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Nurture employees' creative behaviors: unveiling the impact of design thinking on human organizational behavior

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Abstract

This research explores the impact of Design Thinking (DT) on Organizational Behaviour, explicitly focusing on individual employees, the micro-level of the organization. The research runs a single-case study within an Italian bank adopting DT through its HR department. The study proposes a model illustrating how DT adoption influences specific individual behavioral constructs: motivations, attitudes, capabilities, and creative behaviors. The study finds that fostering confidence in the creative process enhances human engagement and proactivity.

Keywords: design thinking, behavioural design, organisational design, organisational behaviour, design management

1. Introduction

Private organizations across sectors increasingly embrace "Design Thinking" as an innovative approach to introducing design culture into the organizational ones. This paper explores the impact of Design Thinking on Organizational Behaviour, explicitly focusing on individual employees, the micro-level, and the human component of the organization. Recent scholarly attention has highlighted Design Thinking's role in activating paths of innovation and transformation within businesses. Design thinking (DT) is now recognized as a cultural component within organizations, influencing their norms, values, and behaviors. Recent research in Design and Business Innovation management has shifted focus from analyzing organizational structures to understanding individual employee dynamics. However, there still needs to be a greater understanding regarding how DT impacts the micro-level of organizations, particularly in activating creative behavioural patterns in individuals. This scientific gap highlights the need to explore how adopting DT influences and affects people within organisational contexts. The study aims to fill this gap by uncovering the nuanced connections between Design Thinking actions and the behaviors of individual employees; thus, the paper contributes to the scientific debate by proposing a model to study how Design Thinking adoption punctually stimulates Organizational Behaviour at an individual-micro level.

The research employs an explanatory case study methodology. This approach, ideal for analyzing complex phenomena and addressing "how" questions, includes a meticulous sampling process. The chosen single case study, a Division of an Italian bank adopting Design Thinking through its HR department, represents the fertile ground to explore the impact of Design Thinking (DT) on organizational culture. The study proposes a conceptual framework illustrating how Design Thinking adoption can influence specific individual behavioral constructs, encompassing motivations, attitudes, capabilities, and creative behaviors. To test this interpretation model, the research focuses on analyzing

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a specific DT action - UP project - implemented by the company identified to facilitate employee growth and engagement through a platform of internal corporate entrepreneurship. The data collection process initially focuses on scoping the research study; this initial stage helps understand the drivers and expectations of the ambassador and activator of the DT action in the company. After this initial stage, the research team collects primary and secondary data about the employees who live and experience the DT action: starting from employees' interview transcriptions, the data analysis comprises a coding and sub-coding activity with a thematic clustering, aligning data categories with the constructs of the proposed framework.

During the results analysis the expectations from DT ambassadors and perceived effects on employees post-DT adoption were evaluated, revealing recurrent behavioral patterns. These patterns propose distinct creative behaviors, including proactive problem-solving, confident handling of uncertainty, collaborative communication, and resilient responses to obstacles, nurturing a dynamic culture within the organization. The paper's findings support hypotheses, revealing punctual links between individual behavioral constructs analyzed and DT principles that characterize the DT action. The model delineating behavioral patterns represents a proposal to understand how the DT adoption, interventions, and actions impact the human traits of the organizations, nurturing creative behaviors; however, the research highlights and acknowledges the subjective nature of DT's effects on individuals.

The study's context, an Italian financial organization initially perceived as resistant to DT practices, turns out to be a fertile ground for testing experimental DT adoption. The constant need for change and supportive leadership typical of these companies empower the studio results. DT, in this context, such as big corporations, acted as a catalyst for cultural change, fostering proactive and resilient behaviors. Creative confidence impacts in big organizational context if individuals are in the condition to grow. The study's limitations include the need for further experimental research in diverse contexts and the intrinsic subjectivity to the interpretation process.

The paper is divided into four sections. The background theories present the relationship between Design Thinking, Organizational Culture, and, in particular, Organizational Behaviour. The research design and methodology explain how the research has been conducted and the proposed conceptual framework of analysis. The results analysis shows the different areas of inquiry and the data analyzed according to the interpretation model. The final section consists of a discussion that summarizes the theoretical and empirical implications, including future areas of exploration within the research areas explored in this paper.

2. Background theories

The research underlying this paper started from a reflection on the ongoing discourse surrounding the concept of Design Thinking. Over the past two decades, this subject has gained significant attention and critical inquiry by scholars within the Design, Business and Management fields but also other research domains far apart from this topic. Recent scholarly works have affirmed the favorable consequences of adopting Design Thinking in innovation and transformation, strategic option generation, and management education (Beckman and Barry, 2007; Garbuio *et al.*, 2015; Glen *et al.*, 2014).

The amplified interest in the principles, methodologies, and tools of Design Thinking stems from the progressive transformation within the Design field itself. It is progressively transitioning towards a way of practicing and approach focused on conceiving solutions and creating intangible offerings that address intricate and multifaceted problems (Zurlo and Cautela, 2013).

The emergence of design thinking in the latter half of the 20th century is well-documented. It traces its origins to significant contributions from eminent design methodologists, such as Simon and Schön, and subsequent research by key design scholars who established the concept of "designerly ways of knowing" (Cross, 1982, 2001). More recent studies highlight design thinking as an effective strategy for fostering innovation within businesses (Brown, 2008, 2009). This approach encompasses tools, methods, and approaches that enable organizations to tackle complex and multifaceted problems. The evolving definition of Design Thinking highlights the designer's role in providing proper solutions by navigating and facilitating complicated situations. This process involves synthesizing aesthetic, cultural, and technological trends with the demands of consumers and businesses (Kolko, 2009).

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A part of the actual scientific discussion revolves around the profound impact of DT on organizational culture, which is defined as encompassing the underlying norms, values, and assumptions that dictate the "correct way" of behaving within an organization (Schein, 2010). A growing number of organizations are adopting DT as a transformative tool, enabling them to effectively navigate change and embrace the related risks (Zurlo, 2019). Moreover, design thinking can instigate organizational change by beginning with an observation of the needs and behaviors of individuals within the organization, fostering creative confidence among employees (Kelley *et al.*, 2013), thereby enhancing motivation and entrepreneurial aspects.

Elsbach and Stigliani suggest a shift in perspective, viewing design thinking not just as a set of tools but as a crucial cultural component within organizations (Elsbach and Stigliani, 2018). Their research reveals a profound interconnection between the implementation of DT and the development of organizational cultures. An organization's adoption of design thinking is more than a repetitive process with methodological support; instead, it represents a preeminent expression of creativity (Zurlo, 2019) and serves as a bridge to merge the design culture into the organizational culture. This paper explores the bond between DT and the cultures of private organizations: design thinking as the bridge between design culture and non-design-intensive firms. Physical artifacts and emotional experiences serve as signals of design culture within an organization, but these cultural signals only scratch the surface of the more profound changes occurring within the organization due to the introduction of design thinking, affecting behaviors, perceptions, and mindsets of humans (Elsbach and Stigliani, 2018).

DT practices are increasingly appearing across diverse organizations in terms of industries and sizes. However, the more profound integration of design culture and mindset within organizations is less common due to the challenging nature of this cultural assimilation. Most examples of DT adoption are categorized as innovation activities or labs, yet the underlying strategic motivations, known as "the design drivers," vary considerably, as outlined in David Dunne's book (Dunne, 2018). For many organizations, the primary aim is to facilitate disruptive innovation pathways or enhance customer experiences. An increasing number also adopt DT with a focus on internal cultural development, including mindset transformation, fostering collaboration across organizational silos, and attracting and retaining valuable talent. Finally, some organizations adopt DT intending to catalyze fundamental changes in their organizational and social systems. These overarching strategic drivers serve as guiding principles for organizations in determining how to implement DT initiatives. Organizations might combine these different reasons to implement DT, usually following a gradual process of integration of design into organizational life (Buchanan, 2015), starting from tactical issues arriving at vision and strategy passing by organizational problems of operation.

The integration of design culture in organizations can start by activating and nurturing Design interventions, which refers to the creative distress that can permeate organizational life (Melazzini *et al.*, 2023). As for the other forms of cultures, the Design one presents its own principles and characteristics. All the Design Interventions include specific DT actions or programs built on well-established DT principles systematically identified by a considerable variety of scholars and practitioners. DT has been analyzed in terms of features (Dunne, 2018), themes (Carlgren *et al.*, 2016), attributes (Micheli *et al.*, 2019), and Practices (Dell'Era *et al.*, 2019). In this study's scope, these different theoretical models have been adapted to delineate the main design principles on which Design interventions are based.

The seven principles are human-centeredness, Creative Reframing, Experimentation, Visualization, Holistic view, Interdisciplinary collaboration, and Mental flexibility. A significant amount of design and non-design scientific contributions has been considered in defining each principle.

Several contributions in the intersecting domains of Design and Business Innovation management, which explore cultural shifts within organizations, are moving from a focus on analyzing complex organizational structures and management practices to investigating the dynamics of individual employees. In the research area of Organisational Behaviour (OB) within Industrial and Organizational Psychology, the human elements are described as the micro-level of organizational behavior (Miner, 2006; Wagner and Hollenbeck, 2014). This subfield of OB primarily investigates and examines the behaviors of individuals within the organization. Micro-organizational behavior

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encompasses individual behaviors that are more individualistic but influence the organization as a whole (Cummings, 1978). The behaviors are multiple and have different influential effects on individual and organizational performance: the most studied ones in relationship with Design management are *Personality characteristics, Diversity, Decision making, Creativity, Job Performance, Leadership, and Stress*. This paper investigates the relationship between employee behaviors and DT: the OB behaviors touched in this scope are various; nevertheless, the one that presents the most significant connection with the DT adoption process is the so-called "*individual creativity at work*". As theorized by Amabile (1988, 1996), individual creativity comprises three distinct components: 1) Expertise, encompassing technical, procedural, and intellectual knowledge; 2) Creative-thinking skills, reflecting how individuals approach problems with flexibility and imagination; and 3) Motivation, representing the inner drive to solve problems. Amabile's componential model of creativity and innovation within organizations (Amabile, 1988) outlines the interplay between what is required for individual creativity and what organizations require for innovation. It's crucial to emphasize that the attitudinal, cognitive, and behavioral aspects presented in this model serve as pivotal elements that facilitate individual creativity. Scholars in the field of OB widely affirm that the processes of organizational innovation, including DT adoption, significantly influence employee behaviors by stimulating the individual components of creativity. The concept of individual creativity at work in OB strongly aligns with the notion of "creative confidence" as previously presented in the context of Design Thinking (Kelley *et al.*, 2013).

There is a lack of understanding of how DT impacts the micro-level of organizations. How can Design Thinking adoption activate human's creative behavioral patterns? This research aims to detect punctual relationships between DT actions and individual employee creative behavior components.

3. Methodology

3.1. Research design and methods

The research embraces a case study methodology, in particular, an explanatory case study to study the reflections of the literature review and hypotheses in the case to contribute to the theory. This method appeared as the most appropriate after the results of the observation and mapping of the theoretical background of the topic of research in which theoretical assumptions are explicit as for the objectives and the scope of the research itself; furthermore, this method especially fit to answering "how" questions and analyzing complex phenomena (Easton, 1995).

After the preliminary activities, a single case study was chosen as a research strategy. The complexity of the conceptual framework built to analyze the subjective constructs identified led to this methodological choice; thus, according to Edmonds and Kennedy (2016), purposive single case selection provides an ability to collect the most relevant data: the specific purpose adopted is to select a representative case and a case of special interest. Furthermore, the process of selection of the case starts from the intention to identify not only a case to study and map but a real research partner eager to experiment and deeply explore the relationship between DT and micro-level of the organization.

To conduct a single case study research process, a series of activities have been performed: 1- identifying the unit of analysis and selecting case - sampling; 2 - Collecting data; 3 - Analysing data; and 4 - Interpreting the findings.

3.1.1. Unit of analysis and sampling

The unit of analysis, which is an embedded unit of analysis (Yin, 2009) consists in the process of adoption of DT.

The precise context of this case study research consists of a specific type of private organization that already adopted DT to impact organizational culture.

The unit of analysis is investigated through the conceptual framework presented below; on the basis of the research strategy explained above, the specific criteria for selecting the single critical case study were basic awareness on DT, suitable DT actions and projects related to organizational change, belonging to an unusual industrial sector from DT standard practices. These criteria reduced the range of possible cases to a list of different companies.

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From theoretical and convenience sampling, the Corporate and Investment Banking Division of an Italian financial institution turned out to be the best choice. The selected company belongs to the leading banking group in Italy, and the selected division of the group operates in corporate finance and investment banking. This division has more than 4000 employees. This organization has an established connection with DT applied to organizational culture change: in the last five years it has adopted DT in order to impact on internal cultural development at different levels of the organization structure; the activator/champion of this adoption is the Human Resources - People Development and Engagement unit. The specific DT action studied is the one that started the process of adoption in the company: the UP - Unlock Potential project - a program of cultural change that aimed to facilitate employee growth and engagement through a platform of internal corporate entrepreneurship.

3.1.2. Data collection

The process of gathering data is developed using multiple sources of information to allow further data triangulation. The data collection process followed two stages; the first stage was addressed to scoping the research study. Seven semi-structured interviews were conducted with DT champions in the division: the HR managers. The collection was further developed through field observations, multiple informal meetings, and desk research examining internal and external materials related to DT adoption. The second stage was dedicated to the dataset for evaluating the quality of the conceptual framework used and identifying the most recurring behavioral patterns: the most recurring creative behaviors.
Primary and secondary data were collected synchronically in this phase; secondary data were acquired through informative digital materials provided by the company. The primary data were collected through ten semi-structured in-depth interviews with key-informants: the selected interviewees are involved into the process of adoption of DT at different stages and at different levels; two main typologies of employee have been involved (related to the 2 subunits of analysis):

1. Managers who are supposed to know why and how the process of Design intervention started called from now on the ambassador; different HR managers were involved.
2. Employees who experienced or are experiencing the DT action in case; a series of employees have been selected with different ages, genders, and seniority; the only common aspect consists of not having an educational background in Design.

The interviews were conducted in person or by videoconference in meetings of 60 min. An interview protocol was developed based on the conceptual framework constructs and related measures.

3.1.3. Data analysis

In the first phase semi-structured were transcribed from audio files. Examining the transcripts helps identify the starting evidence and themes to be compared with internal materials and the first observations. A narrative approach was adopted as the most suitable strategy for this first phase.
The second phase started with the transcriptions of the semi-structured interviews from audio, as well. The interviews transcripts have been imported and analyzed through MAXQDA™ software (secondary data have been imported as well). The data coding process started first from the conceptual framework constructs; the subcodes were identified according to Glaser and Strauss's (1967) coding method; first, data were clustered in emerging themes and then progressively in related categories. Thus, a study of the correlation of the categories with the constructs and related measures from the conceptual framework followed.
The conceptual framework of analysis proposed is composed of a series of constructs: DT interventions and action, individual motivations, individual attitudes defined as the personal activators, and individual creative capabilities defined as human potentiality, and finally, behaviors.
Individual motivations, individual creative attitudes, and individual capabilities are the constructs to identify the **individual employee sphere** in the research.
The structural logic of this framework is the following: a specific DT intervention and action (INPUT) impacts a specific combination of individual motivations, individual attitudes, and capabilities (CATALYSTS). This combination makes employees react by activating specific creative behaviors in a specific context (OUTPUT), as shown in Figure 1.

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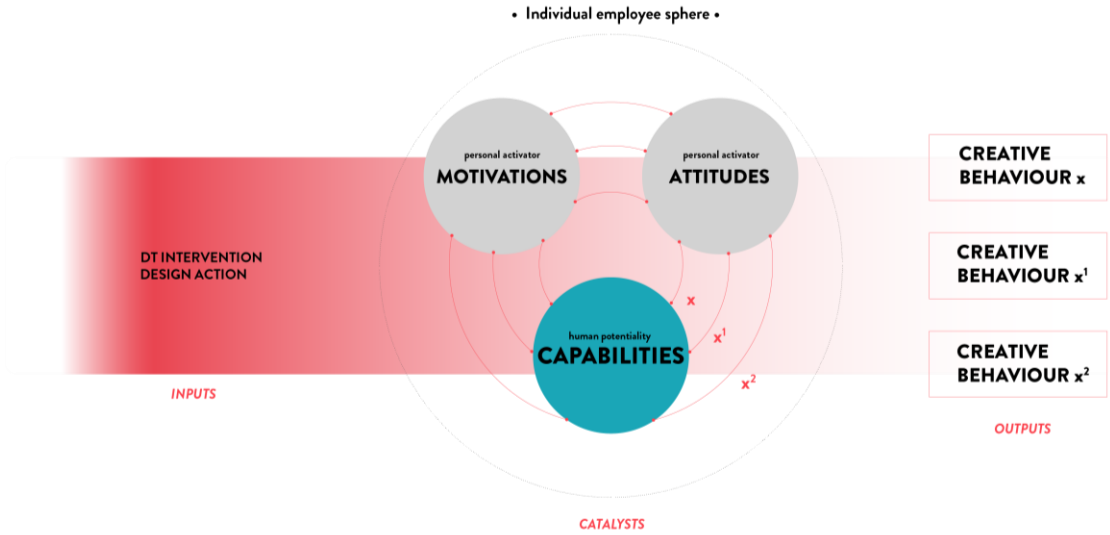

Figure 1. Conceptual framework

4. Research activities and results

The Head of HR, and his teams are building "a new perspective in dealing with people" in order to act as a real "engine for the internal cultural change". What is pushing the adoption of DT is a concrete process of internal cultural development, passing by an important evolution of the role of HR itself.
This process has to passed by a strong effort of change of internal mindset that regards not only the HR but aims to touch all the employees which must feel to be part of a "big project"; moreover, the context of a financial bank presents significant internal competition at several levels; as stated by one of the interviewed HR managers "we are often in front of demanding persons, tough to deal with". Thus, retaining talent is a consistent design driver as well.

> *"The focus is: people fulfillment, combining their engagement and wellbeing with their performances. HR must anticipate the need of an internal client."*

Starting from the driver, goals, and nature, the DT intervention concretely operates through a series of design actions. The DT action that started the adoption process is the UP Unlock Potential project.
It is a platform that acts as an accelerator of new opportunities for employees and the organization itself; entrepreneurial attitude and creative confidence are the two key contents that the platform aims to spread among the employees through the Design Thinking approach. The entrepreneurial approach and the creative one are meant to be the driver of engagement: to unlock the potential intelligence and capabilities that are unexpressed in the ordinary working life by employees.
It is a platform that enables the chance to launch, tackle and develop challenges which may become projects capable of generating positive returns for people and for the Division. Everyone in the Division can propose a challenge (for the business, organisation or people) or join a team which is tackling a project, starting from identifying unsolved problems or opportunities to be exploited (becoming an "Upper"). This happens following a path and adopting tools typical of the DT approach and startup world. UP project has been developed in partnership with an external design consultancy firm. The internal team absorbs the approaches and methods from the consultant in these years and both the two parts still carry out the project. Analyzing this specific action, it was possible to identify which DT principles and related individual creative capabilities, among the complete list codified in literature, aimed to act in different ways as input of this DT intervention (in the intentions of the HR Team)
The individual employee sphere has been analyzed from two distinct perspectives: what was expected before the DT action (from DT ambassadors) and what are the perceived effects from employees after the adoption. The expectations from the ambassadors of the project interviewed are summarized in the following table: the data are the results of the first dataset analysis and are shown according to the individual employee sphere constructs.

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Table 1. DT drivers, creative capabilities, and expected impacts in the UP DT action

DT drivers (which are the drivers behind the DT intervention?)	**Individual creative capabilities - based on DT principles** (which are the capabilities that may fit with UP?)	**Individual MOTIVATIONS** (which can be the motivating factors?)	**Individual ATTITUDES** (which are the personal attitudes that may fit with UP?)
Changing internal mindset Feeding internal teamwork Retain and attract talent	Empathizing and Coaching *(Human centeredness);* Critical thinking *(Creative reframing);* Risk taking *(Experimentation);* Mediating and negotiating *(Interdisciplinary collaboration);* Envisioning and imagining *(Holistic view Future thinking).*	To be a booster of visibility; to accelerate the growing path (personal and career); understanding the personal qualities that are hidden in the daily routines; to feel to be part of a common shared view and value - belongingness. To interact with colleagues with different seniority and expertise - network. To challenge oneself and show that it is time to make a new step in the personal path.	Being proactive; being open-minded. Being open listening to others; being brave and react in front of failures; take the initiative and stimulate. Being generous and being curious.

For assessing the quality of the conceptual framework and identify the behavioural patterns (the most recurring creative behaviour nurtured), it was fundamental to elaborate the data collected from a number of key informants selected among the "Upper" employees. The sets of information are collected after three years from the first participation in the DT action.

Therefore, after the analysis and the results of the individual employee sphere constructs, it was possible to delineate a selection of recurrent and most valuable individual behaviors generated by the process of DT adoption through the DT action.

Adopting a chemical metaphor, it emerges the role of motivations and attitudes as individual subjective catalysts of the DT adoption process; in front of a so-called DT input, the different combination of specific motivation and attitudes with specific creative capabilities (which act as the reagent) generate a series of patterns that delineate distinct creative behaviors. Each of the following codified behaviors, therefore, are the result of punctual relationships detected between DT action and individual employee sphere components (the effects after the DT action implementation).

The following table summarizes the data via key topics that exemplify the most recurrent motivation, attitude and capabilities that generate the **identified behavioural patterns**.

Table 2. Patterns that identify the most recurrent creative behaviours

INPUTS	**CATALYSTS - Individual employee sphere**			**OUTPUT**
DT action principles	**Motivations**	**Attitudes**	**Creative Capabilities**	**Creative Behaviours**
Creative reframing	Interest in realizing a project	Challenges oneself in a proactive and curious way	Envisioning imagining + problem framing	To act in a propositional manner
Experimentation	Challenges oneself	Self-confident attitude + inclination to discover	Envisioning + experimenting	Handle Uncertainty
Interdisciplinary collaboration + Visualization	Interest in networking and gaining visibility	Self-confident and proactive attitude	Persuasion and communication	Confidence in speaking
Interdisciplinary collaboration + Human centeredness	Interest in networking	Stimulator + Inclined to listen	Empathy + Persuasion and communication	To mediate
Experimentation + Creative reframing	Interest in realizing a project	Proactive Ambitious	Envisioning Problem framing Experimenting	To act in resilient manner

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First, the most recurrent activated behavior is the one codified as **propositional**: the tension to operate in a more active and proactive way, changing the perspective with more bravery in facing the everyday challenges, even "transforming every daily challenge into opportunity".
A creative behavior that strongly appears is the confident application and **taking action** in a situation which implies **uncertaint**y: "handling with more personal instruments the uncomfortable and risky situations". Another considerable impact can be recognized in the **confidence in speaking** in intimate and public situations that implies collaboration among people. This last behavior can be linked with how people **mediate** and learn how to mediate within teamwork; this is another recurring topic among the identified patterns. Finally, the last emerging behavior consists of **acting in a resilient manner** and then the tension to resist and react positively in front of solid barriers, obstacles, and difficulties - "behave in a resilient way is something to train and experience in order to be able to overcome difficulties and to accept the possibility to fail, transforming every day the negative and unexpected happenings in new creative input."

5. Discussion and conclusion - Interpreting the findings

The results support the study's hypotheses, mainly showing the connection between the constructs analyzed at an individual level and the design principles that permeate the DT action. Thus, assessing the conceptual framework to delineate the behavioral patterns represents one of the study's findings. It is an attempt to understand how the DT adoption, interventions, and actions impact the human aspect of the organizations, nurturing creative behaviors.
These identified behavioral patterns not only support the hypothesis that DT influences the micro-level of organizational behavior but also highlight the subjective nature of its effect on individuals. The presented pattern exemplifies only some of the ways in which DT impacts human behaviors.
Overviewing the recurring behaviors that emerged, there is a clear connection with the design drivers at the beginning of the process, which aim to have an effect in terms of change of internal mindset and feeding internal teamwork. Concerning the aim of retaining and attracting talent, more than the data analyzed is needed to express some conclusions in this sense.
The behavioral patterns illustrate how almost all design principles within DT action affect individuals differently. Notably, Interdisciplinary collaboration and Experimentation emerge as the most influential ones. Furthermore, a significant alignment exists between the expected components of individual employee spheres and the codified elements from the employees' perspective, validating the company's DT intervention.
Therefore, a critical reflection must be done according to the context of this critical case analyzed. Specifically, the context in which the adoption process of DT happened was particularly fertile; the Italian financing sector seems far from the DT, and the old hierarchic views and career-oriented models still permeate the organizational culture within the biggest Italian banking group. Nevertheless, factors such as the big dimension, the vital need and tension of change, and the presence of knowledgeable top management enable this contamination process with DT. This intervention happened at a level of organizational problem: in particular, the need for cultural change to attract talents and make the human asset of the division engaged from a non-financial perspective. For this reason, DT in an organization may produce impacts in a context in which big organizations have a significant need for a change of internal mindset. Creative confidence impacts a big organizational context because individuals are in the condition to grow through a proactive attitude and resilient behavior.
It's crucial to view DT intervention and actions as catalysts or facilitators for internal culture development, nurturing a company's human assets. DT should not be seen as the sole purpose of adoption but rather as a means to achieve transformative goals.
Finally, it is worth acknowledging this work's limitations. Firstly, the replicability of the interpretation model in various contexts requires further experimental research to consolidate and test its validity and boundaries. Secondly, the study's subjectivity in the interpretation process necessitates iterative evaluation through additional studies.

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