

The digitalization-reputation link: a multiple case-study on Italian banking groups

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Abstract

Purpose – This paper aims to focus on the relation between digital transformation and banks' reputation, as examined through the information disclosed by the five largest Italian banking groups' efforts to extend and enhance their digital resources. Considering digitalization as a key strategy for managing reputation, which, in turn, can leverage financial and value performance management, the paper investigates whether and how digital activities might affect banks' reputation. Therefore, this paper proposes the relationship between digitalization and reputation as a lever for performance management and for increasing efficiency.

Design/methodology/approach – The authors use content analysis to generate a digital disclosure index, categorizing activities human, structural and relational. For banks' reputations, the proxies are a measure of corporate reputation and a reputational risk index. Methodologically the study used multiple case studies, considered as particularly suitable to gain an in-depth understanding of the topic in the case of the five banks. A collection of secondary data and semi-structured interviews are included.

Findings – Overall, the digitalization-reputation link shows that banks' reputation is variously affected, not only by exposure to risk (including reputational risk) but also by strategic issues such as digitalization and the effectiveness of the corresponding communication. Consequently, banks should view digitalization as a key driver to be considered not in a stand-alone perspective, but in a combined approach.

Research limitations/implications – Continued research should include the Covid-19 implications. Additionally, it would be important to compare a larger number of banks, with different characteristics, also including variables indicating the corporate governance mechanisms.

Practical implications – The analysis contributes to fostering scholars' and practitioners' management of the digital transformation challenge that is a current key-factor, capable of increasing banks' value. It considers not only the drivers directly affecting monetary value but also the institutions' social and relational value, as well as their reputation.

Originality/value – This paper extends prior research on the digitalization-reputation relation by investigating digital transformation through disclosure of activities in this area within the Italian banking sector. It allows to leverage the key-factors that can contribute to increasing banks' value, considering not only the drivers directly affecting monetary value but also the institutions' social and relational value, as well as their reputation.

Keywords Case study, Qualitative research, Financial reporting, Digitalization, Reputation, Reputational risk, Italian banks, Disclosure, Content analysis

Paper type Research paper



1. Introduction

This study aims to investigate the relationship between banks' digital transformation and their reputation. To this end, we examined the five largest Italian banking groups' disclosure on their efforts to widen and enhance their digital resources.

The purpose of our paper is to show whether and how the digital initiatives (positively) affect banks' reputation, as they could be considered one of the drivers for enhancing banks' performance (Gatzert, 2015). For digital initiatives, we mean activities, projects and actions carried out by banks to realize the strategies connected with digital transformation. Hence, we propose the relationship between digitalization and reputation as a lever in performance management and for increasing efficiency. Among other factors, the improvement of reputation could impact banks' funding positively (Fombrun *et al.*, 2000) and improve their potential to attract and retain skilled labor (Turban and Greening, 1997).

The existing literature sheds light on the impact digitalization has on firms' business models, resulting in relevant changes to their structure, processes (Clohessy *et al.*, 2017) and stakeholder relations. In fact, digitalization can be conceptualized as "a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication and connectivity technologies" (Vial, 2019, p. 118). This is particularly critical for banks that recently started with digital transformation, as this brought considerable challenges and opportunities to achieve significant efficiency gains and new business possibilities (Beccalli, 2007; Chesini and Giaretta, 2019; Sibanda *et al.*, 2020; Forcadell *et al.*, 2020a; Zhou *et al.*, 2021).

Digital transformation is a key element of knowledge creation processes by which intangible resources can be generated (Veltri *et al.*, 2012). At present, intangibles increasingly contribute to global productivity and economic growth. Obviously, expanding investment, both in absolute terms and in comparison to tangible assets, has been encouraged, among others, by establishing the digital economy (ECB – European Central Bank, 2018). The gradual shift in investment composition is linked to investment growth in technological expertise, product design, market development and organizational capability, to name only a few. This affects all sources of growth and is clearly evident in the growing contribution intangible capital makes (Corrado and Hulten, 2010).

In this context, reputation, considered as a strategic intangible and invisible asset (Itami and Roehl, 1987), represents a crucial issue and its good management provides important benefits, such as higher financial performance, facilitation in funding, recruiting and retaining talent and ultimately creating value. These positive effects have become progressively relevant in recent years due to different challenges banks have been forced to address, such as growing globalization and competitiveness, as well as changes in communication culture (i.e. greater prominence of social media). The importance of a good reputation has been emphasized further by the recent international financial crisis, which quite radically changed stakeholders' perceptions and judgments of how and how effectively, banks perform their business. This is particularly evident for banks, as their business model is strongly based on trust (Fiordelisi *et al.*, 2014; Heidinger and Gatzert, 2018). A negative reputation can erode their customer base, undermine their relations with investors, suppliers, etc., and consequently reduce their profits (Gatzert, 2015).

Regarding the above-mentioned topics, our literature review shows an important research gap, which shows the need to investigate how digitalization and reputation are related. This issue seems to be particularly unexplored in the case of the banking sector, in which digital transformation and reputation are significant, also considering the role banks

play in the financial markets. To contribute to this research strand, we take on the following research questions: Is digital transformation linked to banks' reputation? Does the reputation indicator banks use to affect this possible link?

To analyze the digitalization-reputation link, we used an explanatory multiple case-study methodology, which is particularly suitable to gain an in-depth understanding of our topic in the case of the five banking groups.

To investigate the role digitalization plays, the study focuses specifically on the digital intangibles, considering different drivers to detect the digitalization process in banks. Conducting this study, we grouped such drivers into different categories, taking cues from intellectual capital classification (i.e. Human, Structural and Relational activities).

On this basis, we view disclosure regarding digitalization activities as a "form of intellectual capital disclosure" (Ricci *et al.*, 2020, p. 1). Consistent with this perspective and with the literature (Mention, 2011), we assumed that digitalization disclosure could represent the banks' commitment to digitalization. Hence, we used content analysis to generate a digital disclosure index (DD_{index}) capable of scoring information on digitalization development broken down into Human, Structural and Relational activities.

To express banks' reputations, we used both a measure of corporate reputation and a reputational risk index.

Additionally, we conducted semi-structured interviews with bank managers and employees, to understand their perception on the digitalization-reputation link. Thereby, we could also assess our research design's validity and, in analyzing our results, give an increasing qualitative perspective.

The study points out banks' general tendency to enhance their digitalization development, although further improvements are needed. Moreover, we highlight the banks' strong commitment to controlling risk, including reputational risk, also as a result of supervisors' pressure. Additionally, banks' reputation is variously affected, not only by risk exposure but also by other strategic issues such as digitalization and the effectiveness of the related communication. Consequently, banks should view digitalization as a key-driver to be considered not in a stand-alone perspective, but in a combined approach.

The remainder of the paper is structured as follows: Section 2 describes the conceptual framework and the research design. Section 3 describes the methodological approach, the DD_{index} determination and the descriptive analysis of the information the five banks disclosed. Section 4 illustrates the reputation indicators, while Section 5 describes the semi-structured interviews. We develop the case-studies in Section 6, in Section 7, we discuss the results and finally, in Section 8, concluding remarks are represented, also with an indication of the study's theoretical and practical implications, limitations and possible future developments.

2. Theoretical background and research design

2.1 Conceptual framework: digitalization and reputation in the banking context

Digital transformation affects banks through its impact on different aspects of their business model. It concerns operational processes, corporate strategies, customer relations and – more generally – stakeholder relations. Also, digital transformation can impact the culture and upgrading of staff skills (Niemand *et al.*, 2020). This is clearly underlined by which actions banks take, as they are manifestations of the digitalization strategies already undertaken and those planned for the future. In recent years, banks have strategically strengthened the entanglement of the digital evolution on the one hand, and the distribution models, sales and service processes, human resources management policies, training programs, etc., on the other hand (Forcadell *et al.*, 2020a, 2020b).

Basically, digitalization affects not only the bank-customer relationship, making it more effective but also banks' efficiency overall (Kuusisto, 2017; Haffke *et al.*, 2016). The pressure the digital evolution puts on banks' operational and organizational structure, demonstrates this (Vial, 2019). The digital reconversion of banking business models entails digital migration of banking services and changes in customers' needs. This, in turn, requires directing professional competencies toward developing new skills and expertise. Hence, it is important for banks to attract and retain talented personnel who are able to exploit the leverage technology provides for enhancing commercial paradigms based on customers' digital experience. To gain these new competencies, banks have increased their investment in training programs and their search for new talent (Human activities).

Additionally, the digital revolution affects firms' strategic structure (Harlow, 2018), also by strengthening the strategy-intangible assets linkage, as intangible resources are a crucial factor in the digital transformation process. In this context, knowledge assumes a central role. The existing literature already emphasizes that digitalization is a phenomenon capable of creating new knowledge (Gandomi and Haider, 2015; Harlow, 2018). Together with other intangibles, knowledge is a key-resource of intellectual capital (Veltri *et al.*, 2012; Ricceri and Guthrie, 2009). Therefore, digitalization and intellectual capital are both linked to the concepts of "intangible" and "knowledge" (Kolbjørnsrud *et al.*, 2017; Teece, 1986), which are drivers of economic and social value in the current environment (Dumay, 2016). In this sense, the advent of digital transformation can influence firms' intellectual capital strategies (Secundo *et al.*, 2017), how they report on their development (Ricci *et al.*, 2020) and how stakeholders perceive the firms' reliability (Forcadell *et al.*, 2020a). For banks such issues are particularly crucial, considering the important role they play in the financial markets.

These considerations are, therefore, of key importance in terms of digital capital, by which we mean all the resources behind the processes critical for developing new products and services in the digital economy. Thus, digital capital can be defined as tangible and intangible assets taken together (Bughin and Manyika, 2013). The latter are generally composed of non-monetary assets including information and communication technologies (ICT), R&D, innovation, image, economic competencies (such as human capital, networks between institutions, organizational and marketing aspects), which are also referred to as intellectual capital (Edvinsson and Malone, 1997; Stewart, 1997; Harlow, 2018; Secundo *et al.*, 2017).

To investigate the role of digitalization, we focus specifically on the digital intangibles, which we consider as an array of immaterial assets (Moro Visconti, 2020) ranging from the most traditional (brands, know-how, etc.) to the most recently developed ones (artificial intelligence, open standard application programming interfaces, internet of things, big data, distributed ledger technology, blockchain, social networks, digital skills, etc.) (Vial, 2019). This, in our opinion, is crucial to recognizing and understanding digital capital and its scope, especially regarding its intangible component. To recognize the implementation of the digitalization process in banks, we focused on various drivers and we grouped them into different categories, taking cues from the classification of intellectual capital (Ricci *et al.*, 2020; Meritum Project, 2002). Basically, we hypothesize that efforts toward digitalization can be expressed by three types of activities, namely, Human, Structural and Relational (Table 1).

The primary literature (Mention, 2011; Cabrera *et al.*, 2017) states that what firms disclose reliably represents the activities they actually undertake. Following this, we consider the information banks disclosed on digitalization as representative of the efforts they invest in widening and enhancing their digital resources to create economic and intangible values that possibly also impact their reputation. These value drivers transcend the boundaries of

Activities	Indicators
Human	H1: Employees/staff with digital and/or innovation and development skills H2: Skilled human resources breakdown for job function and activity H3: Personnel policies connected to digitalization H4: Training policies/programs; number of training hours (per year); number and type of employee, topics, training procedure (online/class/lecture) H5: Education and training expenses H6: Smart working programs (also breakdown for job functions and activities) H7: Benefits connected to digitalization H8: Effects on physical workplace (atmosphere and efficiency) and digital workplace (employee satisfaction and motivation)
Structural	S1: Culture statement S2: Strategy description S3: Processes and procedures (also breakdown for business line and customer segments) S4: Performance evaluation system S5: Digital communication channels S6: Communication technologies and development S7: Cybersecurity (procedures and systems) S8: Cyber risk management S9: Technology investment to meet regulatory expectations S10: Investment in digitalization and big data S11: Innovation and development expenses S12: IT and digital facilities S13: Information technologies in development S14: Use of big data (recruitment/customers. . .) S15: Governance (areas/structures)
Relational	R1: Digital customer service channels R2: Products/services solutions for clients R3: Marketing actions and strategies for clients R4: Collaboration and partnership with external partners (universities, research centers) R5: Collaboration and partnership with external partners (institutions, Fintech and others) R6: Personnel commitment and motivation to develop digitalization R7: Customer satisfaction and loyalty R8: Managing complaints and disputes R9: Outsourcing/subcontracting R10: External digital communication (also breakdown for customers and other stakeholders)

Table 1.
Indicators related to the activities connected to digital transformation

visible capital and are often linked to the dimensions of intellectual capital (Harlow, 2018; Giuliani, 2015; Dumay and Garanina, 2013). The latter, in the most recent research (Secundo *et al.*, 2017), is observed from a value perspective (De Santis and Presti, 2018). According to Dumay (2016), value is a broad concept which has not only a monetary dimension but also social and relational dimensions. Consistent with this, the most recent literature considers digitalization as a crucial driver for improving intellectual capital, stating that digitalization disclosure should be considered as “a form of intellectual capital disclosure” (Ricci *et al.*, 2020, p. 1). This kind of information is also relevant to stakeholders. Moreover, disclosure is generally associated with improved corporate reputation and stakeholder relations, as well as with lowering the reputational risk (De Villiers *et al.*, 2017). Reputation is a very significant issue for banks considering their specific features that are essential to the role of

asymmetric information in financial markets, as well as their functions of transforming and managing risk, supplying payments and their potential contribution to systemic risk (Allen and Santomero, 2001). The importance of banks' reputation in safeguarding trust and confidence among stakeholders, as well as in contributing to the whole financial sector's stability, reaffirms the need for sound reputational risk management (Eckert, 2017). In this respect, notably, the supervisory authorities require formalized policies and processes for identifying, managing and monitoring such risk. Similarly required, are contingency plans to deal proactively with reputation issues (EBA – European Banking Authority, 2018). Reputational risk arises from stakeholders' perceptions, which can negatively impact banks' ability to maintain and establish business relations and funding sources. It has a multidimensional nature and overall, it depends on the effectiveness of the banks' risk management systems and on the banks' capacity to react to external events affecting their activities (BCBS – Basel Committee in Banking Supervision, 2019). Here, obviously, banks' communication and reporting intended to generate favorable perceptions among stakeholders, is important. Therefore, producing positive effects in terms of mitigating the reputational risk and probably also activating a virtuous circle (Mention, 2011), is similarly important.

Currently, banks experience various kinds of pressure to manage their reputation appropriately. To build a positive reputation in the medium to long term, they need to control their reputational risk exposure. This should be considered as one of the key prerequisites for ensuring the sustainability of the institution's strategies, including those linked to the digital transformation, which we assume impacts the bank's reputation and exposure to the related risk. In particular, regarding digitalization strategies, it would be interesting to understand whether and how banks provide the necessary leverage to restore and improve reputation, also by monitoring the institution's exposure to reputational risk.

Also notable, is that reputation can be connected to profitable opportunities resulting, for example, from (re)organizing the customer-oriented process and developing competent consultancy services (Zaby and Pohl, 2019). This could result from, among other things, the digital transformation banks implement (Molodchik *et al.*, 2018). At the same time, it is important to point out once again that the digitalization process could be connected to significant risk exposure (especially in terms of operational, strategic and reputational risks) (Hossnofsky and Junge, 2019). Reputational risk, in particular, can arise from outsourcing to and/or partnering with third parties (e.g. Fintech).

2.2 Focus on the digitalization-reputation link

The close relationship between digitalization and reputation (and reputational risk) identifies as a circular kind of link and emerges with reference to the bank's overall risk exposure that results from the digital transformation. The risks are primarily operational, IT-related and cyber risk. However, progressive automation of the banking processes can also positively influence processes as in reducing operational errors by, for example, an efficiency improvement of the fraud control system, with a positive effect on reputation. It is, therefore, critical to analyze the complex relationship between digitalization, on the one hand, and reputation and reputational risk, on the other. This, in turn, is connected to other banking risks that are growing in relevance, as the supervisory authorities have emphasized in the past few years. The digital evolution could in fact represent a source of vulnerability linked to cybercrime and operational IT deficiencies (La Torre *et al.*, 2018). Cyber incidents can result in significant reputational losses, as well as high costs and systemic consequences (ECB – European Central Bank, 2019a).

Operational risks could carry considerable liability for damages, also to corporate reputation (Gillet *et al.*, 2010); according to the European Banking Authority (EBA – European Banking Authority, 2014, p. 93) “most operational risk events have a strong impact in terms of reputation.” In this respect, the current special general resonance of operational risk across European banks is noteworthy. Also, in recent years, such risk has become one of the supervisors’ most important priorities (ECB – European Central Bank, 2020). Therefore, reducing operational errors through increasing process automation and enhancing internal controls on fraud and regulation breaches could positively impact banks’ reputations. Thus, there is a close link between operational risk (from different sources), reputation risk and reputational loss (Fiordelisi *et al.*, 2013; Sturm, 2013; Barakat *et al.*, 2019). For this reason, several scholars who specifically refer to financial institutions, contribute to deepen and develop the understanding of the link.

Maintaining the above-mentioned connection, while also effectively managing operational losses (potentially generated by an increasingly wide range of factors, such as information technology (IT), cyber threats, misconduct, fraud, regulatory violations and litigations) oblige a closer look at the possible determinants of reputational damage in the banking industry, which includes the digital transformation process.

We need to bear in mind that some digitization factors can threaten a bank’s reputation (La Torre *et al.*, 2018). As is well-known, digitalization generates a huge amount of data, which results in customers’ personal information being available to banks. This generates information asymmetries that, if connected to opportunistic behavior, might threaten customers’ privacy (Forcadell, 2020a; Granados and Gupta, 2013), and therefore, undermine their trust in financial intermediaries (Hoepner *et al.*, 2016). Moreover, digitalization can have an impact on the institution’s human capital, for example, causing staff reduction (Ricci *et al.*, 2020; Frey and Osborne, 2017) and enforcing training activities. Additionally, some digital systems, such as artificial intelligence, that generate automated and non-human decision-making processes (Lombardi and Secundo, 2020), oblige redefining cognitive processes and can disrupt the employees’ existing know-how and competences (Forcadell, 2020a).

Research on digitalization mainly entails analyzing its strategic implications (Niemand *et al.*, 2020; D’Ippolito *et al.*, 2019; Harlow, 2018), attention to customers’ (Verhoef *et al.*, 2019) and analysts’ perceptions (Hossnofsky and Junge, 2019), its impact on performance (Forcadell *et al.*, 2020a) and on intellectual capital (Harlow, 2018; Secundo *et al.*, 2017). More recent studies have considered the moderating role of reputation in the digitalization-stock value association. These studies have viewed reputation as a resource aimed at improving the value relevance of digitalization and at reducing its potential negative effects for the listed firms (Ricci *et al.*, 2020) and for banks (Forcadell *et al.*, 2020a).

As Ricci *et al.* (2020) pointed out, there is still the scant analysis of digitalization’s recent impact on the company’s relationship with market players. More specifically, considering the possible digitalization-reputation link, this research gap deepens (Vial, 2019). In fact, the above-mentioned review of the literature on the link between digitalization, intellectual capital and value relevance highlights that there is space for analyzing digital capital, categorized according to Human, Structural and Relational activities and comparing this capital to reputation. Additionally, such a link is particularly relevant for banks in light of their critical role in the financial system. However, to the best of our knowledge, there are no studies on this relationship in the banking context.

Digital activities should be viewed as investments aimed at building essential intangible resources. Following the resource-based theory (Barney, 1991; Wernerfelt, 1984), we consider resources as elements capable of differentiating firms’ performances. Going beyond

the concept of financial performance, investments in digital initiatives should be considered as one of the possible factors affecting reputation. Consistent with the intention to contribute to filling the above-mentioned research gap, our study investigates the possible relation between banks' digital transformation, as examined through the information disclosed on their efforts to extend and enhance digital resources and their reputation (also seen as reputational risk).

3. The methodological approach

3.1. A multiple case-study in banking

3.1.1 *The research context.* We focus on the banking system because, during the past few years, it clearly emerged that digital transformation presents banks with strong challenges. At the same time, digital transformation has also been capable of generating significant efficiency gains and opportunities for new business.

As the European Central Bank pointed out on several occasions, digitalization also represents a critical issue from a supervisory perspective to the extent that banking supervision intends to continue assessing institutions' business models and profitability in the light also of the increasing digitalization (ECB – European Central Bank, 2019b).

Simultaneously, digital transformation can represent a source of new opportunities banks should seize on an internal, a managerial and a strategic level. Banks have, therefore, recently started to implement a range of innovative technologies to rationalize processes and procedures, to strengthen their coverage of existing and targeted clients, with the aim, among other things, of increasing their profitability and improving their costs and profit efficiency (Beccalli, 2007). Besides the operational aspects, we underline the strategic side of the digital transformation. Banks, particularly the traditional ones, are under heavy pressure, as new competitors (Fintech *in primis*) powerfully enter the financial market.

These changes require banks to react promptly (Enria, 2019). They have to consider strategic and operational initiatives that will help them to remain in the market, improve their credibility and ensure they do not succumb to new players. Therefore, they have to consider relevant issues related to the digital transformation. Some of the most important issues banks must currently address are starting partnerships and alliances with technology companies to drive digital strategy and orientation (as Sibanda *et al.*, 2020, p. 184 stated, “the digital technology is transforming the banking ecosystem from classical competitive models to innovative bank-to-Fin-Tech collaborative models”), and defining adequate governance structures and risk management practices in the light of the higher risk exposure (cyber risk, IT risk, etc.) connected to the digital transformation (as Chesini and Giaretta, 2019, among others, have shown).

All this helps explain our choice to focus this study on the banking system over a two-year period (2018–2019), considering how the system is characterized by an increasing digitalization aimed at recovering market confidence, and hence, also improving reputation. Italian banks count as highly representative, especially as a result of the continuing negative effects of the international financial crisis.

3.1.2 *The rationale behind the multiple case-study methodology.* To answer the research question, this study applied an explanatory multiple case-study methodology (Yin, 2014), as it is particularly suitable for exploring contemporary events and for an in-depth understanding of the observed phenomena and how they behave (Yin, 2006). In fact, research on the possible connection between digital transformation and a particular non-economic benefit such as reputation (La Rosa and Bernini, 2021), needs a systematic, in-depth and descriptive view of firms' operational conditions and of the relevant events that could impact their relationship with stakeholders. This requires a methodology capable of

considering these aspects more thoroughly, and of differentiating the observation for each investigated bank.

Multiple case-studies enable more accurate generalizations than single case-studies (Saunders *et al.*, 2007) and a more analytical generalization with respect to statistical analyzes. This can contribute to analytically testing the effectiveness of the theories we referred to. If two or more cases support the same theory, replication can be claimed (Rowley, 2002). We carried out such tests by gathering and examining analytical data about digitalization and reputation in the five largest Italian banking groups (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Yin, 2014). Our results can be generalized to the banking sector considered as a whole. To this end, it is worth to consider the peculiarities of banks compared with non-financial firms. A focus on the banking system allowed us to refer to some homogeneous features linked to operational and structural factors. The former relate, among others, to the business which is similar for all banks, even if obviously characterized by different diversification levels depending also on the size of the bank. In contrast, structural factors relate to supervision. All the banks are supervised, even if the requirements vary depending on each intermediary's size and operational complexity. In other words, banks present some peculiar factors that are common to the whole sector and which allow such generalization.

Particularly, our cases refer to the five largest Italian banking groups, according to the classification of banks into dimensional classes, provided by the Bank of Italy and based on the composition of banking groups as of December 2018, and on the total amount of unconsolidated total assets as of December 2018 (Banca d'Italia, 2019). The names of the five banks are omitted for reasons of anonymity and replaced by "A," "B," "C," "D" and "E."

The methodology used in the multiple case-studies, includes the collection of secondary data and semi-structured interviews, as described below.

3.2 The construction of digitalization disclosure index

This study uses a DD_{index} as a proxy for the digital transformation the five banks implemented, as we explicate here.

3.2.1 Content analysis. Consistent with Mention (2011), we assumed that the degree of the disclosure can represent the five largest Italian banking groups' commitment to a specific topic, such as digitalization. This is aligned with the essential concept of content analysis (Krippendorff, 1980), according to which the extent of reporting shows the disclosed issue's importance. We used content analysis to reveal the quantitative and qualitative profiles of the information capable of signaling the bank's efforts in developing digitalization. Content analysis is widely used to investigate disclosure in accounting research and to classify the reported information into specific categories (Guthrie *et al.*, 2004; Beretta and Bozzolan, 2008; Beattie and Thomson, 2007; Cinquini *et al.*, 2012).

Following the most recent literature (Ricci *et al.*, 2020), we finalized our content analysis to generate a disclosure index capable of scoring the information regarding the development of Human, Structural and Relational activities to indicate banks' commitment to developing those areas.

Several scholars underlined the methodological role of content analysis and the construction of disclosure indexes in research devoted to intangibles generally (Yi and Davey, 2010; Guthrie *et al.*, 2004; Beattie and Thomson, 2007) in the Italian context (Berretta *et al.*, 2003) and specifically focused on the banking industry (Mention, 2011; Cabrita *et al.*, 2017).

Stakeholder (Freeman, 1994) and legitimacy (Deegan *et al.*, 2002) theories that are closely interrelated, strengthen our choice to apply content analysis as our research method (Guthrie *et al.*, 2006; Guthrie and Petty, 2000). Following the managerial branch of stakeholder theory, disclosure can provide an answer to the critical and powerful

stakeholders' need for information on corporate policies and resources (Ullmann, 1976; De Villiers *et al.*, 2017), by reducing distortions related to the information asymmetries (An *et al.*, 2011). The legitimacy theory perspective (Deegan, 2002) emphasizes that firms' disclosure improves the stakeholders' accountability and reputation (Macias and Farfan-Lievano, 2017). Consistently, signaling theory states that such reporting helps reduce the information asymmetry between firms and the market, with a positive effect on the corporate value (Michelon and Parbonetti, 2012) that can be extended to its social and relational facets (Dumay, 2016).

Our disclosure analysis regarded both the Annual Report and the Non-Financial Statement.

As is generally accepted, the Annual Report is the central document for developing a content analysis because it discloses the most important actions, operations and facts involving the company's activity. In particular, as Guthrie and Petty (2000) state, Annual Report content analysis is a valid tool in the research devoted to corporate social, ethical and environmental reporting fields (Gray *et al.*, 1995). Additionally, according to Campbell (2010), Cabrita *et al.* (2017) show that the Annual Report is addressed to wide groups of stakeholders. This is particularly relevant because it is a tool used in legitimating banks' activity under the pressure of the external environment.

Besides, relevant information can be found in the Non-Financial Statement, which is required to present content aimed at promoting a proper understanding of the business, its performance and its impact on non-financial issues (i.e. environmental, social and personnel issues). Moreover, such a Statement essentially has to represent the business model, including the policies, the results and the related non-financial key performance indicators, as well as the main risks (D.Lgs. 254/2016). Hence, we also considered the Non-Financial Statement as useful in detecting disclosure effects on the bank's image and reputation.

As a form of further control, we also analyzed the information disclosed on the banks' websites. However, we found no additional content.

We adopted a semi-objective approach to analyzing narratives in our sources. This is defined as a partial form of content analysis which *ex ante* selects the information to be searched (Beattie *et al.*, 2004), as we describe in the next section.

3.2.2 The encoding process. We developed a human coding system as a principal method because of the complexity of the items to be classified.

Literature devoted to content analysis (Boyatzis, 1998; Weber, 1985; Beattie *et al.*, 2004) has formalized several text coding steps to ensure the validity and the reliability of the procedure (Beattie *et al.*, 2004; Cinquini *et al.*, 2012). To this end, we developed a coding process split into eight steps as described below and outlined in Table A1.

The encoding process (Weber, 1985) started with defining the recording unit. As we developed our encoding manually, we were able to detect specifically where a single piece of information was placed. Consequently, we defined our recording unit as the portion of the narrative containing a specific piece of information.

In this way, we overcame the rigidity that defining a unique type of recording unit could impose. Hence, we could locate where a specific sub-category of information is disclosed and determine its length (Beattie *et al.*, 2004; Beattie and Thomson, 2007). Taking this approach, the recording unit could be a section, a paragraph, a sentence, an aggregate of sentences or a phrase within a sentence, considering that a single sentence can disclose more than one sub-category of information (Yi and Davey, 2010). In this way, we overcame the limit imposed by the choice of classifying the disclosed issues by paragraphs, sentences or words (Campbell *et al.*, 2010).

Once we had defined the recording unit, the next step was to classify the categories. Aiming to comply with the accuracy attribute of content analysis' reliability (Beattie *et al.*, 2004; Krippendorff, 1980), we grounded the classification scheme in the framework

proposed by previous empirical studies devoted particularly to analyzing intellectual capital disclosure (Cabrita *et al.*, 2017; Cinquini *et al.*, 2012; Mention, 2011), adopting a top-down approach to the textual analysis (Humphreys and Jen-Hui Wang, 2018). To better represent our research question's focus, we adapted the sub-categories proposed by the main literature to the issue of digitalization, defining 31 indicators belonging to three types of activities, namely, Human, Structural and Relational (Ndou *et al.*, 2018). We report the list of the defined indicators in Table 1.

To implement a quali-quantitative analysis, we realized a multidimensional encoding. We formalized specific instructions for the three coders in a table of content analysis rules, that the three coders had drafted and shared (Table A2).

First, we defined three criteria to classify the information's attributes, following and adapting the scheme Beattie *et al.* (2004) proposed, which classifies information into three qualitative profiles:

- (1) Time orientation: historical, forward-looking or non-time specific.
- (2) Financial or not financial.
- (3) Qualitative, quantitative or mixed.

Then, we attributed the combination of the three types of characteristics to each indicator, so that each item could be classified according to its qualitative nature and not just "counted" according to its frequency. Moreover, we considered the qualitative nature of a single piece of information as a proxy of its quality overall (Table 2).

We prepared the text for the coding by using the software NVivo to find all the parts of the texts that reported the root word "digital-." We also checked for the words "innovation" and "information technology," obtaining the same results.

Then we placed all the recording units included in the NVivo software's selection, into the coding sheets. We coded each recording unit we collected in the corresponding section of the multidimensional scheme defined above, with "1," when it was found in the selected text and "0," otherwise. In case of repeated information in the text, we counted it only once.

Combination of the information attributes	Weight (α)
Financial/mixed/historical	5.25
Financial/quantitative/historical	5
Non-financial/mixed/historical	4.75
Non-financial/quantitative/historical	4.5
Financial/qualitative/historical	4.25
Non-financial/qualitative/historical	4
Financial/mixed/non-time specific	3.75
Financial/quantitative/non-time specific	3.5
Non-financial/mixed/non-time specific	3.25
Non-financial/quantitative/non-time specific	3
Financial/qualitative/non-time specific	2.75
Non-financial/qualitative/non-time specific	2.5
Financial/mixed/forward-looking	2.25
Financial/quantitative/forward-looking	2
Non-financial/mixed/forward-looking	1.75
Non-financial/quantitative/forward-looking	1.5
Financial/qualitative/forward-looking	1.25
Non-financial/qualitative/forward-looking	1

Table 2.
Information
attributes and their
score

We quantified the extent of disclosed items by counting the frequency of the indicators in each sub-category.

Following Milne and Adler (1999), to ensure the encoding process's reliability, we first defined a classification scheme consistent with the framework proposed by previous empirical studies pursuing the objective of the accuracy. Next, three different coders realized a pilot coding of the text extracted by NVivo, starting with one bank's Annual Report and the Non-Financial Statement that presented the more extensive reporting. After first coding on their own, the coders compared their work so that they could resolve any ambiguity and align their coding decisions, especially regarding the most complex items. Additionally, after the pilot coding process, we reviewed and modified the list of indicators (Cinquini *et al.*, 2012). Considering the revised framework of indicators of DD_{index} , the three coders extended the content analysis to all the banks for the 2018 and 2019 periods.

We finally assessed the reliability of the coding using the Krippendorff α (Krippendorff, 2004). To assess the degree of correspondence in the coding carried out by each researcher, we applied the Krippendorff test (Krippendorff, 2004), which showed a greater than 90% degree of correspondence. The information is considered reliable if the degree of correspondence of the three analysts' results are equal to or greater than 80% (Kassarjian, 1977).

3.2.3 The disclosure index. Following the main literature (Cinquini *et al.*, 2012; Mention, 2011; Beretta and Bozzolan, 2008; Cerbioni and Parbonetti, 2007; Beattie *et al.*, 2004), we assessed the quality of the disclosure by realizing a weighted disclosure index, to overcome the difficulties of assessing the qualitative profile of disclosure (Botosan, 1997). Considering the importance assigned to the different disclosure attributes we defined the following ranking.

We scored no information on a given indicator as 0. Otherwise, if there was information, we multiplied the frequency of the reported indicator with the weight we gave to its combination of qualitative attributes (Table 2).

Still following the main literature, historical information is factual narrative, while categorizing non-verifiable forecasts or intentions are forward-looking (Mention, 2011), thus we attributed a higher score to the former. Financial recording units received a higher score than the non-financial ones because they gave more defined and accurate information.

We considered mixed information (quali-quantitative) to be more explanatory than only quantitative or only qualitative information. Additionally, qualitative information counts as less explanatory than quantitative (Beattie *et al.*, 2004).

We determined our disclosure index by applying the following formula: $DD_{index} = \sum(\alpha_i \times n_i)$ where α_i is the weight we assigned to each combination of attributes and n_i is the frequency of each indicator for each attribute combination.

From 2018 to 2019, the DD_{index} total score increased for every bank, except for "A." Considering the DD_{index} detailed for activity, on average the most disclosed is information related to Relational activities (average DD_{index} : 138.65 in 2018; average DD_{index} : 199.8 in 2019), while the lower DD_{index} is the one related to Human activities (average DD_{index} scores about 32 in each of the two years). Excepting Human activities, the average DD_{index} for the 5 banks increased from 2018 to 2019 (Table 3) [1].

4. Reputation indicators

To understand the possible link between digital transformation and banks' reputation, considered in a broad sense, we refer to a measure of corporate reputation and an index of reputational risk.

To consider the banks' corporate reputation, we used the RepTrak score, provided by the Reputation Institute. The model's key-factor is Pulse, an emotional element of the corporate reputation (Ponzi *et al.*, 2011), which makes it possible to create a link between stakeholders and the firm and allows the measurement of a company's strengths on the basis of four components, namely, feeling, admiration, trust and esteem. Such components, together with seven corporate reputation drivers (i.e. products and services, innovation, workplace, governance, citizenship, leadership and performance, which, in turn, are broken down into 23 attributes). In other words, the seven drivers represent the rationale for reputation; they are entities on which intervention is possible to change stakeholders' perceptions, and thus, also their conduct.

In Table 4, we present the results, in terms of corporate reputation expressed by the RepTrak score, for the five banks during the two-year period.

Turning to the five banks' exposure to reputational risk, we used the reputation index (RepRisk index) collected from the database Orbis – Bureau van Dijk (Ponzi *et al.*, 2011; Deephouse and Jaskiewicz, 2013). This index quantifies reputational risk exposure related to Environmental, Social and Governance issues. It is based on the screening and analysis of information gathered monthly from media, stakeholders and other public sources external to firms. This is useful for evaluating firms' ability to translate the policies and processes they carry out into actually measurable performance, by focusing on the identification and assessment of risk accidents incurred.

Table 5 presents our banks' trends regarding the reputation index. We obtained data from the annual average of the monthly values.

Table 3.
DD_{index} (total scores
and scores
breakdown for type
of activity)

DD _{index} (total value)	"A"	"B"	"C"	"D"	"E"	Mean
2018	385.5	438.25	212	153.75	253.25	288.55
2019	284.5	863.5	287.5	189.5	331.25	391.25
Variation	-26%	97%	36%	23%	31%	36%
Mean 2018–2019	335	650.875	249.75	171.625	292.25	
DD _{index} (activity)						
Human 2018	54.5	59.25	13	6.5	31.25	32.9
Human 2019	18.5	84	28	10.5	19	32
Structural 2018	168.5	187.75	54.25	72	102	116.9
Structural 2019	120.5	372.25	107.5	74	123	159.45
Relational 2018	162.5	191.5	144	75.25	120	138.65
Relational 2019	145.5	407.25	152	105	189.25	199.8

Table 4.
RepTrak Scores

Year	"A"	"B"	"C"	"D"	"E"	Mean value
2018	57.8	60.6	56.4	34.5	55.2	52.9
2019	58.6	66.5	59.4	35.3	60.1	56.0
Mean value						
2018–2019	58.2	63.5	57.9	34.9	57.6	
Δ 2018–2019	1%	10%	5%	2%	9%	

5. The semi-structured interviews

Consistently with [Cabrita et al. \(2017\)](#) and [Mention \(2011\)](#), our analysis focuses in particular on the use of secondary sources, although the study was further supplemented by primary sources. These consist in semi-structured interviews ([Guthrie et al., 2006](#)) with managers and employees of only four banks out of five because at the time of the interviews two banks merged. We conducted semi-structured interviews with banking personnel (managers and employees) from communication and marketing, commercial and human resources departments.

Through the interviews, we aimed at understanding of how banking managers and employees perceive the impact of digitalization on banking reputation, to assess the validity of our research design and to give an increasing qualitative perspective to our results analysis. In particular, the interviews allow the information collection from practitioners with different perspectives of the digitalization strategies. In the case of managers, they have a more global view of such strategies, while the employees tend to have a more operational perception of the digital transformation. To this end, we asked the following questions: considering some important drivers of the digital transformation (such as the reputation improvement; the competitiveness; the operational efficiency; the policies linked to the consumer behavior; the cybersecurity management) define an order of priority; which are the most important levers capable to increase the positive impact of digitalization on your bank's reputation?; Which are the possible effects of the digital transformation on the role and skills of the human capital?; Does the digital transformation affect the recruitment of the banking personnel, in terms of skills and expertise?; Does the change of structural activities impact on the relationship with the market?

In the following, we report the most relevant evidence resulting from the interviews.

Regarding the drivers of the digital transformation, only one bank (the one with the highest DD_{index}) recognized reputation improvement as the principal priority; more in general, the four banks recognize operational efficiency and competitiveness as the most important digital transformation driver. Besides, all the banks identify the development of more complex projects as an important lever in improving the positive impact of digitalization on reputation.

Another important result, especially in a forward-looking perspective, shows the centrality of human being, on the side of the banking personnel as well as the customer. The personnel development entails investments more oriented to the hiring of employees with expertise in ICT, digital and IT security. Among others, these skills are considered essential in view of introducing artificial intelligence systems and advanced platforms for robotic investment management. This allows integrating the human capital with the digital components of the services, and therefore, also realizing hybrid modes ("man-machine") for

Year(s)	"A"	"B"	"C"	"D"	"E"	Mean value of the five banks
2018	24.8	23.1	16.6	10.2	22.3	19.4
2019	33.7	24	24.7	19.6	25	25.4
Mean value (2018–2019)	29.2	23.5	20.6	14.9	23.6	
Δ 2018–2019	36%	4%	49%	92%	12%	

Notes: The range of values are the following: 0–25 indicates low exposure to reputational risk, 26–49 indicates medium risk exposure, 50–59 indicates high risk exposure, 60–74 indicates very high risk exposure, 75–100 indicates extremely high risk exposure

Table 5.
Reputation index
(average data)

taking advantage of new services and products. Further, the strategy of consolidating relationships with customers stems from the need to restore and increase trust and consequently the bank's reputation (relational capital).

Finally, although the digital transformation has radically affected all banking processes (structural capital), the interviewees did not find the relationship to the market strongly modified.

6. Case-studies analysis

Our analysis is based on observation of the variables (DD_{index} and reputation) as they registered in the five banks during the two-year period, 2018 to 2019. We studied the link between digitalization and reputation for each bank, considering the DD_{index} for 2018 and reputation (via RepTrak for the corporate reputation and RepRisk for the reputational risk) for 2019. We took into account the stakeholders' perceptions in a certain year (2019), considering the initiatives banks had taken (represented in their disclosure) during the previous year (2018).

This methodological choice is consistent with the principal underlying theories, which suggest that disclosure can contribute to increasing firms' accountability (stakeholder theory) and reducing information asymmetries, thus producing positive effects on corporate monetary and social value (signaling theory) and legitimizing the strategies the firms implemented (legitimacy theory).

Following here, we comment on the key-features of each bank, to present the specificities related to the structural conditions (economic and financial data are omitted for brevity, but available from the authors upon request), the digitalization disclosure (Table 3 and other tables omitted for brevity) and the associated reputation issues (Tables 4 and 5).

6.1 Case study "A"

During the 2018–2019 period, "A" particularly shows an overall improvement in its risk exposure indicators (e.g. non-performing loans – NPLs and capital ratios), as well as in the level of its operational efficiency (cost-income ratio).

Similar to most European banks, "A's" results are ascribed to policies introduced over the past few years to foster capitalization levels on the one hand, and to improve asset quality on the other. Also, the growing pressure from the European supervisory authorities (ECB and EBA *in primis*) contributed. Additionally, the banks' profitability was strengthened because of expense control actions (e.g. staff resizing and administrative expense control measures), which had a positive impact on the cost-efficiency. Another effect of such initiatives is the still on-going process of commercial network rationalization, resulting in branch closures and staff reduction and ultimately in a gradual change of the operating model.

The achievement of such results together with the need for consolidating and further improving has driven "A" to adjust its strategic plan, taking a different mission focus for the 2020–2023 period. While the previous plan was centered almost exclusively on cost efficiency and de-risking efforts, the current one aims additionally to reinforce the customer base through, *inter alia*, optimizing the bank processes.

Evidently, various key-factors in "A's" current and future strategies emphasize the need to rationalize some processes and procedures, also with the aim of improving customer experience. The crucial contribution that digital transformation initiatives could make, cannot be disregarded. The disclosure "A" provided on this issue shows a DD_{index} above the mean value in 2018, whether it is taken as a total (385.50 and 288.55, respectively) or considering the breakdown into the three kinds of activities. The indexes related to the

bank's Structural and Relational activities are similar and they mostly contribute to the total DD_{index} ; this differs from the Human activities, which dramatically decreased from 2018 to 2019. The other values also decreased from 2018 to 2019, but not as emphatically. The total DD_{index} dropped by 26% from 2018 to 2019.

Regarding reputation, for 2019 "A" shows a slight increase (1%) in the RepTrak reaching a value (58.6) above the mean value (56), which indicates a position second only to "D." Similarly, the RepRisk index for 2019 is the highest (33.7) in comparison to the other banks, showing a strong increase (36%) from 2018.

6.2 Case study "B"

Our observations regarding "A" also apply to "B," which is equally committed to monitoring the drivers of a sustainable profitability, such as low leverage, an adequate capital base and prudent asset valuation. Consequently, "B" is also particularly focused on strengthening capitalization, continued reduction of NPL stocks and cost rationalization policies. This is all reflected in lower risk indicators and higher operational efficiency (due both to robust revenue growth and careful cost management).

Although "B" shares actions to achieve and maintain the objectives of capital, financial and economic stability with its peers at the national and European level, some of its business model's specific relevant strengths are noteworthy. These are the balance sheet's soundness, the high cost-efficiency (also in comparison to European competitors), the leading position in risk management and corporate social responsibility, to name but a few. These features allow "B" to develop strategic priorities that will further strengthen its global market position. Therefore, "B" is strongly committed, *inter alia*, to promote sustainable and inclusive development, to foster simplification of the operating model (with a positive impact on the cost level) and to seize business opportunities (with revenue benefits). Strategic guidelines in the bank's 2018–2021 plan pay significant attention to digital technologies and human capital as key enablers. Digitalization can result in optimizing the distribution model by reducing the number of branches, and expanding the multi-channel customer platform by digitalizing key-processes, launching new products and introducing digital services.

Such a strategic and operational orientation has already been recognized at the European level in the past when an American market research analyst affirmed that in 2016 "B" was one of the leading global players in the digital transformation of business. This trend has further strengthened, as the 2018 DD_{index} equaling 438.25, i.e. the highest value in the comparison to the other banks, shows. Besides, this score grew considerably in 2019 when it almost doubled. All the values related to the three kinds of activities, similar to those observed for "A," are above the mean. As for "A," the indexes related to the Structural and Relational activities are similar (187.75 and 191.15, respectively) and they mostly contribute to the total DD_{index} ; this differs from the Human activities (59.25). Nevertheless, it is still noteworthy that the "B" index related to Human activities is the highest of all five banks and as with the Relational and Structural activities, it greatly increased during the observation period, albeit with less force.

Regarding reputation, "B" shows the best RepTrak value (66.5 with a positive change of 10% up from the previous year) and quite a good RepRisk score (24), second only to "E," with a slight increase (4%) from 2018.

Compared to the two previously discussed banks, the following three show peculiarities (albeit one different to the other) which affect current results and strategies, even if they also are significant entities, and therefore, subject to the European supervisors' common fundamental political decisions.

6.3 Case study “C”

Regarding “C,” notably, it emerged from the recent merger of two large popular banking institutions. The new institution promptly overcame the most critical issues related to establishing the merger, which was particularly conditioned both by internal constraints linked to the level of NPLs and by an unfavorable external environment. However, undoubtedly the process of defining the banking group’s corporate and organizational structure has been complex. It involved, among other things, reorganizing certain activities (e.g. IT), approving new operational models (e.g. a commercial model) and restructuring some business sectors (e.g. bancassurance).

Once the integration process had largely been completed, the bank focused on enhancing its presence in local communities to strengthen its relationship to stakeholders. This happened because of initiatives that combined the new financial institution’s role of growing in size and in the range of services offered to customers with individual regions’ needs. All this was accompanied by measures aimed to strengthen “C’s” soundness and stability, by increasing its capitalization, reducing the NPLs and limiting the operational expenses.

The bank’s 2020–2023 strategic plan is broadly designed along the same lines, focusing on four core ideas, namely, sustainable development of the core business, a digitally enabled operating model allowing high cost flexibility as a key-lever, continued asset quality improvement and further strengthening of the balance sheet. In particular, the transition to a digital operating model is centered on key initiatives such as the omnichannel evolution, adopting a paperless approach, branch evolution, network rationalization, as well as enhancing the IT operational model and strengthening the cybersecurity.

These actions and the next objectives result in a DD_{index} for 2018 that equals 212, a value lower than the five banks’ average (288.55), but growing by 36% in moving to 2019. Similarly, the values of the three activities are below the average, yet they grow during the period, even if different to the banks discussed above. In “C’s” case, the values with the higher increase are those related to the Structural and Human activities – in fact, they more than doubled from one year to the next. In contrast, the Relational activities show only a slight increase. However, we should emphasize that this type of activity contributes most to the total index in both 2018 and 2019.

Regarding reputation, “C” shows quite a good RepTrak value (59.4 with a positive change of 5% from 2018). In contrast, RepRisk highlights a negative gap from 2018 to 2019, as it grows by 49%, even if the value remains in the lowest range (0–25), which indicates low exposure to reputational risk.

6.4 Case study “D”

Compared to the other banks, “D” in general shows the worst financial and economic features. This resulted from a series of critical factors that have affected the bank in the past few years, increasingly drawing the European supervisory authorities’ attention. The bank’s continuing uncertain situation has led to the 2017–2021 restructuring plan. The restructuring plan is focused on four pillars, namely, refocusing on retail and small business customers through a simplified and highly digitized business model, an operating model aimed particularly at improving efficiency (reducing the cost/income ratio and reallocating employees as key-levers), optimizing credit risk management and consequently drastically reducing the NPLs and strengthening the capitalization and liquidity position.

At the end of 2020, a new “D” strategic plan was approved for the period 2021–2025 on the basis first of commitments undertaken in the restructuring plan, and second of the Italian Prime Minister’s recommendation to start a process of disposing of the public

investment in “D’s” share by means of market measures and through transactions aimed at consolidating the banking system.

Hence, the 2021–2025 strategic plan has been designed with attention to measures which, on the one hand, are consistent with the current operating model and technological infrastructure and on the other, do not hinder the possibility of mergers and acquisitions operations. Therefore, the strategic guidelines highlight the need to focus the business model on key-customers and to gradually abandon the market segments which are more capital-consuming and less profitable. Other strategic key-factors are organizational simplification, bringing closer convergence between the operating model and the business, strengthening the balance sheet and continuing the focus on risk management. In essence, the plan intends to implement actions which, on the basis of already identified projects, will be able to create value rapidly by limiting new risks and being compatible with the characteristics of the current operating model.

Hence, for “D,” the digital transformation undoubtedly represents one of the key-levers for the future, but currently, for the most part, efforts are concentrated on overcoming some severe persistent weaknesses. This results in the lowest DD_{index} (153.75) for 2018, in spite of 23% growth in 2019. The three activity types show modest value (below the average) with a slight increase from 2018 to 2019, particularly regarding Relational activity which contributes most to the total, especially in 2019.

“D’s” 2019 RepTrak score, which at 35.3, denotes a slight increase (2%) from 2018, is still the worst of all five banks. The 2019 RepRisk is broadly aligned with the values of “B” and “C,” as it is equal to 25 with a 12% increase from 2018.

6.5 Case study “E”

In 2020, “E” merged with another banking group. Part of a key-strategy “E” carried out over the past few years was to manage NPLs through de-risking policies, increased capitalization and improvement in operational efficiency. Nevertheless, certain vulnerabilities persisted, as also became clear from the ratings assigned to “E” in 2019. The bank continued to incorporate NPL stocks that were considered high in comparison to the European competitors, as well as having high loan impairment levels. Both these factors represent the most negative profitability drivers. In other words, efforts made to reduce NPLs, while also stabilizing the deposit base and a solid liquidity position, could be considered positively, even if such actions were not completely sufficient to eliminate the weak profitability and capital. The bank’s capital, while adequate, is still exposed to NPL risk and domestic sovereign securities.

In this context, and considering the recent merger, the policies and strategies “E” implemented were aimed to enhance its competitive positioning. The contribution digitalization could make, is therefore, obvious. In this respect, we observed a DD_{index} of 253.25 for 2018, which is slightly below the average value and nonetheless higher than the comparable value for “D” and “C.” Additionally, there was 31% growth from 2018 to 2019. Among the activities which contribute most to such values, the Relational activities were predominant, also in comparison to the other banks’ values. Thus, for “E” the Relational activities contributed the most to the total DD_{index} in 2018 and even more so in 2019. Across the two years Structural activities increased, but not significantly, and the Human activities, in contrast, decreased.

Regarding reputation, the 2019 RepTrak shows a positive score (60.1), which is the second-highest after “B” and shows an increase from 2018. The positive result in terms of reputation is confirmed by RepRisk, which denotes the lowest value in both 2018 and 2019, even if it shows an increase across the period.

7. Discussion

The Italian banking groups clearly highlight their commitment to improve profitability by rationalizing costs, while provisions for loan impairment remain the main barrier to overcome. Also, they emphasize commitment to maintain adequate capital soundness, in compliance with extant prudential requirements. These are key-factors in value creation for stakeholders over the medium to long term. Despite certain differences between the five banks due to the given situations described in Section 6, the overall trend is toward increased capitalization and operational efficiency, as well as de-risking policies. Such actions are consistent with supervisors' pressure to define NPL reduction strategies, necessarily aligned with appropriate risk management systems and strategic plans intended to contain the immediate future risk of accumulating NPLs. Such an issue will be particularly critical for the banking system in the post-Covid-19 period.

In the context of continuous research on sustainable profitability, linked to the soundness of capital and liquidity positions, cost management flexibility and business models' resilience, the central role of the digital transformation, also in view of improving reputation, is particularly clear. For this reason, we decided to study the link between digitalization and reputation. We investigated the former through the disclosure banks provided on the digital strategies and the latter by considering the banks' corporate reputation and their exposure to reputational risk.

Our analysis shows a general tendency toward enhanced disclosure on digitalization topics, mainly through Non-Financial Statement, which provided approximately 60% of the information across the two years. Thus, we confirmed this Statement's greater importance in information disclosure on initiatives relevant to stakeholders, as digital ones are. On the basis of our assumption, this suggests an intensification of banks' actions in digital areas. The breakdown of the DD_{index} into three distinct activity categories shows that from 2018 to 2019 the Relational activities were dominant, determining the total score with a positive variation (except for "A") in almost all cases. The Structural activities had a slightly lesser weight compared to the Relational, and the Human activities were weighted significantly lower. However, the frequencies of the indicators for Structural and Relational activities are not relevantly different. The DD_{index} depends both on the frequency and on the ranking of the attributes, representing the disclosure quality. Consequently, even if the frequency of the information related to Structural and Relational activities does not show strong differences, the DD_{index} related to Relational activity is higher because its quality and explanatory capability of disclosure is greater.

The most disclosed indicators are those relating to "banks' training activities," "processes and procedures" and "products and/or services solutions for clients," respectively, for Human, Structural and Relational activities. However, disclosure of some other indicators – such as "education and training expenses" and "benefits connected to digitalization" for Human activities, "IT and digital facilities" and "use of big data" for Structural activities, and "personnel commitment and motivation to develop digitalization" and "managing complaints and disputes" for Relational activities – is completely or partially overlooked. This suggests substantial scope for improvement in that regard. Differently put, this means that banks are encouraged to widen their disclosure to cover all the possible topics related to digital transformation, also to strengthen their reputation.

Additionally, although practices of the disclosure have recently increased, banks should still improve the quality of information they divulge, thereby fostering higher informative completeness associated with a greater weight of quantitative and mixed information. In fact, the most frequently used "attribute mix" is "non-financial/qualitative/historical." This is the sixth in our ranking of information quality, as the qualitative and the non-financial

information are considered less explanatory than the financial and mixed information (Beattie *et al.*, 2004), while the historical information is associated with higher importance because it comes in factual and verifiable narrative form and not only as an intention (Mention, 2011). Our analysis shows that quantitative information is scant, and mixed information, that is considered the most complete, is almost irrelevant. Moreover, our banks report their digitalization activities using mostly non-financial information.

Similarly, the past-oriented information that mostly describes the digital initiatives banks took, should be integrated with information on the real and potential impact such actions have on the institution's economic and financial results. Hence, in our opinion, a more concrete disclosure could strongly enhance the credibility of certain activities, and therefore, positively affect, among other things, banks' reputation. We find support for these considerations in the legitimacy and signaling theories. The former focuses on the appreciation the market affords a firm if its activities are compliant with societal norms and values, so that disclosure counts as legitimation (Deegan, 2002; Guthrie *et al.*, 2004). The latter states that communication can contribute to reducing information asymmetries between firms and the market, positively affecting their corporate and social value.

The results on the link between digitalization and reputation are not univocal, i.e. some ambiguities became evident. For "A," e.g. the link was not perfectly coherent. The 2019 RepTrak, even if above the mean value, was the second-lowest value and the 2019 RepRisk index indicates it had the highest reputational risk exposure. In contrast, the 2018 DD_{index} had a high value, which indicates significant efforts in the digital transformation process. In essence, we did not find a positive correspondence between digitalization initiatives and reputation.

Quite different is the case of "B," for which the 2019 RepTrak, as well as the 2018 DD_{index}, was the best performing of all the banks. This is clearly reflected in this banking group's strategic plans, focused both on digitalization and sustainability. According to Ricci *et al.* (2020), sustainability is an important key-enabler of digitalization. The considerable efforts in the digital transformation of business (also in terms of Human activities being more developed in comparison to the other banks) make "B" one of the leading global players, with evident positive effects regarding corporate reputation. The coherent and positive correspondence between digitalization initiatives and reputation is slightly undermined when reputation is expressed by the RepRisk index. Indeed, in this case, "B" presents the second-best value. Evidently, the proxy of exposure to reputational risk is characterized by higher variability, also due to how it is built, i.e. on the basis of monthly information. Such an index intends to inform on a company's ability to translate its actions into performance, by focusing on the assessment of risks accidents incurred. That, in our opinion, is a possible reason for the higher RepRisk variability in comparison to the RepTrak. The latter appears better placed to represent the structural features of a business. This is indeed confirmed for "B."

The analysis of the remaining banking groups delivered results associated with the peculiarities highlighted in Section 6. For "D," even with digital transformation being considered one of the key-factors for future development, its current priority objective is to eliminate the sources of severe difficulties. This helps explain the unsatisfactory values this bank delivered on all the variables considered, even if they display a certain level of correspondence and coherence. Although "C" shows quite good values for reputation regardless of how it is expressed, it presents a low 2018 DD_{index}, even if with a growing trend. This can be explained by a digitalization process which at the moment is not fully defined, due also to the merger that took place. Similarly, "E" presents a low value on digitalization disclosure and good scores on reputation. In this case, the absence of

correspondence can also be explained in the light of the bank very recently coming under new ownership, and of the need to overcome weaknesses mostly linked to NPL management. Such NPL management was represented as the key-driver of “E’s” strategic efforts in the past few years, though to the detriment, in part at least, of some initiatives, including digital transformation.

In essence, we clearly evidenced an overall trend showing that banks were increasing their efforts to extend their digital initiatives. However, there is still scope for improvement, as considerably greater disclosure is needed in the sense of a better balance between the different types of information provided (financial versus non-financial, quantitative versus qualitative, etc.). Additionally, a better balance should also be ensured with reference to the weight of each type of activity (Human, Structural and Relational). Particularly, the Human activity always represents the less explored area. Hence, the general suggestion, confirmed also by the interviews, is to strengthen banks’ focus on Human activities, also to take the possible distortions digitalization could produce on the human capital of a bank into account. This is particularly relevant because, as the literature shows, Human activities are heavily affected by digitalization, considering that it has implications for skills and expertise management in the human resources divisions.

Regarding reputation, we need to distinguish between the two proxies we used. The RepRisk, as an indicator of reputational risk, generally shows low exposure, in spite of slight differences between the five banks. Particularly, it points out a fairly uniform situation, consistent with the analysis of the banks’ financial and economic features. In other words, all the indicators, including the RepRisk, highlighted the banks’ trend of keeping the overall exposure to risk, including reputational risk, under control. In this sense, we found no remarkable differences among the banks when we considered the link with digitalization strategies. Otherwise, looking at the RepTrak-digitalization link, differences between the banks are more evident, reflecting different approaches and intensity in developing strategies, including the ones connected to digital transformation.

Hence, in response to our research questions, we emphasize that at the moment the five banks (also due to supervisory authorities’ pressure) are strongly committed to controlling the total risk and its possible sources. On the other hand, in addition to the banks’ overall exposure to risk, their corporate reputation is differently affected. In fact, it is particularly influenced by the strategies banks carry out, among which digitalization, as well as the effectiveness of the corresponding disclosure to stakeholders, plays a crucial role. In this sense, digitalization can be considered a resource (Barney, 1991; Wernerfelt, 1984) associated with different levels of reputation, even if it has proved to be a key-resource that should not to be considered according to a stand-alone approach. This demonstrates that banks’ digital transformation is linked to their reputation but also that this link is affected by which reputation indicator is used.

8. Concluding remarks

This paper is aimed at studying the digital transformation-reputation link, as examined through the information disclosed by the five largest Italian banking groups’ actions to improve their digital resources. To this end, we consider the banks’ digitalization disclosure expressed by the DD_{index} that is representative of the information classified into Human, Structural and Relational activities. On the other hand, banks’ reputation is represented by both a measure of corporate reputation and a reputational risk index. To widely explain the digitalization-reputation link, we conducted semi-structured interviews with bank managers and employees.

We observed a banks' general trend to strengthen their digital transformation. However, banks' reputation is affected by several determinants, among which the digitalization plays a critical role, even if it is not the only contributing factor.

Our findings contribute to refine the theoretical framework, constituting our background. Regarding the effective role of disclosure on digital capital, on the basis of stakeholder theory, we underline that accountability toward stakeholders can be achieved not only through financial performance but also through general intangibles (Guthrie *et al.*, 2004), and in particular digital strategies. In the light of legitimacy theory, we recognize that communication, also regarding digital intangibles, is a form of legitimation for banks (Deegan, 2002). Consistent with signaling theory, we highlight that digital capital reporting is positively related to banks' social and relational value (Dumay, 2016), as well as to their reputation. Regarding the connection between digitalization and reputation, on the basis of the resource-based theory, we underline the relevance of a particular category of intangible resources (digital capital) for improving banks' reputation (Sveiby, 1997).

Another theoretical and original contribution of our paper is that it extends prior research on the relation between digitalization and reputation by investigating digital transformation through disclosure of activities in this area within the banking sector. This is particularly relevant because it allows us to leverage the key-factors that can contribute to increasing banks' value, considering not only the drivers directly affecting monetary value but also the institutions' social and relational value, as well as their reputation.

This is particularly critical for banks in the current scenario, characterized by an evolutionary process largely linked to digital transformation. This is reflected, *inter alia*, in strong competitive pressures by new players (e.g. Fintech), which force banks to rethink their business models, the effectiveness of their customer relationships and the levers to achieve sustainable objectives in the medium to long term. Thus, digitalization can contribute to improving the perceptions the market has of the banking sector, also considering the pandemic we are experiencing as a factor which has amplified such digitalization phenomena. This represents an important suggestion for practitioners.

However, there are other potential contributions for practitioners. Studying the five largest Italian banking groups has allowed us to identify a kind of best practices, which could be extended more or less gradually, to the rest of the sector. This is the prevalent approach already taken in many issues within the banking sector (e.g. in risk management practices and sustainability initiatives, to name only two), which should be considered valid also for our research topic. As often happens in the current financial scenario – characterized by strong competitive pressures and increasingly stringent regulations by supervisors – the largest intermediaries are called to have a sort of pioneering role in identifying the innovations, the challenges and consequently, the opportunities to address them to define strategic (best) approaches, aimed at ensuring the consolidation and the development of the markets shares. Consequently, our results could carry a recommendation for banks managers, suggesting that they should consider digitalization as a key-driver to be managed in generating value through reputation improvement.

Considering the interview results, the pandemic has not been the triggering event of digital transformation, but an accelerator of a process banks started earlier. Hence, further research should include analyzing the boost the pandemic gave banks in digital transformation, in closing the competitive gap with respect to Fintech, and consequently, in strengthening the digitalization-reputation link.

To achieve this and to overcome the limitations of our study, we suggest extending the analysis this study did to the years after 2019, also to consider a longer period than the two years we have covered. Doing this, the pre-Covid and post-Covid periods could also be

compared. Additionally, it would be important to compare a larger number of banks, with different characteristics, also including variables of a different nature, e.g. not only economic-financial indicators but also variables indicating the corporate governance mechanisms.

Note

1. Tables showing the frequencies of the indicators, breakdown for activity and information attributes are omitted for brevity, but available from the authors upon request.

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Further reading

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Table A1.
The encoding
process steps

Step	Description
Definition of the recording unit	<p>The recording unit is the text unit, defined as the portion of narrative containing a specific piece of information. As the definition of the recording unit has reliability implications (Beattie and Thomson, 2007), we extracted each sentence that included the root word “digital,” and also the words “innovation” and “information technology.” Then, to ensure that the encoding process would be carried out in a uniform and reliable way, starting from the extracted sentences, we conducted a pilot analysis to define the text units included in both the annual report and in the non-financial statement. First, we jointly defined the criteria to identify a text unit, and next we did a test round to standardize. As a further verification, we counted the units each of the three coders identified in the same document with the aim of ensuring that the numbers agreed. Regarding the development of this step, we formalized specific instructions for the three coders in a list of content analysis rules, that we drafted and shared with the three coders (Table B)</p>
Definition of the categories	<ul style="list-style-type: none"> <li data-bbox="589 269 925 1212">• We focused on the information related to the digital intangibles, considering several drivers aimed at detecting the implementation of a digitalization process in the banking context. Using this, we grouped such drivers into different categories, framing them according to the classification scheme of intellectual capital for intangibles (human, structural and relational activities) (Sveiby, 1997). Scholars have widely adopted practices of using a set of indicators capable of representing the digital initiatives. To ascertain the validity of the classification procedure, we have to ensure that variables on which the disclosure index is built are capable of representing the five banks’ digital initiatives (Weber, 1985, p. 12). So, our set of indicators, framed within the intellectual capital scheme, is defined by analyzing the main literature on intellectual capital disclosure (Cinquini et al., 2012; Mention, 2012; Cabrita et al., 2017; Guthrie and Petty, 2000) and also the literature on digitalization (Ricci et al., 2020; Hosznofsky and Junge, 2019; Niemand et al., 2020). Following the purposes of our research, we adapted the intellectual capital framework to converge with items related to the digital capital in the banking context. Next, we fitted the items that the literature defined for the intellectual capital disclosure analysis into the digitalization initiatives topics (Table 1). Each indicator was given a tag <li data-bbox="938 287 1056 1212">• We defined the information attributes and their mix consistent with the seminal studies that methodologically made use of content analysis (Beattie et al., 2004). Following the main literature, we specifically weighted each mix of attributes (Table 2). To ensure our indicator would be suitably factual and verifiable, we attributed less weight to less explanatory information. Each mix of attributes was given a tag
Test coding of a sample of text	<p>To test the validity of our set of digitalization indicators and of the coding rules, we analyzed the content of one of our banks’ annual report and non-financial statement. In a first movement, the coders separately coded these texts, following the above content analysis rules. Each coder transcribed all the sentences in a personal</p>

(continued)

Step	Description
Reliability assessment	<p>file and fragmented each sentence into text units in relation to the pieces of information the coders hypothesized they might contain. Then, on the margin, the coder wrote the tag of the indicator and of the attributes mix for each text unit</p> <p>In a second movement, the coders compared their coding results, to highlight the main difficulties, the ambiguities and the discrepancies between their work. This was also done to align each single coder's capacity to the different content units they found. Moreover, this step allowed the researchers to assess the information categories' representative capacity as identified in Step 2.</p> <p>The main discrepancies we found reside in:</p> <ul style="list-style-type: none"> - The definition of the text unit - The lack of indicators, regarding some themes that we found in the analyzed text (i.e. governance areas or structures) - Some ambiguities regarding the collocation of a number of text units that could be placed in both Structural and Relational activities <p>Considering the difficulties that emerged in the test phase, we revised the coding rules. We also developed disambiguation rules, starting from those regarding the definition of the text unit and revising those referring to the indicators' ambiguity and to the concept comprehension of the mixed and non-time specific information. Moreover, we introduced new indicators if the information was disclosed. Consequently, after the pilot coding process, we reviewed and modified the multidimensional framework (Cinquini <i>et al.</i>, 2012)</p> <p>After the first round of content analysis, we performed the coding three more times, focusing on the same bank's disclosure. Each time we repeated the procedure, we adopted the latest revised framework and the updated coding rules. We stopped the coding repetition when the Krippendorff's alfa exceeded the acceptability threshold ($0.88 > 0.80$)</p> <p>Considering the revised framework of indicators on which we built the DD_{index}, the three coders extended the content analysis to all the banks for the 2018 and 2019 period</p> <p>After coding the information the five banks disclosed, we repeated the definition of the reliability of our measures. To assess the reliability of all five codings, we chose a piece of disclosure from each one, covering a significant part of all the analyzed text. We achieved a result that showed a degree of correspondence greater than 90%</p>
Resolving ambiguities and revising the coding rules	
Repeating Steps 3-5, searching for a satisfactory level of reliability	
Coding all texts	
Assess reliability (Weber, 1985, pp. 23-24)	

Table A1.

Table A2.
Content analysis
rules

Issue	Rule
Documents to be investigated	Annual report and non-financial statement
Recording unit	Code for text unit, graphs and tables. Do not code for photos
Frequency	<ul style="list-style-type: none"> • Frequency is the number of times that a specific indicator, associated with a defined mix of attributes, is present. The frequency is reported in the specific cell of the coding sheet matrix • If an indicator is present two or more times in the two documents, it is counted just once • One text unit is counted as one frequency
Ambiguity	<ul style="list-style-type: none"> • Unclear and confused text units are not counted • In case of concepts that can be codified into different categories, the dominance principle has to be applied
<i>Identification of attributes</i>	
Financial	Information characterized by monetary nature
Non-financial	Information not characterized by monetary nature
Quantitative	Information represented by numbers
Qualitative	Information represented by narrative description
Mixed	Information represented by both numbers and narratives
Non-time specific	The information shows no time orientation or describes current situations
Historical	The information regard past events
Forward-looking	The information regard future scenarios (i.e. projects, ideas, hypothesis, suppositions, etc.)

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