Navigating the Portuguese Digital Landscape: Martech systems' adoption, Digital Intensity, Transition and Transformation

Balancing Traditional and Innovative Marketing Strategies

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Abstract. This exploratory study aims to identify opportunities and challenges within the process of enhancement of the Digital Intensity of Portuguese enterprises in relation to their Martech strategies, including AI, Big Data, Cloud, ERP and CRM systems' implementation. An innovative approach to marketing digital transformation is proposed combining the Multilevel Framework for Responsible Digitalization and the Change Engagement model. Such integration is an original contribution to literature, providing a holistic and structured approach to understand and promote digital transformation through responsible and sustainable lens.The analysis considers Martech implementation as constitutive variable of the Digital Intensity Index, and focuses on the Portuguese landscape, discussing data retrieved from Eurostat and the national Report Digital Transition in the light of the two theoretical frameworks. A complementary perspective is added interviewing privileged informants, representing three types of key actors in the implementation processes of Marketing management and Business Intelligence, Digital Communication and Branding, Automation and CRM: enterprises' managers, Martech service providers and marketing consultants. Our findings cross businesses' perspectives, showing different strategic approaches to lead with digital transition and transformation and point to three pillars to enhance Digital Intensity, balancing traditional and innovative marketing strategies: digital literacy, sustainability, and stakeholders' engagement. Main practical contributions emphasize the need for an engaged collaboration between government, business, and civil society, aligning their efforts to share responsibilities, design strategies, implement actions and shape digitalization policies that ensure participation, sustainability, and fairness of the digital transformation efforts and consequences over time.

Keywords: Martech & CRM systems, Digital Intensity, Transition & Transformation

1 Introduction

Digital Decade strategy sets out Europe's ambition on digital, laying out a vision for the digital transformation and concrete targets for 2030 in the four cardinal points: skills, infrastructures, digital transformation of businesses and public services.

Digital transformation is frequently identified with multi-factor effects of digital technologies on an organization and with a profound shift of both strategic and tactical activities led by a technological and social change consisting in creating new market relationships [1].

A relevant concept in this context is the Digital Intensity, which is conceived as one of the essential drivers for achieving sustainable development goals and economic growth [2, 3]. One of the main key performance indicators applied n this realm is the Digital Intensity Index (DII), adopted to describe the extent to which EU enterprises are digitalized. The DII has a composed nature and distinguishes four levels of digital intensity of each enterprise, measuring the use of different technologies, calculated based on 12 variables [3, 4]. The target of Digital Compass 2030 is that more than 90% of EU (SMEs) should reach at least a basic level of digital intensity. This basic level of digital intensity is calculated[1] for monitoring the goal of the Digital Decade European strategy, based on the four levels of the DII [4].

The composition of the DII varies between survey's editions, and the most recent includes Big Data, Cloud, IoT, Robot, AI, ERP, CRM systems. For example, is notable that the adoption of a CRM system was included in 4 editions[2] from 2015 until now. This highlights the tied relation between digital intensity levels and digital marketing strategies and operations.

The relationship between competences and digital tools implemented in marketing, such as the Customer Relationship Management (CRM) system and Marketing Automation, plays a key role in differentiating between digital transition and digital transformation.

While digital transition focuses on adopting technologies to improve operational efficiency and optimize existing processes, digital transformation goes further, impacting the entire organization and its way of strategically planning, operating, and interacting with stakeholders.

The DII also informs the construction of Digital Economy and Society Index (DESI), which is an annual report published by the European Commission that monitors the progress of EU Member States on digital performance [5]. Previous research compares European countries investigate digital intensity and some of its variables, such as e-commerce [2] as drivers for sustainability and economic growth.

Discussing the business digital maturity, the relation, innovation and outcomes of technological evolution and the capabilities of organizations and their managers to adapt and implement these new solutions within their previous systems and

[1] A basic level of digital intensity entails the use of at least four of the 12 selected variables, each scoring 1 point, which means it includes enterprises with a low, high and very high level of the DII (4-12), excluding the very low level (0-3).

[2] https://shorturl.at/hvQV1

infrastructures [6], often emerge two interlinked concepts “digital transition” and “digital transformation”. Digital transformation is a multifaceted concept, which multiple definitions refers to the application of a set of digital technologies to generate changes in mind-set, process, and activities along present and future times [7].

Recent strand of literature, focusing on SMEs, aims to identify and analyse paths, consequences and interrelations between digital transition, business models, public policies and sustainability [8, 1] Considering that Portugal is clustered within the group of countries with digital intensity, economic performance, and sustainable development values usually under the EU average [2] this paper aims to contribute to respond to a research gap on the local relations, challenges and opportunities, existing between the processes of enhancement of digital intensity and the adoption of digital marketing transformation strategies. The overall exploratory study aims to identify opportunities and challenges within the process of enhancement of the digital intensity of Portuguese enterprises in relation to marketing strategies and Martech adoption.

This article elucidates the interconnectedness of four critical dimensions (Business Digital Intensity, Digital Skills, Infrastructure and Connectivity, and Public Support) within the context of digital transformation. To conduct the analysis, we propose to adopt a combination of the Multilevel Framework for Responsible Digitalization [9] and the Change Engagement Model [10] as an innovative holistic approach to tackling the opportunities and challenges of digital transformation in marketing, incorporating both digital responsibility and change engagement aspects.

Considering the implementation of Martech systems and tools as constitutive variables of the Digital Intensity Index, the analysis focuses on the Portuguese national, cross and discusses secondary data (from European and national reports) and primary data collected through exploratory interviews with privileged informant, in the light of the two theoretical frameworks. Such integration is an original contribution to the existing literature and provides a holistic and structured approach for understanding and promoting digital transformation in a responsible and sustainable manner.

This integrated perspective deepens our theoretical understanding of the complexities involved in national-level digitalization efforts. This approach places a strong emphasis on ethical considerations and inclusivity within the digital transformation process. It enriches the theoretical foundation by highlighting the importance of addressing social and ethical impacts alongside technological advancements, aligning with the growing interest in responsible and ethical technology.

Our findings point how marketing digital transformation crosses businesses’ perspectives and interest, showing different strategic approaches to lead with digital transition and transformation and point to three pillars to enhance Digital Intensity, balancing traditional and innovative marketing strategies: digital literacy, sustainability, and stakeholders’ engagement.

This paper is structured in four sections, firstly presenting the literature review of the main concepts and the theoretical framework. Then follows the research design and methodological approach, before highlighting main preliminary findings. It closes with conclusions, limitation, and the proposal for future research directions.

2 Literature review

The following session presents the concepts of digital transition and digital transformation, to introduce the discussion about the implementation of digital marketing strategies and operations, which encompasses the adoption of Martech systems such as CRM, Big Data, AI, Cloud and ERP. The literature review focuses on motivations and effects of customer relationship management systems' implementation in digital transition and transformation processes.

Finally addressing the digital transformation from marketing perspective, the theoretical framework is composed illustrating both the *Multilevel Framework for Responsible Digitalization* [9] and the *Change Engagement Model* [10].

2.1 Digital transition and digital transformation

The organisational landscape has seen significant changes driven by technological advances. The Digital Decade strategy and the definition of Sustainable Development Goals (SDG) [11], frame the context in which two concepts that are often discussed and interlinked in this context are "digital transition" and "digital transformation". Although they may seem synonymous at first, they address different aspects and have implications for the integration of digital technology into business processes, making relevant to consider their nuances. It is important to emphasize that the differentiation between digital transition and digital transformation is not always clear and succinct, and the use of these definitions can vary [12, 13].

Digital transition is often associated with the gradual adoption of digital technologies into the existing operations of organisations. It involves the incorporation of technological tools into specific processes to increase efficiency, optimise management and offer an improved customer experience. Digital transition is an evolutionary process that focuses on improving existing practices while maintaining the prevailing organisational structure and strategies [13].

Digital transformation, on the other hand, involves a fundamental reassessment of the organisation's strategies, processes, and values, with the aim of taking full advantage of the opportunities offered by technology [14]. It is a deeper and more comprehensive change that affects every aspect of an organisation, from culture to business models [15] and it is a response to the digital revolution, requiring a disruptive approach to create sustainable competitive advantage in the business environment [12]. Research approaches digital transformation not as a single point process, but rather as dynamic target [8]. Its success is affected by set of factors intertwined with the organizations' strategies and models adopted to create and retain value. Literature discusses, from the organizational perspective of SMEs, the need for incentives and support by multiples internal (managerial) external (environmental) elements, such as organizational models, culture, leadership as well as IT infrastructure, public policies etc. [13, 1].

Marketing is one of the pillars of digital transformation in SMEs [16] since other drivers for change are innovation, customers, and data [17, 18]. Digital transformation takes place when organisations adopt technologies to improve the quality of their core

and customer services, deeply and radically, in the major contact points. Thus, digital, and traditional marketing interlink in digital transformation processes through the customer experience approach, customer relationship management, knowledge and the tools used for their implementations [19, 20, 21].

2.2 CRM as system for transition and transformation

Customer Relationship Management (CRM) systems emerge to develop and leverage customer relationships crossing online and offline environments [20, 22,23,24, 25]. The basic premise of a CRM system is to create customer knowledge to segment them according to common characteristics and behaviours, create a long-term relationship to retain and retain the most profitable customers, deal with and manage less profitable customers and customize the promotional offers to be presented to the customer [15,19, 25]. CRM systems are mainly software-based and oriented to coordinate and command the three axes of firm-customer relations: sales, marketing, and services [25, 23].

CRM allows organizations to collect, store and analyse customer data, improving customer understanding and tailoring marketing strategies [19,22,23]. Moreover, such systems integrate and centralise both transaction records and customer data, making this information potentially available and manageable to all key stakeholders of a certain organization.

The adoption of CRM brings direct benefits in terms of both financial performance and daily business activity, enhancing the organization in coordinating its marketing and service strategies oriented to strengthening long-term partnerships and positive ties with stakeholders [15]. The benefits of such CRM systems are observed in the SMEs context where organizations have less availability of economic resources and human capital. Here the management of customer knowledge becomes a strategic resource to create value, and relies on a combination of organizational tools, practices, and soft skills focused on how to create, accumulate, and transfer customer-related knowledge [15, 24,25].

Many authors agree in assuming that in this type of organizations one of the essential factors to enhance the competitive advantage is the accumulation of both general knowledge and customer knowledge management [26,27]. The customer knowledge management, and the capabilities of analysis and strategy are critically intertwined with the efficacy of a CRM system. Due to this, CRM is understandable as an essential part of the digital transition, enabling organizations to improve their informed customer decision-making prediction, campaigns' optimization, and consequently offer more relevant and personalized experiences and better customer service support.

On the other hand, CRM is part of a broader, data-mining set of management software tools and solutions. Besides the integration of all information in a dynamic unified database, CRM provides a key feature to improve efficiency, reduce costs and gain competitive advantage, supporting internal stakeholders in discarding misleading data and focusing on insights, forecasting and trends discovery. Following that, CRM is conceived not only as a set of digital technologies, which implementation may not necessarily transform all the organization's processes, but also and particularly as a tool com-

prising strategic knowledge, which makes it an overall solution for accurate data analysis, better and wider business decisions [28]. In this sense, marketing automation, as part of business intelligence, exemplifies a type of digital transformation because it not only optimizes processes, but also redefines the way organizations strategically envision, think, and engage with their customers to create, obtain, and retain value. Marketing automation transcends mere operational efficiency, transforming the way organizations interact with customers, creating a procedural and personalized fluidity in terms of the disruptive approach of digital transformation.

2.3 Multilevel Framework for Responsible Digitalization and Change Engagement Model

According to marketing scholars the digital transformation emphasizes more the technological root of IT [29] and the alignment between IT and businesses [30,31]. Digital transformation in marketing is not only a technological change, but also a cultural and ethical change. To tackle the challenges of digital transformation in marketing our proposal is to adopt an innovative combination of the *Multilevel Framework for Responsible Digitalization* [9] and the *Change Engagement Model* [10].

The *Multilevel Framework for Responsible Digitalization* [9] emphasizes the importance of a responsible approach to digital transformation. Recognizing the ethical and social implications of digitalization, the model addresses multiple levels of impact, including individuals, organizations, and the society as a whole [9], as summarized by the Responsible Digitalization Cube in Figure 1. The matrix includes the eight Digital Responsibility principles, some relevant research themes, and an organized representation of three types of accountable entities, which are the main stakeholders in this multilayer process of Digital Responsibility. Even if not explicitly mentioned, digital marketing is potentially omni-present in this theoretical framework being an activity that crosses all referred themes, being framed, and challenged by such principles, with implication at all the three levels.



Fig. 1. Digital Responsibility Cube - A framework of Digital Responsibility principles, research themes and levels of stakeholders [9].

The *Change Engagement Model* [10] deepens the importance of human commitment in transformation. This model (Figure 2) depicts changes occurring within multiple and variated spheres of action, related to organizations, job and work environment and personal motivations. The engagement consists of relations between change-related organizational resources, change-related job resource and demands, and change-related personal resources that can drive toward to change outcomes, such as innovation.

In marketing, where human interaction is essential, this model emphasizes the need to involve all stakeholders, from internal staff to external customers.
Even if this model primarily refers to the internal environment and stakeholders of an organization, its emphasis on individual and organizational commitment creates synergies with the ethical approach embedded in the Digital Responsibility framework, once digital responsibility also requires the involvement of all stakeholders and a multilevel approach, such does the *Change Engagement Model*.

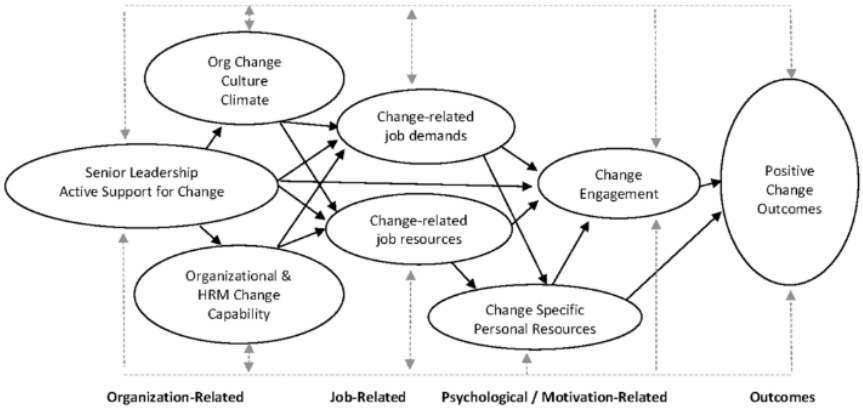


Fig. 2. Change Engagement Model [10]

The applicability of such theoretical framework to marketing and digital transformation is prominent. The responsible approach outlined by the framework of Trier and colleagues creates a natural alignment with relevant issues such: 1) the struggling implementation of FATE principles to AI and algorithmically driven marketing automation [32]; 2) customer-oriented marketing and co-creation practices [33, 34, 35].

The inclusion of the Change Engagement Model invites to consider the agency, the multiplicity of resources and the networked shape of the entire organizational structure involved into digital transformation [10, 15,13].

3 Methodology

This exploratory study aims to identify opportunities and challenges within the process of enhancement of the digital intensity of Portuguese enterprises in relation to marketing strategies and Martech adoption.

To conduct the analysis, we propose to adopt a combination of the *Multilevel Framework for Responsible Digitalization* [9] and the *Change Engagement Model* [10] as holistic approach to tackling the opportunities and challenges of digital transformation in marketing, incorporating both digital responsibility and change engagement aspects. The research design draws from previous studies to set the choice of collecting and crossing qualitative and quantitative data from primary and secondary sources.

Particularly we consider quantitative data from official reports issued by institutions such Eurostat [3,5], INE [36], EMPD [4] and we cross results to structure our findings according theoretical and empirical-analytical dimensions.

Were also conduct 6 semi-structured exploratory interviews [37] with privileged informants, representing three types of key actors in the processes of Marketing management and Business Intelligence, Digital Communication and Branding, Automation and CRM implementation: 2 managers of SMEs (as Martech systems' clients – demand side), 2 Martech services' providers (offer side) and 2 external Martech consultants (intermediaries).

For each typology of stakeholder, we construct an appropriate interview's guide, however all of three are based on the same structure built on analytic blocks derived from the literature review and oriented by research objectives:

- Digital Intensity of the Companies: priorities, strategies, and experiences
- Infrastructure and Connectivity for Martech integration and digital intensity enhancement
- Digital Skills development
- Public Support

Interviews last on average one hour, where remotely conducted, recorded and transcript using free digital software tools.

Along this exploratory phase of research, we adopt convenience and proximity sampling criteria, aiming to select a reduced sample of agents for each stakeholders' typology. The purpose is not to design a representative sample of each type of agents, but to track the voice, storytelling and experiences of privileged informants that participated in the process of Martech systems adoption withing organizational and institutional processes of transition and transformation in Portugal.

Our research is ongoing as well as the broader qualitative data collection, informed by following preliminary results.

4 Results

The digital transition is redefining the global business landscape, and Portugal is no exception. Among the 27 EU Member States, in the 2021, the country ranks 16th in edition of the Digital Economy and Society Index. The Portuguese economy is vastly dominated by microenterprises, which are counting more than 94% of the total sector, being active in in traditional sectors with low digital literacy [4].

The national digital landscape is going to be shaped by the intensity of digital transformation processes embraced within the organizations, the investment and development of digital competences and the quality of technological infrastructure and connectivity, as well as by the support from the public and private sectors.

We further explore the four impact dimensions of the digital transformation in Portugal - Digital Intensity of Companies, Digital Skills, Infrastructure and Connectivity, and Public Support - in the light of the models A Multilevel Framework for Responsible Digitalisation [9] and the Change Engagement Model [10].

4.1 Digital Intensity of Companies in Portugal

The intensity with which companies adopt digital technologies is a key indicator of a country's level of digitalization.

Considering the target objective of 90% of SMEs reaching the basic level of digital intensity, Portugal is 20% under target [5].

According to Eurostat results for 2021 Portugal presents an interesting rate of usage of cloud computing services by type [3]. Data show that 26% of local enterprises adopt CRM software applications, and a relevant 34% use ERP software applications.

Thus, according to DESI the proportion of Portuguese enterprises with at least basic digital intensity stands at 51% versus an EU average of 60%. They exceed the EU average on the use of ICT for environmental sustainability, the rate of SMEs selling online, and AI use. Enterprises using cloud services have increased from last year [4,5].

Considering the goals of 75% set by Digital Decade, the Portuguese implementation levels were 55% for cloud technology, 11% for Big Data and 17% for Artificial Intelligence [11, 3].

In Portugal only a restricted group of enterprises, that correspond only to the 6% of the entire national sector accomplishes with all following criteria: using at least one among a set of technologies (encompassing Big Data, Cloud, IoT, Robot, AI, ERP, CRM) and having a selection of facilitators of implementation of these technologies (did or are doing recruiting TIC resources and have internet high-speed). There is a considerable distance about the rate of organizations reaching the basic level of digital intensity by size: data show that 70% of Portuguese SMEs reached this level, in comparison with 97% of big companies [4].

According to interviewees also within the SMEs sectors, there are significant differences, with companies in Portugal are going through varied journeys in adopting digital technologies, from those which are leading the innovation, to others that are just beginning to explore their possibilities of digital transition, adopting e-commerce, social media management and analytics.

DESI 2021 shows that 19% of national SMEs sell online, and interviews with companies' managers reflecting the growing interest for more promotional and operational services for this area [5].

One emergent trend is pointed by a representative of Martech service provider, as the opportunity of "the hype of generative AI", that, on one hand is "rapidly moving the curiosity of a relevant number of micro and small companies' managers and owners,

usually ((they are)) not particularly tech savvy neither innovation's early adopter" (interviewee I- service provider) as refers an interviewed service provider. On the other hand, the little technical knowledge and the "un-awareness of the consequences, and lack of factual comparisons between professional mid-term serious work and fast-food standardized solutions bring new challenges to marketing, to both contents and professionals" (interviewee I- service provider).

Moreover, in Portugal, analysing the EMPD data is noticeable that the level of integration of digital technologies is heterogeneous between enterprises according to their size: the big companies use them in 31% of cases versus 17% of SMEs. A vast majority (91%) of big companies use one ERP system to share information between their different functional areas versus 51% of SMEs that do the same.

Little more than a fourth of Portuguese enterprises adopt a CRM software, being a result quite close to the EU average (27%) [3,4].

According to national statistics institute the 1.118 enterprises using CRM system, have on average 330 employed people [36].

About CRM systems adoption the gap is slightly smaller, with 54% of big companies implementing CRM versus 24% of SMEs.

CRM adoption rate leads discussion about need for automation and omnichannel integration from a business perspective and infrastructural and analytical challenges in the context of Portuguese SMEs.

During the interview a spokesperson of one service provider company reflecting on main motivations for adoption as well as on deterrents, point to budgeting restriction and priorities, highlighting the quest for integration of social media management, leads generation and e-commerce. The Multilevel Framework approach implies that this intensity needs to be guided by ethical and social considerations, ensuring that digitalisation does not harm broader interests, such as the privacy of individuals and the well-being of society. The Change Engagement Model shed lights on the training, tasks and orientation of the workforce involved within customer relationship management system implementation and feeding.

4.2 Digital skills in Portugal

The ability of companies to embrace digital transformation is intrinsically linked to the digital competences of their workforce. Portugal has been working to strengthen its digital competences, but there are still gaps to be filled. About the digital transition and integration of digital technology in businesses, Portugal undertook the promotion and development of digital innovation hubs and the reskilling of workers in ICT professions

in the countryside. In 2021 23% of enterprises provided ICT training, although there is a significant drop compared to previous period [5].

Results about profession and education point to a potential gap, considering 1) the increased the proportion of ICT specialists (3.6%) which bring the figure close to the EU average, versus the ICT graduates rate remain low compared to the EU average of 3.9%.

Regarding digital skills of the labour force, Portugal has interconnected programmes to upskill and reskill employees and entrepreneurs with digital competences, including

in SMEs. Initiatives like the Portugal Digital Academy platform, Digital+Youth , Digital+Labour, and Digital Voucher economic incentive reflects the priorities of training and digital inclusion of people through education in schools; offering training in digital skills and promotion of digital literacy. Moreover, is running the reinforcement to digitalization of the business sector, SMEs and public services through RRP [5, 34].

The distinction between digital transition and digital transformation is also reflected in the skills needed to take advantage of these tools. While digital transition may require the development of specific skills to operate tools such as CRM, digital transformation requires a broader reassessment of the marketing team's skills and the overall digital competences of the organization. In this scenario, the implementation of a marketing-specific change management model becomes essential to guide the successful transition from conventional practices to innovative digital strategies.

In the pioneer but limited "Digital Cluster" the most represented industry sectors are Information and Communication activities (22%), restoring computer and communication devices (15%). These are the sectors that recruit and have TIC specialists more (70% in restoring computer and communication devices and 61% Information and Communication activities). During the last 5 years Portugal entered in its golden era regarding technological innovation and investments, thanks to national policies and international attentions that lead to the settlement of Web Summit and a large innovation ecosystem in the country [4].

However, the lack of digital literacy in the national enterprises is the most relevant result of data collection and triangulation. All interviewees report this fragility as the most critical and point to ICT people within the organization as neither champions nor detractors of technologies implementation and digital transition processes.

The decision-making process and the useful implementation often hardly depend on C-level management. Top managers, can be described quoting one interviewee as "usually not digital native, more properly they are digital migrants, they can depend on consultant or technicians for some capabilities but if they have the awareness to take decisions, the responsibility and strength to move forward and take the risks, and the vision that these CRM systems are alive and not a plug-in-and-play solution, the adoption of one tool can be the trigger for wider transformation" (interviewee T-consultant).

The literacy dimension is crucial, settling at intersection of the theoretical frameworks to be strongly related with Digital Responsibility at all levels.

The Change Engagement Model emphasises the importance of involving employees in the digital transformation process, as well as in the definition and set-up of technologies implemented for marketing and CRM. Here literature highlights the importance of collaborators as internal priority stakeholder, but also as brand-ambassadors, consumers, and testimonial for positive referrals in external market environment.

The development of digital competences is not only technical, but also cultural. Ensuring that the workforce understands and embraces the digital changes is crucial to the success of the digital transition in Portugal.

4.3 Infrastructures and Connectivity in Portugal

The quality of digital infrastructures and connectivity determine the ability of companies to adopt innovative technologies and be globally connected. Portugal has made significant investments in this area, improving its ICT infrastructure, and promoting connectivity throughout the country. Priority investments concerns submarine cables linking continent and the island and the 5G infrastructure [5].

Interviewee are concerned about the 5G implementation times, however they generally highlight other priorities such as equal internet access and the reduction of costs of access from their customer perspectives.

The Multilevel Framework highlights the importance of ensuring that digitalisation is inclusive, avoiding the creation of digital divides. Moreover, transparency and accountability are other principles that affect the process of digital transformation, while it depends on large private investments in common infrastructures.

A Change Engagement approach in the context of infrastructure and connectivity involves not only providing access, but also ensuring that companies and the general population are empowered to take advantage of these opportunities.

4.4 Public Support in Portugal

In Portugal programs supported by public funds (PT2020 and PRR) results in more than a thousand of initiatives with potential impact on the Digital Transition of the county, condensing more than 40% of the total approved investment [4].

The more recent one has an explicit focus on DT, with area of priority intervention to promote it in diverse economic realms: companies, culture, qualification and competences, education, public administration, and healthcare.

The forthcoming PT2030 program includes a thematic program about innovation and digital transition, with focus on digitalization of companies through actions of collective efficiency, productive company' investment, qualification, and internationalization of companies. About this topic the themes and priorities emerging from the interviews are pointing to sustainability enhancement, according to the triple axes of social, economic, and environmental responsibilities.

The creation of the Digital Portugal Mission Structure – EMPD, is claiming of actively listening stakeholders to draw the current diagnostic and propose an action plan.

This reflect one of major concerns among privileged informants, that share how their business perspective and priorities are deeply connected to digital innovation and transition.

The Change Engagement Model, and the Digital Responsibility Framework, can be applied to the context of the creation of structures such EMPD to help understand how stakeholders are getting involved, defining objectives, and implementing changes in the country's digital landscape. This can be useful for evaluating and improving the effectiveness of the initiative. As constructive smart sizing levels is important to refer:

- participation
- transparency in communication

- inclusion of diverse perspectives
- definition of clear performance indicators
- decision-making power

Participation emphasizes the importance of stakeholders' involvement at all stages of the change process, moving beyond the "active listening " offering the opportunity to effectively influence decisions and strategies [4]. Transparency in communication, is essential to guarantee clarity and trust within the participation process and the sharing of relevant and accessible information. The necessity of inclusion of diverse perspectives relates to make informed decisions and ensure that the benefits of digital change are equitably distributed. The need to adapt strategies based on feedback from stakeholders includes a proactive cycle process of listening and feedback. The definition of clear performance indicators is essential to measure the impact of actions and determine whether the changes are really producing positive results in Portuguese digital landscape and related to the distribution and holding of decision-making power.

5 Conclusions

The paper findings aligned with other research assumptions about how digital transformation as organizational and social dynamic affects existing organizational processes, strategies and innovative digital solutions defining a path to potentially achieve sustainability and the organization's economic, social, and environmental goals [2,12].

Considering that Portugal is straight ahead down on the path to digital transformation, our research adopts an innovative framework to analyse how the four dimensions - Business Digital Intensity, Digital Skills, Infrastructure and Connectivity, and Public Support - play interconnected roles in this journey.

Preliminary findings suggest specifying and discerner the different approached to digital transition that emerge from the empirical and theoretical fields, bearing in mind that the mere usage of technologies by a reduced number of companies could be not significant for a sustainable enhancement of the digital intensity within the national landscape.

Marketing tools and Martech system implementation should be supported at organizational level by changes of mind-set and strategies, as well as integrated accordingly the resource-based changes model. The activities conducted at corporate level reverberate both on the individual and societal levels.

Concluding our inductive findings point to three pillars to focus on and responsibly enhance the digital intensity levels in Portugal using marketing digital transformation are: sustainability, digital literacy and stakeholder engagement.

Thus, we follow the line proposed by authors when argue that digital transformation is defined by the application of mix of digital technologies, which lead and generate changes in mentalities, processes, and activities [13,15]. Our contribution is the posed accent on the need for adoption of multilevel framework oriented by principles of responsibility and multi stakeholders 'engagement.

The combined theoretical framework is prominently applicable to marketing and digital transformation analysis adding a valuable contribution toward sustainability.

The responsible approach outlined by Trier and colleagues creates a natural alignment with ethical and customer-oriented marketing. The inclusion of the *Change Engagement Model* ensures that ethical and responsible aspects are not just an isolated concern but permeate the entire organizational structure involved into digital transformation.

By applying the principles of the *Multilevel Framework for Responsible Digitalisation* [9 and the *Change Engagement Model* [10], Portugal can ensure that its digital transition is ethically driven, inclusive, and widely engaged, creating a fairer and more prosperous digital future for all. Public support plays a crucial role in promoting the digital transition. This includes tax incentives, funding for innovation, training programmes and public-private collaboration initiatives. The *Multilevel Framework* highlights the importance of responsible public policies, ensuring that support not only drives digitalisation, but also considers social and ethical impacts. The *Change Engagement Model* in this dimension suggests close collaboration between government, business, and civil society to shape policies that drive digitalisation in a sustainable way.

The article emphasizes the need for collaboration between government, business, and civil society, aligning their efforts to shape sustainable digitalization policies. This practical advice fosters a more coordinated and effective approach to digital transformation initiatives.

It provides practical guidance for policymakers and stakeholders in Portugal, offering insights into how responsible public policies can drive digitalization while considering ethical and social consequences. It outlines specific policy measures, such as tax incentives, funding for innovation, and public-private collaboration, that can be implemented to support digital transformation.

While the study focuses on Portugal, its theoretical frameworks and practical recommendations can serve as a valuable reference for other nations undergoing similar digital transformation journeys. It offers insights into the challenges and opportunities that governments and stakeholders may encounter.

In this sense concluding that the age of digital transformation, ethical principles and awareness of social implications play an essential role, reflects a global reflection on such phenomena.

The synergy between the two frameworks ensures that the digital transformation in marketing is conducted with both ethical responsibility and human engagement in mind. In this way, it creates a favorable environment for building trust with customers, and for creating marketing strategies that align with ethical expectations and the culture of change required.

The study may have limitations related to its research methods, such as sample size, data collection techniques, or the choice of frameworks and models. These limitations can affect the reliability and validity of the findings and many of those serve as valuable considerations for future research and practical implementation. Due to the specificities of the Portuguese case-study, the limited generalizability of current results suggests enriching the analysis with more data from different regions, including the opportunity of comparative analysis. Given the rapid pace of technological change and policy developments, these conclusions may become outdated relatively quickly. It could be important to extend the analysis providing insights into the long-term sustainability and success of Portugal's digital transformation efforts. Current studies, such this, face the

challenge of mapping the digital transformation as an ever-changing phenomenon, requiring constant and rapid update, to include emerging technologies, models, and approaches.

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