avoid discriminatory practices. Furthermore, all businesses are required to implement transparent data practices to be transparent

about how they collect and use DF, ensuring that consumers and stakeholders understand what data is being captured and for what purposes. More importantly, they require to practice regular audits and accountability mechanisms where they conduct regular audits of data practices to ensure accountability, particularly in larger companies where the scale of data usage presents more significant risks. They should also focus on utilizing DF in ways that promote inclusivity and prevent discriminatory practices, such as avoiding biased algorithmic decisions. These findings highlight the multifaceted nature of DF and the implications for organizations in managing customer and employee (individual) DF. Fig. 2 summarizes the themes identified in our research and provides an overview of the key findings by categorizing them according to DF awareness, integration into business models, managing ethical actions, ethical consequences, capacity building, and digital transformation and data ownership.

5. Discussion

5.1. Ethics and future of DF

The concept of DF has become increasingly prominent in recent years, yet there remains a significant gap in comprehending its ethical implications for business value creation and employees' experiences in SMEs. Existing research focuses on large corporations, overlooking the unique ethical considerations and strategic opportunities faced by SMEs in managing their DF. This is particularly concerning given the distinct nature of facilities, characteristics, and managerial styles within SMEs compared to their larger counterparts (Withers and Ebrahimpour, 2018). Our research addresses this gap by proposing a novel, ethically

grounded conceptualization of DF for SMEs as a dual entity: (1) an entity with its own identity/role in driving consumers' decisions and providing better information to others/stakeholders, and (2) a traceable activity, generated independently or collaboratively both within the organization (digitally) and outside on the web. We advance the conceptualization of DF as both an identity and an activity, providing a unified framework that SMEs can adopt to enhance ethical business practices in a digital age. The current fragmented understanding of DF hampers SMEs' ability to make informed, ethical decisions. Our contribution on the dual entity of DF is crucial to help SMEs to recognize their digital footprint as both **identity** and **activity**, where they can strategically build a trusted and respected online presence (the **identity**) while simultaneously ensuring that all digital activities are traceable, ethical, and compliant (the **activities**). This balance allows SMEs to enjoy the benefits of a digital presence—such as better customer reach, enhanced marketing, and business growth—while still holding themselves to ethical standards like protecting user privacy, respecting autonomy, and being accountable for their online actions.

5.2. Strategic and ethical implications of DF in SMEs

A narrative review across ScienceDirect databases on DF and ethics further revealed a significant lack of focus on SMEs within the business and management domain. While there has been a surge in publications (180 research articles across all disciplines, with 75 % post-2019), the specific ethical implications and strategic opportunities for SMEs remain largely unexplored. Mismanagement of DF can lead to unauthorized data access, breaches, and unethical surveillance, eroding trust and causing reputational and financial harm. SMEs, which often lack the

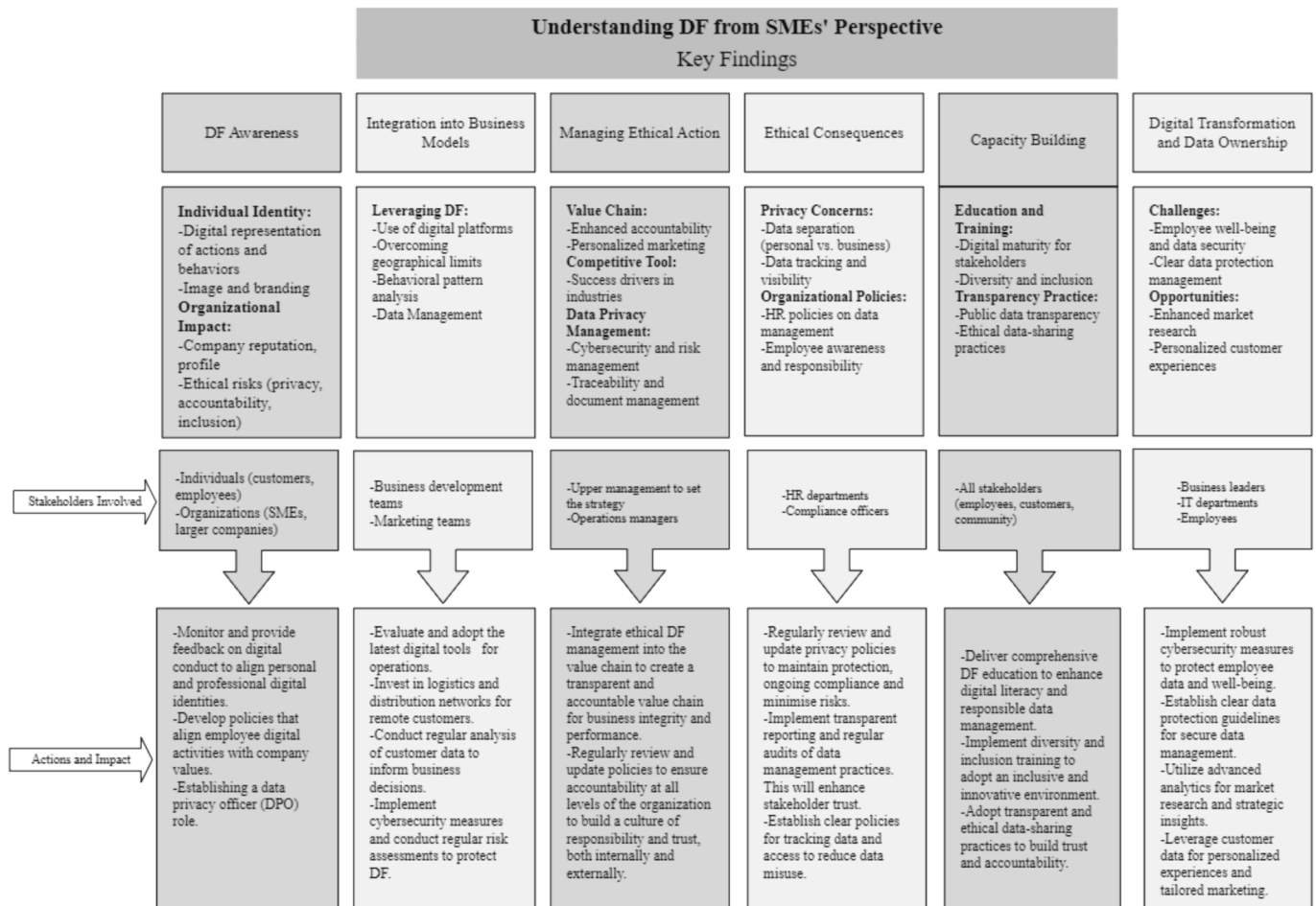


Fig. 2. Key Findings.

robust resources of larger firms, are particularly vulnerable to these ethical pitfalls. We propose a framework for SMEs (Fig. 2) to overcome the challenges posed by limited resources (López-Fernández et al., 2016) while adhering to four core pillars as part of our guiding ethical principles for SMEs: **data transparency**, **data protection management**, **data privacy management** and **data transformation**. These pillars are supported by stakeholder involvement (internal and external), emphasizing that all stakeholders have a role to play in responsible DF management. They include individuals (customers and employees), organizations (SMEs and larger companies), and regulatory bodies (compliance officers). Misuse of data, often a result of poorly informed practices, violates individual privacy where data being used beyond intended purpose, leading to unauthorized access, data breaches, or unethical surveillance. By incorporating ethical management practices, such as transparent reporting and regular ethical audits, SMEs can mitigate these risks and comply with legal obligations, including regulations like GDPR. Ethical DF management strategies not only help SMEs protect sensitive information but also foster a culture of accountability and trust, which is critical for long-term business sustainability.

The framework's key components in Fig. 2 – 'DF Awareness', 'Integration into Business Models', 'Managing Ethical Action', 'Ethical Consequences', 'Capacity Building', 'Digital Transformation and Data Ownership' – are crucial in guiding SMEs through the ethical complexities of DF. For instance, raising DF awareness through education and training empowers SMEs to recognize and address the implications of their digital actions. However, awareness alone is insufficient; ethical DF management must be integrated into business models to ensure that SMEs not only comply with regulations but also act proactively in embedding ethical considerations into their operations and in decision-making processes. This can be achieved by incorporating DF management strategies into business operations, such as using advanced analytics tools for ethical data processing. This integration must be supported by managing ethical action, which goes beyond compliance to address broader ethical concerns, including data transparency, privacy, and accountability. Implementing transparent reporting systems and conducting regular ethical audits are key actions to manage these concerns effectively. Ethical consequences of mismanagement, such as privacy breaches and loss of trust, must be carefully considered as SMEs develop their DF strategies. To mitigate these risks, SMEs should establish clear data protection policies and ensure compliance with relevant regulations. Additionally, capacity building within SMEs is necessary to enhance digital literacy and foster a culture of ethical responsibility. This could involve offering continuous professional development opportunities and creating internal guidelines for ethical DF management. Finally, the intersection of digital transformation and data ownership requires careful management to balance the opportunities of digitalization with the ethical challenges it presents. Implementing advanced cybersecurity measures and regularly reviewing data ownership policies are essential actions to protect stakeholder interests. The strategic approach outlined by the London Digital Security Centre (LDSC), exemplifies the importance of structured educational program and engage in comprehensive security assessments (Bada and Nurse, 2019). This requires registration with the LDSC for access to specialized training and resources that can help SMEs manage their DF and enhance their cybersecurity practices. The effectiveness of these strategies is established through measurable improvements in the cybersecurity practices of participating SMEs, evidenced by reduced incidences of security breaches and enhanced compliance with data protection regulations. Continuous monitoring and feedback mechanisms also provide empirical data supporting the success of these initiatives, thereby validating their efficacy in real-world applications. However, a critical examination of these compliance-focused approaches reveals a significant limitation. While demonstrably improving cybersecurity (Bada and Nurse, 2019), the LDSC model, and similar approaches, often prioritize technical aspects over the broader ethical considerations surrounding data privacy and transparency. This focus on compliance leaves SMEs

vulnerable to the ethical pitfalls associated with digital data management.

5.3. Balancing data Privacy, Transparency, and business value for ethical DF management in SMEs

Our research emphasizes that effective exploration of business value through DF is facilitated when three overarching factors are present: First, understanding the significance of DF from both employee and employer perspectives and their ethical implications. This aligns directly with the issue of DF awareness. Our research, along with existing literature (Hitt, 2019; Abril et al., 2012; Henriette et al., 2015), reveals a lack of consensus on a universally accepted definition of DF. Based on the literature and interviews for our study, one can define "*the DF as the identity of an individual or organization in the digital world*" [C2] (Stark, 2016; Jansen and Hinz, 2022; Hitt, 2019). Our research findings indicate the importance of establishing a more unified understanding of the concept of DF; the current fragmented approach creates a barrier to effective DF management for SMEs. Without a clear understanding of what constitutes their DF, SMEs struggle to make informed decisions about how to manage it strategically. Our findings illustrate that many SMEs neglect crucial aspects like employee online behavior or fail to grasp the full impact of their online presence on brand reputation. Also, a fragmented understanding of DF can lead to inconsistent implementation of data management practices. SMEs may prioritize compliance with specific regulations like GDPR (Freitas and Mira da Silva, 2018) while neglecting broader ethical considerations regarding data privacy. A widely accepted industry-agnostic definition may help share knowledge across business as well as industries. This would also enhance research and help develop practices and frameworks of ethical data management processes.

Second, focus on the awareness of the DF's impact on data privacy. This factor connects to the first two pillars of our new framework for ethical DF management in SMEs – Data Privacy and Data Protection Management. Effective data protection requires SMEs to be aware of the impact their DF has on data privacy. This includes understanding data collection practices and transparency regarding data usage, and implementing robust security measures to protect sensitive information, as emphasized in data protection management strategies. In line with Kantian ethics, which stresses the importance of respecting individuals' autonomy (Guyer, 2003), our analysis of data privacy management highlights the need for SMEs to implement transparent practices that ensure stakeholders have control over their personal data (Floridi, 2016). Limited understanding of the implication of DF can see SMEs unintentionally collecting and storing excessive data, including personal information beyond what is necessary for business purposes. Such practices can violate data privacy regulations (like GDPR) and erode consumer trust (Quintiliani, 2019). In addressing data protection management, tailored GDPR compliance strategies through structured organizational approaches can ensure effective adaptation and implementation (Freitas and Mira da Silva, 2018). The introduction of a privacy policy scoring system aids SMEs in assessing compliance effectively, a method empirically validated and adaptable globally (Chatsuwan et al., 2023). Additionally, the benefits of cloud solutions for secure and accessible data management are emphasized, alongside the need for robust incident response plans to address potential data breaches and maintain regulatory compliance (Raji et al., 2024; Hallová et al. (2019)). These strategic approaches ensure regulation compliance and also establish trust by safeguarding data integrity and confidentiality.

SMEs are advised to adopt several data privacy management strategies to enhance their compliance with regulations and protect sensitive information. They include the creation and implementation of comprehensive privacy policies that comply with regulatory requirements such as GDPR is crucial. These policies should integrate privacy by design and default principles across all business operations

(Hasani et al., 2023). SMEs can also benefit from employing Privacy Enhancing Technologies (PETs). Initiatives like the SME Privacy Starter Pack have proven effective in simplifying the adoption and understanding of such technologies, thereby facilitating broader compliance and enhancing data security (Bada et al., 2023). Additionally, the use of privacy labels can serve as a transparency tool, helping stakeholders understand and trust SMEs' privacy practices. This approach has been shown to improve organizational reputation and stakeholder relations (Troise, 2022). The effectiveness of these strategies is substantiated through their empirical validation within the SME context, demonstrating their capacity to reduce incidents of privacy breaches and enhance regulatory compliance.

The third and final factor is taking ethical organizational actions through transparency strategies. This factor connects to the pillars of **Data transparency** and **Data transformation**. We identified that setting transparency strategies for different stakeholders to protect customers' and employees' privacy is among the most essential ethical organizational actions. Transparency is fostered by integrating data usage considerations into business models. Effective data transparency management in SMEs is crucial for fostering trust and compliance. Strategies include clear data collection policies, governance through integrity-driven leadership, technological integration for secure data handling, and utilizing big data for strategic insights (Quintiliani, 2019; Ijeoma and Ezejiofor, 2013; Iranmanesh et al., 2023; Coleman et al., 2016). The effectiveness of these strategies can be gauged through empirical methods, stakeholder feedback, and monitoring regulatory compliance and performance metrics. Studies such as those by Rakshit et al., (2024) employ structural equation modeling to quantitatively assess the impact of transparency on organizational outcomes, demonstrating how transparency can be strategically managed to enhance SME performance. These approaches underline the importance of a systematic application of transparency practices to improve business processes and stakeholder trust in SMEs.

Our findings highlight the importance of integrating data usage considerations into business models as part of data transformation plans. This implies the need for SMEs to consider how data will be transformed (e.g., aggregated, anonymized) to derive insights and improve services while complying with data privacy regulations. Our research also illustrates that SMEs are more significantly impacted than large organizations in the context of ethical data management due to several key challenges. First, skill shortages in SMEs (e.g.: Skare et al., 2023) often mean that they lack expertise in managing DF effectively. This can lead to challenges in understanding and implementing best practices in data management. Second, limited resources of smaller firms can restrict their ability to invest in advanced technology solutions, unlike their larger counterparts with more substantial budgets (e.g.: Horváth and Szabo, 2019). Third, SMEs often face a gap in training and understanding about the latest technologies and ethical data management practices (e.g.: Fernández and Camacho, 2016). This lack of knowledge hinders their ability to leverage DF for business growth and can increase the risk of data breaches. Moreover, SMEs face challenges in keeping up with regulatory requirements due to limited resources and expertise in digital and regulatory compliance skills; large organizations are more likely to have established compliance frameworks and resources to stay updated with changing regulations, employing proactive compliance strategies and conducting regular audits. Therefore, SMEs' risk management strategies are typically less formal and might rely on basic measures to mitigate immediate risks. Conversely, large organizations implement comprehensive risk management frameworks including regular risk assessments, sophisticated monitoring tools and incident response plans. Additionally, SMEs' decision-making is often quicker and less bureaucratic, allowing for more agile responses to DF issues. In contrast, decision-making in large organizations involves multiple layers of approval and can be slower but tends to be more thorough and backed by extensive analysis and planning.

Addressing these challenges raises critical questions:

- How can SMEs be trained and supported to manage DF ethically?
- What practices can be adopted to ensure SMEs not only comply with data ethics but also use DF to create business value?

Our findings and the extant literature suggest that with the right support and training, SMEs can overcome these barriers. By closing the skill and knowledge gaps, SMEs can manage the DF in a way that fosters business growth and minimizes data breach risks. Ethical data management, therefore, becomes a pivotal area for SMEs, to avoid sanctions and also unlock the DF's strategic potential.

In conclusion, this study significantly contributes to the understanding of ethical implications of DF in SMEs. Our findings reveal the complexities SMEs face in managing DF and highlight the necessity for ethical considerations in digital transformation processes. The study underscores the need for SMEs to balance technological advancements with ethical responsibilities, particularly in data privacy and transparency.

5.4. Ethical implications of DF in SMEs

Kantian ethics, with its focus on duties, autonomy and respect for persons (Bowie, 2017), provides a robust framework for analyzing the ethical considerations of managing DF in SMEs. The principles of Kantian ethics emphasize the moral imperatives that guide actions affecting individuals' autonomy and decision-making capabilities (Christman, 2020). These principles are particularly pertinent in the context of DF management, where decisions directly impact the privacy and security of stakeholders.

Under the Kantian principle of the Duty of Enlightenment, individuals are challenged to emerge from a state of self-imposed immaturity – defined as the inability to use one's understanding without the guidance of another due to a lack of courage rather than a lack of understanding (Kant, 1784). Therefore, there is a moral obligation for any organization to educate and inform their stakeholders about practices they are involved in. This duty supports transparent operations and informed consent, enabling stakeholders to make educated decisions regarding their data. With a comprehensive understanding of DF, SMEs enhance stakeholders' trust and the organization's ethical standing. Ensuring that employees and customers are aware of how their information is collected, used, and protected exemplifies the commitment to this Kantian duty.

The Kantian principle of Autonomy and Respect for Persons underscores the importance of respecting individuals' control over their personal data (Guyer, 2003; Floridi, 2016). This principle demands that organizations implement privacy policies that genuinely respect stakeholders' dignity and autonomy. Transparent and stringent privacy controls that comply with and exceed regulatory requirements, such as GDPR, are fundamental. Such policies should be clearly communicated and designed to empower stakeholders, reinforcing their autonomy and aligning with the Kantian commitment to ethical respect and protection of individual rights.

Our discussion of DF management strategies is deeply informed by Kantian principles, particularly the Duty of Care, which requires organizations to proactively protect stakeholders from harm by implementing robust data security measures (Herschel and Miori, 2017). This ethical foundation underscores our recommendations for SMEs to prioritize data integrity and confidentiality in their operations. Effective data protection measures demonstrate an organization's dedication to safeguarding stakeholder data. This, along with robust security practices, regular audits, and the implementation of advanced technological defenses, are critical in showcasing an SME's adherence to this ethical principle (Shneiderman, 2020). Ensuring data integrity and confidentiality aligns with the Kantian ethos of protecting individuals from potential harms arising from data mismanagement. By integrating these Kantian principles into the strategies for managing DF, SMEs can ensure that their practices are not only effective but also ethically sound. This

ethical framework helps to systematically address the complexities involved in DF management, providing a clear path for aligning business practices with universally respected ethical standards. While cyber-attacks on large organizations continue to increase, cyber-attacks on small businesses are also pervasive; their limited resources, inadequate technology, and challenges in implementing comprehensive defensive strategies make them attractive targets for hackers (Lloyd, 2020).

To implement this in practice, a comprehensive overview of the ethical implications concerning Digital Footprints (DF), organizations—especially SMEs—must address key issues like data misuse, discrimination, and data privacy. Misuse of data, such as unauthorized sharing or selling of personal information, violates stakeholders' trust and autonomy. Kantian ethics, with its emphasis on respect for individuals, suggests that SMEs should implement transparent policies that clearly inform users how their data is collected, used, and protected. This includes obtaining informed consent and ensuring data is used only for its intended purpose. Furthermore, discrimination, particularly through biased algorithmic decisions, is another pressing concern. SMEs must adopt ethical AI practices that promote inclusivity and fairness, avoiding algorithms that disadvantage certain groups. Regular audits of data systems to detect and correct biases should be part of the process. As data privacy is paramount in managing DF ethically, SMEs should adopt stringent privacy policies, including compliance with regulations such as GDPR, and ensure clear communication about data practices. Advanced security measures like encryption, regular audits, and employee training are necessary to protect data from cyber-attacks and breaches. By incorporating these ethical practices, SMEs can effectively manage DF while protecting stakeholders' rights and enhancing their reputation for ethical responsibility. This comprehensive approach not only minimizes risk but also builds trust and strengthens the organization's long-term success.

6. Future research avenues

Mainstream strategic management scholars have largely overlooked research on SMEs' digital ethics conducted by entrepreneurship, management, and organizations scholars (Zairis, 2020). To advance our understanding, it is beneficial to synthesize current contributions and further the debate by integrating SME literature with mainstream digitalization and ethics research. This study reveals that DF as an antecedent of risk has been neglected in the mainstream SME debate, which could offer novel insights for SME scholars. Our paper addresses four main research avenues in existing literature: (a) changing power structures through the analysis of big data derived from individuals' DF; (b) SMEs shifting focus from business and customers to a broader stakeholders' perspective; (c) the role of learning algorithms and AI in predicting the behaviors and preferences of individuals with their DF; (d) intersection of emerging digital power structures, influenced by big data and AI, with EDI (equality, diversity, and inclusion) goals.

Focusing solely on digitalization, rather than the relationship between individuals and digitalization, can lead to blindness in ethical possibilities (Hasselbalch, 2019; Müller, 2020). Kantian ethical principles underscore the need for SMEs to implement privacy policies that respect individual autonomy. This ethical foundation is particularly important when examining SMEs' shift from a business-centric to a broader stakeholder-focused perspective, as outlined in the second research avenue. For example, scrutinizing the ethical implications of digitalization from a EDI perspective is equally important, as it is crucial for digital advancements to contribute to a more inclusive and equitable digital ecosystem, rather than perpetuating existing societal biases. Kantian ethics, with its focus on equality and moral duty, reinforces the need to approach digital power structures in a way that promotes equity. This perspective encourages SMEs and policymakers to scrutinize the ethical implications of digitalization and big data to foster an inclusive and equitable digital ecosystem.

Additionally, addressing the nature of power in terms of controlling big data with learning algorithms on human lives may contribute significantly to preventing the formation of super firms – hubs of wealth and knowledge – which could detrimentally impact the broader economy, such as by creating monopolies. Therefore, research involving various related parties is necessary to provide real examples. Moreover, the demand for skilled workers may render others redundant, adversely affecting the labor market. Approaching ethics from an equal opportunity' perspective will aid in proactively addressing these issues while policymakers establish regulations. Businesses may share the responsibility with society to reduce workforce inequality by integrating training and fostering a trusting and enduring work environment.

7. Limitations

This research has its limitations. First, the evidence was collected from individuals involved in supporting and delivering digitalization to SMEs. The analysis does not include perspectives from other stakeholders such as industry regulators, or customers. Consequently, the findings may not fully capture the broader range of experiences and challenges faced in the digitalization process across different contexts and perspectives. Future research should consider a more diverse set of respondents to provide a more comprehensive understanding of the topic from the end user and policy advisor perspectives. Second, the evidence was collected from various industries without focusing on any specific industry. Future comparative studies on industry-based analysis would be interesting, despite the interdisciplinary nature of digital issues. Such research could provide specific policy support and incentives and enhance SMEs' awareness and understanding within each relevant industry. Third, while we considered the DF awareness issue as the implications of DF, future research could explore how it contributes towards further value creation for SMEs – for example, in relation to the simultaneous creation of both social and business value through the adoption of transparency strategies (Pache and Santos, 2013; Ebrahim et al., 2014). Considering that social value creation encompasses fundamental developmental principles such as sustenance, self-esteem, and liberation from servitude (Sinkovics, et al., 2014), transparency strategies regarding individual rights and privacy will be the bridge between diversity management and social value creation to mitigate the risks of using internet and mobile technologies (Granados and Gupta, 2013). Fourth, we have highlighted the potential of SMEs to raise DF recognition among employees; future research could investigate the long-term value of DF derived by employees and other stakeholders. Finally, the reliance on qualitative methods including in-depth interviews, podcasts, and webinar polls, while rich in detail, may not capture the full spectrum of experiences and perspectives on DF. These limitations highlight the potential for subjective interpretations and the need for caution in generalizing our findings to broader populations. More research limitations and future research avenues are presented in Table 4.

CRedit authorship contribution statement

Ozlem Ayaz: Writing – review & editing, Writing – original draft, Project administration, Methodology, Funding acquisition, Formal analysis, Conceptualization. **Seyedeh Asieh Hosseini Tabaghdehi:** Writing – review & editing, Writing – original draft, Supervision, Investigation, Conceptualization. **Ainurul Rosli:** Writing – review & editing, Conceptualization. **Perna Tambay:** Resources.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix 1. — interview discussion outline and questions

Discussion outline	Interview Questions
Definition	<ul style="list-style-type: none"> What do you understand about DF and why does it matter? How do you think it differs between big and small businesses?
Process	<ul style="list-style-type: none"> How do you think an organization should manage their DF? Could you provide examples from your own organization or clients? How does it differ for small businesses? How can an organization be more transparent with the way we manage our DF? How can being more transparent could impact on the diversity and equality management
Outcome	<ul style="list-style-type: none"> What is the impact of DF? <ul style="list-style-type: none"> to organization to employee How will the DF link on firm performance? How does the DF create value to the organization?
Comparative perspectives on DF management	<ul style="list-style-type: none"> Do you think SMEs are ready to handle their DF ethically? How did it differ before and after COVID-19 pandemic outbreak?

Data availability

The data that has been used is confidential.

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