



Highway to hell or paradise city? Exploring the role of growth hacking in learning from innovation failure[☆]

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ABSTRACT

The purpose of this study is to conceptualize the role of growth hacking, a data-driven iterative experimentation process, in minimizing the likelihood of innovation failure within firms. Drawing upon existing literature on innovation and growth hacking, we provide a conceptual background to frame our research. To investigate this phenomenon, we employ a qualitative approach that combines the Gioia method and phenomenography. Our primary data source consists of in-depth interviews conducted with managers and practitioners who possess extensive experience in innovation management and growth hacking. Through a systematic inductive concept development approach and a multilevel analysis, we develop a novel conceptualization that illustrates how growth hacking strategies can be effectively implemented across four levels of analysis: market, organization, project, and product. Our findings highlight the importance of adopting growth hacking practices to minimize the likelihood of innovation failure in each of these domains. From a practical perspective, we offer recommendations on the strategies that companies should employ to effectively learn from the challenges associated with innovation. By leveraging these insights, firms can enhance their ability to overcome potential obstacles and optimize their innovation processes.

1. Introduction

“If you fail, never give up because F.A.I.L. means ‘First Attempt In Learning’”

This notorious statement by the 11th President of India Avul Pakir Jainulabdeen Abdul Kalam is an important reminder of the role that failure should have in the life of individuals, organizations, and societies at large. We have always been confronted with the negative reputation of the term “failure”, resulting in the perception that failure is a worst-case scenario to be avoided at all costs (D.-J. Kim, 2007; Makridakis, 1991; van der Panne et al., 2003). While it's true that the sense of delusion deriving from failure sets back many, it is also true that failure is a powerful tool for learning the hard way how to succeed.

From a managerial perspective, a recent survey by McKinsey & Co. found that 84% of CEOs believe innovation is critical for growth. Nevertheless, only 6% are satisfied with their innovation performance.

Innovation appears to be an imperative for almost every company. In fact, in recent years, business leaders, startups and managers have started to change their approach to failure by stressing how it can be a propeller toward innovation (Carmeli and Dothan, 2017; Carmeli and Schaubroeck, 2008; Edmondson, 2011; Ronnie and Philip, 2021), thereby giving a positive meaning to that word.

From an academic perspective, literature has suggested that innovation is key to the economic performance of firms (van der Panne et al., 2003; Zheng and Iatridis, 2022). If innovation is so beneficial to a company's performance, why do companies not dare to innovate? Academics have already tried to define the major causes of failure, unravelling a spectrum of reasons ranging from deliberate deviation to thoughtful experimentation. Others (Asplund and Sandin, 1999; Bowers and Khorakian, 2014; Heidenreich and Kraemer, 2016) have put forward the idea that the several types of risks and uncertainties associated with the innovation process lead to a high failure rate.

Nonetheless, in recent decades, innovation has worked for some

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companies, leading to a process of hyperscaling. In fact, these companies have been able to capitalize on failure (e.g. Dropbox, LinkedIn, Pinterest, PayPal, etc.). PayPal is a notorious example in the digital payment industry, experiencing a 10% daily growth and reaching, in a small amount of time, a user base of over 100 million people. In the hotel industry, Airbnb revolutionized the way people travel and find accommodation. In 2016, the annual number of guest arrivals grew from 40 million in 2015 to almost 80 million, bringing the cumulative figure to close to 160 million since the company's founding in 2008.

The question arises: how did those companies manage innovation in such an efficient way and how did they make their business model so scalable? The common pattern that ties those companies together is that they all used growth hacking strategies to learn from failure. In fact, organizational resilience and innovativeness are two interlinked constructs (Alerasoul et al., 2022; Richtner and Sodergren, 2008) tied together by the ability of a firm to manage its resources. Organizational capacities are the building blocks of internal resources development in response to external-environment pressures (Caligiuri et al., 2020; Do et al., 2018; Wright et al., 2001).

While there is a plethora of information on resilience as a consequence of failure and uncertainty (A. V. Lee et al., 2013), research on how to avoid innovation failure *ex ante* is evolving. Extant studies on firm resilience draw upon two perspectives: (1) a static personal characteristic and ability, and (2) a process created by continuous incremental improvements (Kossek and Perrigino, 2016; Liu et al., 2019). The first focuses on the ability of an organization, at the individual level and according to individual traits, to resume performance levels quickly after an unexpected crisis. The second anchors resilience to "the ongoing developmental procedure in which organizations build the capability to handle stressful situations through past experiences and the consequential learning derived from those experiences" (Do et al., 2022, p. 810). However, this means that resilience reflects the ability of an organization to progress and create new opportunities *ex post* – hence, from an unexpected event (Lengnick-Hall et al., 2011). In contrast, growth hacking is a process that prevents innovation failure *ex ante*. In fact, growth hacking is a process leveraged by resilient organizations to quickly take actions to effectively minimize setbacks and develop alternative routes to achieve stronger growth (Bargoni et al., 2023; Bohnsack and Liesner, 2019; Cavallo et al., 2023; Conway and Hemphill, 2019).

In 2010, Sean Ellis developed the concept of growth hacking, defined as a process of rapid experimentation across the full customer journey to accelerate customer and revenue growth. In the words of Ellis, growth hacking helps companies to develop the skills that are needed for growth, through a process of iterative experimentation (Ellis and Brown, 2017).

Nonetheless, despite the predominant academic focus on assessing the performance results of implementing growth hacking within companies, startups and early-stage businesses, there remains a limited body of research dedicated to uncovering its underlying theoretical underpinnings (Bohnsack and Liesner, 2019; Feiz et al., 2021; Troisi et al., 2020). Moreover, the rapid proliferation of growth hacking practices within companies and the imperative to equip managers with potent strategy execution tools underscore the urgent need for scholars to question the reliability and efficiency of conventional linear approaches in addressing the strategy-execution divide to minimize the likelihood of innovation failure (Conway and Hemphill, 2019; Li, 2020; Soto Setzke et al., 2023). However, despite the wide spread of growth hacking among entrepreneurs and managers and the need for companies to find new ways to capitalize on innovation failure, the academic community seems to have been underreactive in conceptualizing the phenomenon.

In fact, Bohnsack and Liesner (2019) present a taxonomy of growth hacking patterns along the customer life cycle of acquisition, activation, revenue, retention and referral and provide a categorization along two dimensions (i.e. resource intensity and time lag), focusing their analysis on a specific business (i.e. a fitness application). On the other hand,

Troisi et al. (2020) have focused their research on assessing how a data-driven orientation toward the use of big data analytics and cognitive computing can reframe marketing decisions in the B2B segment. Specifically, the authors explore whether the adoption of growth hacking can be helpful in exploiting those opportunities in B2B marketing. The work of Feiz et al. (2021), through a multiple-case study approach, investigates the growth strategies of 13 Iranian startups, developing five clusters of growth hacking strategies along the customer life cycle stage (i.e. acquisition, activation, revenue, retention and referral).

It is evident that existing studies are divergent with regard to key concepts and their interrelationship, and there is a need to integrate those different perspectives. This process of hacking growth stems from the need to find new ways to engrave a data-driven mindset in strategic decision-making, combining the elements of big data analysis and continuous learning, allowing companies to adapt their capabilities to the ever-shifting competitive arenas. The dynamic skills developed by a company and the consequential ability to perform rapid prototyping make it possible to tackle innovation to identify customer needs throughout the customer journey (Bohnsack and Liesner, 2019). More specifically, the growth hacking assumption model posits that companies should turn data into information that can be transformed into knowledge to develop learning and creativity in a circular process of continuous improvement (Bargoni et al., 2023; Troisi et al., 2020). From a practical perspective, growth hacking is the process of rapid experimentation and implementation of resource-light and cost-effective digital marketing tactics to help acquire and retain an active user base, sell products, and scale the business efficiently and effectively. It uses traceable marketing tools, so that data from individual and specific stages of the customer journey or funnel can be analysed to assist in making decisions.

This study dedicates particular attention to the factors that bring innovation to failure within a company and sheds light on how growth hacking can overcome those challenges by implementing structured processes affecting different levels of the organization. More specifically, in this study we make an attempt to conceptualize the role of growth hacking, a data-driven iterative experimentation process, in minimizing the likelihood of innovation failure within firms. Thus, this research tries to provide a compelling answer to the following research question:

How can growth hacking help mitigate innovation failures and at the same time help companies learn from failures?

After presenting a literature review on the different approaches to innovation and experimentation and framing the conceptual background, our work continues with an empirical analysis based on a qualitative survey involving 10 in-depth interviews with managers and practitioners, each involved in the implementation of growth hacking processes.

This research will contribute to the existing body of knowledge by advancing a novel theoretical framework that enhances our understanding of the intertwining of growth hacking with innovation failure literature. It builds upon and extends previous theories by conceptually refining the key concepts within the field of innovation failure, providing a more comprehensive and precise conceptualization on why failures surface when implementing innovation methodologies. In doing so, we synthesize and integrate various existing theories and models from diverse disciplines, offering a holistic perspective that bridges gaps and resolves inconsistencies in the current literature on growth hacking and innovation. Moreover, this research introduces a new theoretical perspective that was hitherto unexplored or underemphasized in prior literature, thereby enriching the theoretical landscape of the field. In fact, we identify four critical levels of analysis (i.e. market-related, organization-related, project-related and product-related) that encompass factors hindering innovation. Then we link these levels of analysis with growth hacking phases and propose a new empirical validation on how growth hacking helps firms to diminish innovation failure. In fact, we conducted 10 extensive interviews to empirically validate the proposed

theoretical framework and to contribute to its generalizability, enhancing its relevance and applicability in diverse contexts. In summary, this research paper contributes to the theoretical landscape of growth hacking by enhancing our theoretical understanding, introducing new constructs, refining existing concepts and providing a solid foundation for future research and practical applications in the field.

This research will make significant managerial contributions at the crossroads of growth hacking and innovation failure by offering valuable insights and tools that can inform and improve decision-making and strategy implementation for companies and managers seeking to harness growth hacking techniques, to enhance their market presence while minimizing the likelihood of innovation failure. Moreover, this research offers practical, actionable tactics and best practices for implementing growth hacking strategies in the domain of innovation at four different levels, covering all the stages where failure could weasel its way in. Managers will be able to use these insights to create and execute growth-focused strategies more effectively. Managers will also be able to leverage the research findings to gain a competitive advantage in their industry by staying ahead of the curve in adopting innovative growth techniques and outpacing rivals in reducing the costs associated with innovation failure and market expansion. Furthermore, the practical examples emerging from the interviews should warn practitioners and managers about the importance of promoting a culture of continuous learning and experimentation within organizations, encouraging managers to embrace a growth mindset and experiment with new, data-driven approaches to achieve sustainable growth.

2. Literature review and conceptual background

The concept of failure has been widely analysed from an academic perspective (Asmawi and Mohan, 2011; Carmeli and Dothan, 2017; Drupsteen and Hasle, 2014; Greve and Rao, 2006; D.-J. Kim, 2007; Makridakis, 1991). However, an overall conceptualization of innovation failure still finds little consensus among academics. This is due to the nature of failure. In fact, failure can be addressed from a purely organizational perspective, as a fuel for organizational innovation (Carmeli and Schaubroeck, 2008), to ensure continuity and the survival of a firm, or as a propeller toward innovation capacities of a firm (Rhaïem and Amara, 2021). This difficulty in framing the concept is partially due to the functional structure of a firm being in conflict with the trial-and-error character of the innovation process, and as a result, failure is often a topic that is not addressed or investigated within the organization (Pearson and Mitroff, 2019; van der Panne et al., 2003).

In the last decade, the importance of learning from failures to embrace innovation and progress has been emphasized by the increased number of articles published on the topic (O'Reilly and Binns, 2019; Rhaïem and Amara, 2021). However, it is interesting to note that past research has viewed learning from failure as an emergent stream in the more encompassing field of organizational learning instead of a fully fledged phenomenon. This proves that failure has often been seen as an organization-specific topic. More specifically, failure has been investigated as first-order learning (as a source for innovation capabilities in organizations) and as second-order learning (to avoid repeating the same pitfalls).

Nevertheless, innovation failure is a wider concept that can be analysed from a multilevel perspective – a market-related perspective, highlighting the factors that affect innovation success such as a firm's marketing capabilities and its competitive strength, and an organizational-related perspective, delving into the factors that hinder innovation, such as a firm's culture or experience in innovative projects. In fact, an innovation-oriented culture is key to prevent failure. Moreover, the experience and skills that the organization develops with innovative projects are conducive to the firm's technological capabilities as these enhance skills that are decisive for the course of innovation projects. Furthermore, one distinctive feature is the team's configuration; interdisciplinarity adds to a project's viability (van der Panne et al.,

2003). Although technological capabilities are prerequisites, a balance between technological and marketing skills is indispensable – a project-related perspective, hence the complementarity of innovation projects that might lead to greater operational efficiency (Stuart and Abetti, 1987; van der Panne et al., 2003), and the efficient management of the innovation process, as well as a product-related perspective, which entails commercial viability resulting from the fit between consumer needs and the product. Moreover, the product should reduce a customer's total-costs-of-use (Kajol et al., 2022) and have a higher price-to-quality ratio than its competitors.

2.1. Innovation failure: towards a culture of acceptance

To maintain a competitive advantage in rapidly changing environments, companies must adopt a dualistic strategy, or organizational ambidexterity, maintaining efficient current strategies while innovating, even though the latter may result in failures (Ardito et al., 2020; Paap and Katz, 2004; Petruzzelli, 2019). In this scenario, companies' organizational culture of excellence is rapidly turning towards a culture of approval of failure, in terms of learning from failure intelligently. More precisely, researchers in organizational learning have pointed out that failure can be considered a significant organizational substrate for companies seeking to innovate (Ferreira et al., 2020). Failure, on the other hand, evokes negative connotations, fostering companies' immobility toward the launch of innovation strategies or process adoption as they are considered excessively risky (N. Kim and Lee, 2020).

Innovation-related failures represent learning opportunities to gain post-mortem insights and turn failure outcomes into creative assets. In fact, failure may induce a company to revise its goals, or outcomes, by implementing novel innovative models (Cyert & March 1963; Smith et al., 2020). Over the past few years, many companies have embraced the idea that failure must be viewed through the lens of positive feedback, prioritizing procedural aspects over failure outcomes (Ronnie and Philip, 2021). In fact, companies' internal innovation-related behaviour is expected to have a significant impact on how a firm learns from failure, accentuating its proneness to accept it in order to generate greater innovation (N. Kim and Lee, 2020).

Failure itself is an inherent outcome of the innovation process due to the uncertain nature of seizing opportunities (D'Este et al., 2016; Jenson et al., 2016; Maslach et al., 2015). Indeed, gaining knowledge through direct encounters with experiences of failure is the main pillar of experiential learning. Companies and innovation teams that experience failures in their innovation projects and then neglect to investigate them and learn how to remedy them incur a double failure (Cannon and Edmondson, 2005; Forsman, 2021).

Given the close correlation between failure and innovation, the likelihood of failure rises as innovation intensity increases (Kamoto, 2017; Sharma et al., 2017). Failure is especially reliant on risk-taking and innovation, and the core of the companies' survival is in part based on their dependence. In this sense, companies regard innovation progress as a key driver for survival and growth, as well as one of the most effective strategies for operating in a highly competitive environment (Krašnicka et al., 2018; Rhaïem and Amara, 2021).

2.2. Learning from innovation failures: a theoretical review of innovation models

From the perspective of learning from innovation failures, some companies have integrated linear models of innovation, which, however, have commonly revealed some limitations and failures. In terms of innovation processes, a widely used approach is the Stage-Gate Model (Cooper, 2016; Cooper and Sommer, 2018; Paluch et al., 2020). This model is used to further define whether, and if so, when, and how, to develop an innovation project during the decision-making process. The company develops an idea, which is implemented through a series of activities (stages), followed by decision gates, where decisions are taken

in order to continue to invest until the ultimate delivery (Cooper, 2008). As widely applied as this model is, companies have put forward some critics about its applicability. More precisely, it is regarded as being too rigid and planned to manage innovative projects. Moreover, it is insufficiently adaptable and fails to encourage experimentation (Cooper, 2014). Some of its application failures have widespread causes, such as resource allocation, and changes in key personnel and organizational structure (Bansal and Grewatsch, 2020; O'Connor, 1994). Evaluating each stage of the process requires a structured model and specialized resources. In fact, gate controls negatively impact learning in new product development projects if they are implemented with greater rigour, thereby losing the inherent nature of innovation (Sethi and Iqbal, 2008). Thus, this model is constrained because it is unable to properly manage the iterative cycles and external collaboration that primarily distinguish product development efforts (Cocchi et al., 2021).

Relatedly, some companies leverage innovation and problem-solving skills through the implementation of design thinking. More specifically, they employ design thinking to reduce the likelihood of user-customer dissatisfaction, allowing less expensive and more timely pivoting strategies (Zheng, 2018). This non-linear approach shares some similarities with the Stage-Gate Model, including, for instance, phase sequences, where each phase expands on work accomplished previously. On the other hand, it also shows common flaws and shortcomings. For example, systematically gathering information and insights or assessing projects, increases the demand for multiple actors and skilled individuals to be involved. The need for more personnel is related to an additional crucial limitation, which involves significant effort on the part of companies in order to overcome their staff's mental blocks in approaching this methodology. In fact, companies suffer failure when they do not manage to include people from other functions (a lack of interdisciplinarity), as well as frontline staff and customers (innovation co-creation), in their projects (Carlgren et al., 2016).

In addition to the approaches previously mentioned, the lean startup approach to innovation is currently one of the most trusted methods adopted by companies to innovate faster and by learning from failures and drawbacks (Leatherbee and Katila, 2020). Firms use this methodology to assist teams in iterating business ideas until they are capable of making knowledgeable decisions (Ghezzi and Cavallo, 2020; Ries, 2011). Despite its innovative nature, this approach does not eliminate failure. For example, failure might be due to the endless generation of new hypotheses which tire out entrepreneurs and impair scalability, highlighting the risk and hazard of hypotheses proliferation (Ladd, 2016). Extant research demonstrates that continuous testing leads entrepreneurs to change ideas too frequently, leading to them becoming discouraged and ultimately resulting in the project being abandoned (Felin et al., 2019; Ladd, 2016).

However, maintaining development timelines, implementing processes through iterative interactions, and integrating changes along the way are also all components of the agile development process. In fact, iterative methods and self-organizing teams are encouraged by agile practices to promote lean development (Misra et al., 2012). Due to the embryonic nature of agile philosophy, relatively little concrete evidence disproves the agility development process.

As a result, our literature review revealed that no cases of failure in the adoption of this approach by companies have been identified. Nevertheless, some critical issues have emerged that are worth addressing. More specifically, companies may find it challenging to involve the right people (poor interdisciplinarity), in addition to there being the risk of incorrect application of this process (rigidity of the process) or reduced quality due to a lack of rigour (lack of a codified process; Misra et al., 2012). Failures surface with the implementation of these innovation methodologies due to the conflict with the existing organizational culture (Mahmoud-Jouini et al., 2019; Meyer and Marion, 2010), rigidity in the face of external interventions and personnel changes, application conditions, elevated rigour (Misra et al., 2012), high costs, limited support (Turk et al., 2002) and a lack of efficiency. In

fact, in a social setting distinguished by the digital revolution and rapid technological advancement (Bresciani et al., 2021), even those companies with the most innovative methodologies may be unable to follow the changes, as market conditions evolve too rapidly to keep plans up to date (Conway and Hemphill, 2019).

2.3. Connecting innovation failure with growth hacking

In response to the slowness and time efficiency of other methodologies, the new strategy of growth hacking emphasizes the rapidity with which planning must occur. Moreover, in addressing the limited financial support, and leveraging the Internet network and data-rich properties, growth hacking aims to hasten business growth on limited budgets (Conway and Hemphill, 2019). Growth hacking's strength is comprised of these distinctive components: timing and speed, iterativity and cost-effectiveness. More specifically, growth hacking allows companies to test new ideas and hypotheses quickly and cheaply, and use data to evaluate the results, iterate, improve, implement or modify the experiment (Bargoni et al., 2023; Troisi et al., 2020). The iterative experimentation and the data-driven culture necessary to implement growth hacking contributes to the creation of new knowledge within the firm that can lead to the emerging of innovation over time. Growth hacking, unlike other lean methodologies, stimulates the co-creation of innovation among all the stakeholders involved (e.g. users, employees, managers, etc.). Therefore, the engagement of stakeholders lowers the probabilities of innovation failure and instead contributes to the development of a "co-innovation" process through a data-driven and knowledge-based mindset.

In conclusion, many studies have been conducted to investigate learning from innovation projects. While some scholars have examined success-based learning (Alegre and Chiva, 2013; Ferreira et al., 2020; Ritala et al., 2015), others have investigated learning from failure (D'Este et al., 2016; Leoncini, 2017) or have considered both perspectives (Khanna et al., 2016). Extant research indicates that learning from failure differs fundamentally from success-based learning (J. Y. Lee et al., 2020). The relationship between the two differs at various levels in the company, impacting strategies, directions, and approaches. Although learning from failure and success can lead to valuable learning opportunities (Baumard and Starbuck, 2005), the latter is more advantageous as companies are more prone to learn from failure than from success (Baumard and Starbuck, 2005). When an innovation effort is successful, the company concentrates on the maintenance of current strategies and is more concerned with replicating and scaling up its success. In this sense, success emphasizes replication, with the consequence that the company rewinds the tape on current strategies and actions that have proven to be successful and effective (Audia et al., 2000). On the other hand, Gino and Pisano (2011) contend that consistent success encourages companies to adhere to their current strategies and increases the risk of falling into inertia, which significantly lowers the motivation to learn. This results in inhibiting the company's necessary innovation behaviours. In contrast to success, firms experiencing failure will demonstrate somewhat different search behaviour. Learning from failure, in particular, aids in the development of a culture of innovation and continuous development. The experience of failure motivates companies to re-evaluate their current strategies and actions, whereas satisfying performances reinforce the current state and cover up the need to change. Failures can provide useful information and gain new insights, along with a more comprehensive and in-depth analysis and active learning opportunities (Birkinshaw and Haas, 2016; Cannon and Edmondson, 2005). If companies experience a failure, they may be eager to either change strategy or pivot, welcoming the failure as a learning opportunity and remaining adaptable in the face of changing circumstances (Chambers et al., 2022; Maslach, 2016). Failure can be recognized as a useful medium that provides the company with a new perspective to try out new innovative approaches and test their feasibility.

3. Research method

To gain a deeper understanding of the growth hacking phenomenology we adopted a qualitative approach, combining Gioia's methodology (Gioia et al., 2013) and phenomenography (Conz et al., 2020; Svensson, 1997). According to the definition of academics (Denicolai and Previtali, 2022), phenomenography is an interpretive process aimed at revealing the heterogeneity of managerial mindsets and practices. Furthermore, to gather all the relevant and recurrent concepts from the interviews in an inductive way, the Gioia method is applied. Information is primarily gathered through interviews based on open-ended questions and follow-up inquiries, integrated with data from both publicly available sources and materials provided by respondents.

Extant studies have used a similar methodological approach to investigate innovation management within companies (Bruce, 2003; Lamb et al., 2011; Thakur, 2018; Wallin et al., 2022). The following subsections are organized as follows: first, an overview of the sample of analysis is introduced; second, the research design and the setting of the study are presented; and third, the interview protocol, data coding and the interpretation process are described.

3.1. Sample of interviewed organizations

Given the aim of this study, we focus on companies that implement growth hacking strategies to fuel innovation, for themselves or for client companies. Growth hacking, being a process, or even as defined by some interviewees a mindset, is not industry specific but rather can be applied to any sector or company. Our panel of companies is composed of startups and growth hacking studios.¹ Moreover, we included two consulting firms that provide growth hacking consulting services.

After screening a longer list, participants were selected to maximize variation in the ways they give meaning to innovation and practice in their managerial activity. We stopped collecting data when we were confident that another interview would fail to further enhance the reliability and variation of the collected evidence. The final sample is consistent with the theoretical saturation (Kvale, 1994) and is composed of 10 participants, one for each company interviewed. More specifically, the panel is composed of managers, owners, growth hackers, and innovation specialists (Table 1).

3.2. Research design and settings

This research is primarily based on data collected from interviews. Open-ended questions are designed to be consistent with our conceptual framework, to capture variation in how respondents implement growth hacking within their companies and how this process has helped them to cope with failure. Specifically, questions are organized around three interview phases. The first group of questions explores the topic of innovation management in general and their role in the innovation process. The second part of the interview addresses the growth hacking process, the familiarity with its implementation and the degree to which data are leveraged. The third phase investigates the outcomes of growth hacking compared to other methodologies (e.g. agile, OKR, etc.).

To fill the gap between the espoused theory (the explanations people offer for their actions) and the theory in use (the actual cognitive process that leads to people's actions) we asked interviewees for secondary data (e.g. examples, articles, websites, organizational documents, etc.) in order to perform a triangulation of sources to increase the reliability of findings (Argyris and Schön, 1997). This has helped to minimize the discrepancy between what people say and what they actually do.

¹ Growth hacking studios are consultancy companies that use innovation and creativity to come up with low-cost solutions to help businesses grow. These studios help companies to build growth engines thanks to a data analysis- and experiment-driven growth approach.

Additional information concerning the knowledge and expertise of the respondent, background and demographic aspects has been inferred from LinkedIn pages and résumés.

3.3. Interview protocol, data coding and interpretation process

Each interview started with a brief conversation introducing the goals and ethical implications of participating in the study. Accordingly, we provided each participant with a description of the research and the conditions of their involvement and asked for their explicit consensus to allow the conversation to be recorded and the data to be disseminated. All interviews were recorded and then transcribed, resulting in 6 h and 55 min of audio files, integrated with secondary data.

As a subsequent step, the open-coding process followed the specific guidelines of a systematic inductive concept development approach (Gioia et al., 2013; Kvale, 1994). The analysis consisted in an iterative and interpretive process in which the researcher alternated between readings and inductive analysis. Each sentence uttered by all interviews has been coded as a single item corresponding to one specific theme. The item list evolved throughout the data analysis: new codes and themes were added and iteratively renamed until saturation and the stability of the model had been reached. The final result of the first-order analysis is 333 different items, grouped in 70 unique themes and belonging to three main domains as in Table 2 (Gioia et al., 2013). On average, each interview led to 22 items (minimum of 15 in the shortest and 29 in the longest).

Findings are illustrated in the form of a narrative and summarized in data structures. The latter helps the reader in understanding the evolution from the raw data to concepts and themes of the aggregate dimensions (as in Table 2).

4. Findings

The discussion of the findings is structured as follows. First, we explore empirical evidence to outline how managers and practitioners implement growth hacking to lead change in their organizations (Section 4.1). The variation in answers supports the identification of four critical levels of analysis that include factors hindering innovation. Then we relate these levels of analysis to growth hacking phases and discuss how growth hacking helps firms to reduce innovation failure (Section 4.2). Some quotes from the interviews are reported in italics to illustrate and clarify key issues. Letters in square brackets indicate the anonymous author of the quote.

4.1. Innovation failure and the growth hacking pillars

The objective of this research is to understand how companies implementing growth hacking strategies can overcome the challenges of deploying successful innovation. First, we asked participants open questions to discover which factors affect innovation in their organizations. In addition, to understand the factors that affect innovation, particular attention has been paid to the enabling elements of growth hacking-led innovation as antecedents for change within the organization.

Following the Gioia method, the analytical process leads to identifying themes for the first-order concepts, related to the aggregate dimension "levels of analysis of innovation failure" (third-level concept). In the middle, we identified two alternative views to combine concept categories into second-order themes: "growth hacking pillars" and "growth hacking execution". Growth hacking pillars define three key elements underpinning growth hacking strategies within companies (horizontal reading of Table 2) and characterizing all our cases. By contrast, the second grouping criterion captures the variation of answers, identifying four different analytical levels at which innovation failure can occur (vertical reading of Table 2). More specifically, we find that a multilevel perspective is crucial for advancing theoretical

Table 1
Participants in the study.

Participants	Age group	Gender	Degree	Industry	Company position/experience
A	40–50	Female	Business and economics	Tax services	Impact-driven Head of Digital Marketing & Product Manager, International Growth Leader.
B	40–50	Female	Management Engineering	Energy	Innovation manager
C	30–40	Male	Political science	Digital payment services	Chief Marketing Officer/Chief Growth Hacker
D	30–40	Male	Marketing and communication	Consulting services	Digital Marketing and Growth Expert
F	20–30	Male	Marketing management	Education and publishing	Head of Sales
M	30–40	Male	Innovation management	Fitness and wellness	Marketing specialist
P	40–50	Male	Business and management	Consulting services	Innovation manager
R	40–50	Male	Information systems	Education	Co-founder/Digital Marketing and Growth Expert
T	30–40	Female	Education sciences	Consulting services	Co-founder/Growth Expert
U	30–40	Male	Business and management	Travel and tourism	Head of Growth

Table 2
Levels of analysis of innovation failure and growth hacking pillars.

Levels of analysis of innovation failure (2nd-Order Themes; interpretation #2)	Growth hacking pillars (2nd Order Themes; interpretation #1)		
	Big data analytics	Firm strategic (digital) orientation	Coding and automation
(I) Market-related	Poor data sets of target markets; Lack of specific analytical skills; Overestimated forecasts of demand.	Concentration of buyers; Timing of market introduction; Intensity of competition; Lack of adequate market research.	Poor data quality; Poor marketing automation; Inability to derive paths from data analysis.
(II) Organization-related	Lack of specific digital skills to elaborate big data; Lack of team experience.	Bureaucratic firm culture; Poor R&D orientation; Lack of interdepartmental cooperation.	Poor infrastructural integration (e.g. marketing analytics and CRM); Poor setting of rules on what is automated and when; Lack of experimental perspective on automation.
(III) Project-related	Lack of data synergies between projects and/or innovation teams; Lack of economies of scale and scope in data management; Lack of complementarity with other sources of data/projects.	Lack of accountability; Linear management of the innovation processes; Lack of experimentation.	Poor planning and evaluation; Lack of specific metrics to evaluate the ongoing project/innovation.
(IV) Product-related	Poor product-market fit; Inability to collect data from users.	Poor planning of price-to-quality ratio; Wrong customer needs satisfied; Miscalculated total cost of use for the consumer.	Poor marketing automation activities; Lack of user engagement tracking; Lack of cooperation between marketing analytics tools.

concepts as it allows these concepts to be broken into multiple component elements and then links to be traced among them at different levels of analysis (Salvato and Rerup, 2011). For instance, understanding factors at different levels of analysis seems particularly important, as elements at one level of analysis may result in contingencies at higher or lower levels of analysis.

The first pillar of growth hacking is “big data analytics”. Shamim et al. (2019) define big data as “data sets that are very high in velocity, volume, and variety, which makes them incompatible with traditional techniques and tools”. The possibility of leveraging a large amount (of often user-generated) data is the building block of growth hacking (Santoro et al., 2019). In fact, big data play a key role in the decision-making process of the growth hacking strategy as they allow managers and growth hacking leaders to take decisions on the basis of factual data instead of sentiment (McAfee et al., 2012; Shamim et al., 2019). Moreover, the management and exploitation of big data increases the knowledge creation capabilities of the growth hacking team (Khan and Vorley, 2017).

While exploiting a large amount of data appears to be a key activity along the growth hacking journey, the use of big data for better marketing decision-making presents some major management challenges (Rialti et al., 2019). For example, from a human resource point of view, attracting the right people with the right skills appears to be a major challenge for firms (Tambe, 2014). To develop the capabilities required to maximize the benefits from big data management, firms need both tangible and intangible resources, such as human resources, culture, technology and managerial and technical skills (Shamim et al., 2019).

From an organizational perspective, the integration of big data in the activities of the company (McAfee et al., 2012) makes it necessary for firms to overcome leadership, talent management and technological challenges, in order to reap the benefits linked to the use of big data in decision-making. In fact, one source of innovation failure is linked with the bureaucratic decision-making process of companies, preventing an efficient management of the technology and “poisoning” the company’s culture.

Building on the works of Shamim et al. (2019) and Felin et al. (2012), we highlight that the orientation of managers towards change, opportunity recognition in changing existing routines and resources, and the willingness and ability to implement such changes (Kor et al., 2007) are key to avoid innovation failure. A manager’s attention to strategic shifts across markets and the ability to iterate a refinement process of product-market fit and efficiently manage the organization helps in developing the organizational routines needed to develop growth hacking processes within the firm (Dutton and Jackson, 1987; Kor and Mesko, 2013).

Firm strategic (digital) orientation is the second pillar of growth hacking. Over the past two decades, digitalization has revolutionized not only the relationships between consumers and products (e.g. e-commerce, mobile devices, multi-sided platforms, etc.) but also the way in which companies leverage technologies to identify and address consumer needs (Desai, 2019; Diaz et al., 2021; Herhausen, 2020). In fact, the strategic orientation of the firm towards the integration of digital technologies in the firm’s activities should contribute to the creation, communication and delivery of value for customers (Herhausen, 2020).

From an innovation failure perspective, firms should overcome a practice gap that identifies the deficit between managers' current modus operandi and their "ideal" digital capabilities (Herhausen, 2020). In this sense, a central role is played by human capital resources that are instrumental to the implementation of growth hacking processes and the organizational "climate" of the company. More specifically, growth hacking requires a non-bureaucratized environment to facilitate iterations in experimentation and to provide the necessary resource base to hire or train personnel.

The second pillar is the knowledge gap that highlights the need for the firm to be knowledge oriented, hence, to incorporate experiences and information resulting from a combination of contextual information and data-driven insights (Ajmal and Koskinen, 2008; Davenport and Prusak, 1998; Herhausen, 2020). Knowledge orientation is strongly linked to human capital capabilities (Javalgi and Todd, 2011), hence the development of the necessary skills to process data and contextual insights into useful information. However, the quality of data-driven decisions does not solely depend on the data themselves but is also linked to the strategies employed for data collection and analysis.

Finally, the third pillar is called "coding and automation". Growth hacking is an experimental and iterative process that leverages automation and coding to simplify the touchpoints between customers and the product (Bohnsack and Liesner, 2019). In order to achieve a lean organizational approach to product development, a continuous tailoring of the target market and the product is needed. In this sense, increasing the level of automation and coding of the data deriving from the analysis of markets and customers allows for a more rapid experimentation and field testing. For example, companies can leverage coding and automation capabilities in implementing retargeting strategies to increase their conversion rate. In fact, marketing managers, by placing a small, unobtrusive piece of code on the company website, unnoticeable to the site visitors, will be able to drop, every time a new visitor comes to the website, an anonymous browser cookie. When the cookie visitors surf the Internet, the cookie will know when to serve ads, ensuring that the ads are served only to people who have previously visited the company's website.

The main goal of the coding and automation dimension of growth hacking is to extract knowledge from data analysis to identify specific needs of customers across markets. In this context, IT literature (Kumar, 2020; Saura, 2021; Saura et al., 2021) highlights how the integration of data-driven decision support systems in management routines helps to reduce the human burden in forecasting strategic scenarios. Furthermore, it increases the rapidity of decision-making, providing data on which managers base their strategic decisions. However, data quality represents a key aspect in the ability of the company to foster internationalization and achieve growth across markets (Bertello et al., 2020; Glavas et al., 2019).

Moreover, the use of data science allows organizations to identify and extract patterns from databases to explain a problem or to formulate hypotheses (Saura, 2021). Data science allows growth hackers to leverage a unique resource: the multitude of non-obvious and useful patterns (Berry and Linoff, 2004; Kelleher and Tierney, 2018; Saura et al., 2021).

At the crossroad of IT and marketing literature, academics have highlighted the importance of data science in supporting strategic marketing decision-making and organizational routines in fast-changing environments. Today, growth hackers implement data science to extract knowledge from data analysis (Kelleher and Tierney, 2018).

Data science posits that the patterns identified in the data through data analysis are non-obvious and useful for companies (Berry and Linoff, 2004; Saura, 2021). While humans can only identify a maximum of three attributes (Saura et al., 2021) or characteristics of an item (product, services, community, etc.), with data science, through AI and machine learning, hundreds and thousands of attributes (variables) can be simultaneously identified (Berry and Linoff, 2004). These patterns are particularly useful for growth hackers as they help to obtain actionable

insights (Kelleher et al., 2020). In fact, as stated by Saura (2021, p. 93), "the term 'insight' in this context refers to the capacity of patterns to provide meaningful information that can help to solve the problem at stake". Furthermore, actionable insights refer to the ability of the growth hackers to implement organizational routines and capabilities to transform those insights into strategic marketing decisions.

As theorized by Kumar (2020), decision support systems collect information and data on consumers, markets and competitors and prepare comparative analysis as assumptions of future trends in a specific context. More specifically, in the context of digital marketing, decision support systems are able to select the data and analyse them to obtain the right trends, so that strategies and solutions can be framed. Coding and automation are the main elements in strategic decision processes so that the support system summarizes the information either graphically or textually using its expert artificial intelligence.

As a result, innovation failure can be mitigated by the patterns, identified through the help of data science and coding, that growth hackers can leverage to obtain actionable insights (Kelleher et al., 2020; Saura et al., 2021), and hence meaningful information that can help to solve the problem at stake.

4.1.1. Market-related factors

Although all respondents acknowledged the fact that growth hacking is a structured process, our conceptualization encompasses the notion that some market-related factors might play a role in hindering innovation. For example, the rapid shift in competitors' strategies might fuel obsolescence of the firm's products or services, or a new regulation or policy might affect the firm's products or competitive positioning. Growth hacking, by its rapid and iterative experimentation nature, allows the company to rapidly react to market changes.

The market went down well before we expected. Before the bubble exploded, we had much more traffic on the platform. However, with well-established growth hacking processes in the firm, we were able to perform a quick repositioning. As the market went down so quickly, we were made aware by data that we were too crypto-oriented and that players didn't feel too comfortable anymore with NFTs. [C]

From the interviews, it was possible to uncover the fundamental role played by big data in framing the market. The ability of the firm to collect, store and analyse data represents a source of competitive advantage for the firm. In fact, as stated by the interviewees, the ability of the company to collect big data represents the first step in the successful implementation of growth hacking strategies.

The first obstacle [in implementing growth hacking] is data gathering. If the company does not collect data there is little you can do, because the analysis of the as is situation is the first step in implementing experimentation. The biggest challenge is in fact that some companies have no idea of what data are and where to find them or which technologies to leverage to understand them. [R]

Based on the ability of the firm to develop big data management capabilities, the firm must develop a strategic orientation based on data-driven decision-making. The strategic orientation of the firm appears to be a fundamental step in avoiding innovation failure. Being aware of market shifts and being able to forecast technological change are key to implement a growth hacking process.

From a strategic point of view, growth hacking allows you to make experiments before you have the need to make them. That's the key to innovation. You do not innovate when things are going bad, when you are in the middle of a crisis. That's the worst moment to make experiments, as you are in over your head, you have performance anxiety, you are running out of money, you need to have results fast. Instead, innovation is failure, is making a lot of mistakes to learn from them and then you might receive something back. [R]

Finally, the ability to develop marketing automations through growth hacking processes allows the company to compete in markets where consumer needs are latent and not fully expressed. For example, the ability to develop marketing campaigns that are fit for a certain market might succeed in making consumers aware of needs that they weren't aware of yet.

We work in a very peculiar industry [tax-related services], where consumers are not really aware of what they want, or they don't want to know it. This is a problem for all the players in the industry, because individuals know they have to comply with tax rules, but they do not know specifically what their needs are. This makes the implementation of growth hacking more difficult. I would say that each market has some peculiarities that influence the growth hacking process in some way. [A]

4.1.2. Organization-related factors

Growth hacking applies the philosophy of the lean startup, which is about agility and frequent experimentation through an iterative process. Building upon the ability to uncover the market-related factors that affect innovation failure, growth hacking allows for fast and less risky experimentation. However, one of the drawbacks of experimentation is the limited knowledge, or bounded rationality, of the options that are available, and under which circumstances they work (Bohnsack and Liesner, 2019). To overcome this limited amount of knowledge and close the aforementioned strategy-execution gap, growth hacking is a useful tool for incorporating data-driven decision-making to derisk the innovation process. The implementation of growth hacking leads to the development of specific big data capabilities that are necessary to develop growth hacking.

Growth hacking is a bottom-up approach; the growth hacking team carries out the experiments and gives to the management team the insights needed to take decisions. If managers do not take data-driven decisions, this leads to extremely high levels of inefficiency. [A]

The organizational capabilities developed through growth hacking also rely on the cross-fertilization of the competences of the growth hackers. It is understood from the interviews that growth hacking, to be successful in reducing innovation failure, needs to be implemented by a team of hackers with complementary skills. The strategic orientation of the team is derived from the hierarchical rigidity of the team – a growth hacker that is in charge of the process – and from the interdepartmental composition of the growth hacking team.

If you want to implement this process [growth hacking] within the firm, you need a growth leader that masters the process and is accountable for the team efficiency. Then you need a set of individuals with complementary skills, for example the product expert, the marketing expert, the software developer, the software engineer, a data analytics expert, etc. These are the key resources to implement growth hacking. [D]

However, it emerges from the interviews that especially in SMEs, introducing growth hacking as a process to tackle innovation could still represent a challenge. Dismantling the status quo is a challenge in managing change. Growth hacking can be the propeller to organizational change by engaging employees through a bottom-up approach.

Growth hacking is a disruptive approach. The growth expert comes in and tells you that you cannot continue doing things as you did them before. If before you had people taking decisions based on hierarchy, now it's the data that drives the decision-making. This is disruptive because you might have managers in the company that have been doing business and taking decisions for 30 years and all of a sudden, a young intern might come up with an idea supported by data and that is disruptive. [R]

4.1.3. Project-related factors

Often the development of innovation runs as a project. In fact, project management and innovation are concepts tied by the need to streamline organizational efficiency within the firm. Innovation projects, in contrast to non-innovative projects, differ in some aspects – for example, the objectives. Conventional projects tend to have clearly defined goals and targets. On the other hand, innovation projects might not necessarily have these detailed objectives. Often, innovation projects do not have clear outcomes. In fact, innovation is often a result of trial and error.

To reflect the complex nature of innovation, growth hacking teams capitalize on the diverse background of individuals being part of that process. Innovation is doomed to fail if there is no complementarity between the firm's resources and the management style. Extant literature (Denicolai and Previtali, 2022; Maslach, 2016; van der Panne et al., 2003) highlights the causal link between innovation and the project's compatibility with the firm's resources in broad terms (i.e. management and market research skills, sales, distribution, R&D and production facilities). In the same vein, our interviews confirm the relationship and complementarities between firm resources and innovation success.

While implementing growth hacking to test innovative projects, you might have different teams of growth hackers working simultaneously. In big companies you can have, for example, three teams working simultaneously to perform three different experiments. It is important to have synergies between the groups in terms of data gathering and outcome sharing. [R]

The strategic orientation of the company appears to be a key element in designing growth hacking processes and experimentation at a project level. In fact, growth hacking can be applied to specific core challenges of the firm. Unlike other lean methodologies where objectives and key results are defined by top managers and then developed within the organization, growth hacking can be leveraged to solve specific issues.

You can decide to apply growth hacking starting by prioritizing the core challenges of the firm. For example, if you have some issues in boosting your ecommerce, we will work on that direction. There can still be simultaneous growth hacking teams working on different experiments but all of them are trying to solve the ecommerce issue. [R]

4.1.4. Product-related factors

Innovation might fail for several product-related reasons. Often the route to market is incorrect, the firm does not have enough marketing resources, the timing of the entry in the market is miscalculated or even the product is too expensive or its price-to-quality ratio is not satisfactory enough for the targeted consumers. Instagram is an example of what growth hackers like to call "product-market fit". Instagram came up with its offering at the right time, in the right place and under the right circumstances. In fact, they gave customers something they were unconsciously already looking for: social interaction and a place to share their photos rather than canny tweets. For the first time since the rise of smartphones, everyone had a decent digital camera in their pocket, and the tools to become a master photographer. With the emergence of Web 2.0. came the increasing urge to share their lives and experiences.

Growth hacking allows you to tremendously speed up the incremental improvement of the product; therefore, I am not saying you reach perfection because I don't have the presumption of wanting to reach it, but this is a bit the concept, a continuous trial and error to find the perfect product for your target. [F]

Growth hacking is a process that not only aims to collect data to fuel the data-driven decision-making of management, but it also aims to accrue the capacities developed by the growth hacking team in collecting data. While placing great emphasis on testing, growth hacking places less emphasis on hypothesis development itself. This might derive

from the lean startup approach whose belief is that a “hypothesis is just a fancy word for guess” (Blank and Dorf, 2020, p. 37; Ries, 2011).

In the beginning you are confronted with data scarcity. Hence, you have to make working hypotheses based on sensations or you have to decide on which data to believe. It’s the constant iteration of the experiments and the learning that comes from failing that diminishes the probability of failure. [R]

Growth hacking relies in particular on experimentation and scientific validation of hypotheses through customer interaction. One of the recurring themes from the interviews is the necessity of interacting with customers to understand their needs and co-create the best outcome possible. This happens through rapid experimentation – testing of minimum viable products to get rapid customer feedback and input rather than through structured business plans and top-down approaches.

Other tests can be performed on things that might appear insignificant. For example, we once modified the colour of the icon that users would click to get help from our customer care. We did an A/B test where in one case the icon was red and the other was blue. We wanted to test which colour was the easiest to recognize for the users. One would imagine that red would have immediately caught the eye, instead the blue icon resulted in being the most clicked one. These A/B tests help us to improve the product by continuously testing its features with the final user. This really helps us to avoid innovation failure. [U]

4.2. Avoiding innovation failure during the growth hacking process

The above evidence highlights two key outcomes, respectively from a resource and procedural perspective. First, findings show that firms wanting to implement growth hacking to reduce the probability of innovation failure must develop specific capabilities around three strategic pillars, namely big data management, strategic (digital) orientation of the firm, and coding and automation. Interviews highlight the need for growth hackers to collect, manage and codify large quantities of data coming from intense customer-product interaction. The elaboration of big data and the consequent codification of data into actionable pivoting of product characteristics is the fundamental element of data-driven decision-making. This new approach to decision-making engenders the development of organizational capabilities within the firm. From a procedural perspective, growth hacking entails the adoption of a non-bureaucratic and non-hierarchical asset of the organization. It emerges from the interviews that, contrary to other lean processes, growth hacking disrupts the managerial organization through data-driven decision-making and iterative experimentation. The objective of this approach is well represented by the third pillar, coding, and automation. In fact, successful implementation of marketing automation calls for continuous learning via experimental and agile approaches.

However, if the interviewees highlighted the need to develop the firm’s capabilities around three pillars, the necessity also emerged of following a structured procedural approach to growth hacking. It

Table 3
Growth hacking phases and innovation failure.

Levels of analysis of innovation failure (2nd-Order Themes; interpretation #2)	Growth hacking phases (2nd-Order Themes; interpretation #1)			
	Product-market fit	Growth hacker leader	Boosting virality	Retention and optimization
(I) Market-related	Ensure having a product or business that fulfils a real and compelling need for a real and defined group of people.	The growth hacker leader must isolate who the customers are, figure out their needs and design products that are compelling to their needs. Growth hackers must do whatever it takes to pull in a small contingent of initial users, for example by exploiting systems or platforms.	Growth hackers must engineer virality, not just by setting viral features into the product but by creating behavioural residue that sticks around even after people have bought the product.	Growth hackers must identify the metrics for growth and stick to them. Retention and optimization is marketing to someone who is a lot more likely to convert than some stranger that you are trying to convert with an online banner.
(II) Organization-related	To ensure a good product-market fit the organization must rely on a data-driven strategic decision-making. The organization must avoid guessing customer needs but rather iteratively test consumers’ reaction to the product innovation.	Growth managers are responsible for building agile organizations. While growth hackers usually coordinate independently between different departments, growth managers have responsibility for a team – this can be a team of growth hackers – or even responsibility for interdisciplinary marketing and product teams.	Growth hackers’ main concern within the organization is to ensure that original alternatives to old-school advertising techniques (e.g. newspapers or television commercials) are used to boost product virality. Growth hackers must ensure that an omnichannel approach is engraved in the mindset of the organization.	Growth hackers must ensure that the organization develops the necessary capabilities to analyse big data coming from users. The objective is to grow the business by iterating, tracking success and doing whatever it takes to bring people into the sales funnel. Then it’s up to the growth team to optimize the product around customer needs.
(III) Project-related	Growth hackers need to ensure the access to data coming from the market, from customer-product interaction or from related projects/experiments within the firm. Growth hackers must ensure economies of scale and scope between projects/experiments.	The growth hacker leader must be accountable for the experimentation process and for the management of the team.	Ensure leading increasingly innovating projects around user acquisition strategies to acquire users through viral mechanics with the objective of reaching the critical mass with minimum costs.	Ensure that you are using the correct project-related metrics to measure success. Leverage conversion rate optimization (CRO) as a digital marketing strategy to improve the user experience in order to improve conversions. The objective is to ensure that CRO has the benefit of compounding positive effects on your return on investment (ROI).
(IV) Product-related	Leverage high-tempo testing and iterative experimentation to optimize the product. Customer data and information, like online user activity and customer feedback, is essential to finding your product-market fit.		Hack virality by ensuring that your product engages users. The more actual users receive benefits from spreading the word, the more likely they are to refer friends, family, professional contacts and like-minded people to their particular community. For a growth hacker, viral exposure of content is crucial, because he is responsible for driving explosive, exponential growth for a company.	

emerged from the interviews that growth hackers follow what Ryan Holiday (2014) conceptualized as the growth hacking journey (horizontal reading Table 3). The growth hacking journey is not a set of sequential steps but rather a fluid process aimed at setting aside the notion that marketing is a self-contained act that begins toward the end of a company's or product's development life cycle. The growth hacking journey is a process composed of four steps: first, companies need to identify the product-market fit, hence they need to deliver the right product to the right market; second, they need to hack growth, establishing successful strategies for attracting users; third, they need to ensure virality in the adoption of the product or service; and fourth, they need to ensure retention and optimization of the new customers. The growth hacking journey is a way of thinking about, and looking at, your business.

I like to define growth hacking as a mindset oriented to innovation. A mindset that combines three key aspects: data analysis, programming and coding and strategic digital marketing. [M]

As a second step, we ran subanalyses investigating how growth hacking strategies are put in place throughout the growth phases to avoid innovation failure along the four levels of analysis. In this phase we noticed relatively less variety in execution than in growth hacking conceptualization along the three pillars. From a market-related perspective, interviewees highlight the importance of ensuring the fit between the product and customer needs to avoid innovation failure. Instead of driving innovation as a top-down approach, maybe driven by the R&D department, interviewees posit that what makes growth hacking different from other marketing techniques is that it is focused on finding the most unique, effective and inexpensive strategies possible to develop a great product with strong demand while creating a scalable marketing plan to attract new customers.

The identification of the correct product-market fit has beneficial spillover effects on increasing product virality. In fact, growth hackers must engineer virality, not just by setting viral features into the product but by creating behavioural residue that sticks around even after people have bought the product.

You always need specific automation tools. Whether it is for CRM, marketing automation, e-mail marketing. Which tool to use depends on what you are optimizing at the moment. Now with AI-based marketing tools we are even more supported in our decision-making. Now we even talk about preoptimization, which means optimizing even before doing A/B testing, AI is already able to create different paths with different outcomes based on the setting of your experiments. [B]

From an organizational perspective, to ensure a good product-market fit, the organization must rely on a data-driven strategic decision-making. The organization must avoid guessing customer needs but rather iteratively test consumers' reaction to the product innovation. This makes it possible to improve the product by learning from "failures" and "pains" felt by the customers when using a product.

By leveraging field experiments we were able to directly talk with our target customers. We did interviews, customer interviews, we have offered our product for a free trial to see what were the actual and latent needs of our customers. This has allowed us to gather feedback on which features the customer wanted in order to use our product on a daily basis. [R]

Growth hacker leaders are in charge of building agile organizations. Growth managers are responsible for creating teams with the complementary skills needed to drive the growth hacking process. In fact, the organization needs to develop the necessary capabilities to analyse large quantities of data coming from product-user interaction. The objective is to grow the business by iterating, tracking success and doing whatever it takes to increase customer retention.

There is a large amount of data that we, as the growth team, gather and analyse that we send to the people that are in charge of product development. For example, if we gather data on customer experience and we test the user experience of the website through phone interviews, focus groups, etc., we send these data to those in charge of adjusting the website or fixing the mobile phone interface. [U]

A pitfall that might lead to failure is the misreading of data. This could be a drama, because very often we have some beliefs given by prejudice. Maybe you like a certain advertising campaign more than another but in reality data tell you the contrary. This is a huge risk; having biases in the reading of data and giving space to one's belief is the greatest risk in innovation management. [T]

From a project-related perspective, growth hackers need to ensure the access to data coming from the market, from customer-product interaction or from related projects/experiments within the firm. Growth hackers must ensure economies of scale and scope between projects/experiments.

I am very problem oriented, while many of my colleagues are objective oriented. It depends on how the company is structured. However, the growth hacking team is cross-functional and this means that you are experimenting on everything, from marketing to product, from customer care to business development. You retrieve huge amounts of data that can be useful not only to you or the project you are working on right now but they can be useful to other teams in the company. It is fundamental to share data and make some economies of scale. [R]

The objective is to maximize the return on investment by using the correct metrics to measure innovation success – for example, by leveraging conversion rate optimization (CRO) as a digital marketing strategy to improve user experience and consequently conversions. If the project is not able to achieve the expected results, measured through specific KPIs, then the growth hacking strategy should be leveraged to learn from this failure and improve the product thanks to data analytics.

Key performance indicators, both financial and non-financial, must be mastered by the growth leader. You absolutely need to develop project management skills in order to efficiently programme all the tasks and milestones but you also have to set your priorities in terms of returns. You must also be very patient; while experimentation is a rapid process, results might come later. You can even have results on a medium- or long-term basis. [P]

5. Implications and conclusions

This study investigates how the implementation of growth hacking, through a data-driven iterative experimentation process, minimizes the likelihood of innovation failure within firms and allows organizations to rapidly learn from innovation pitfalls. According to our findings, we identify three key pillars along which companies develop specific capabilities to sustain the implementation of growth hacking, namely big data analytics, firm strategic (digital) orientation and coding and automation. We reveal a novel strategic role of growth hacking that goes far beyond the adoption of new technologies or the automation of marketing processes.

To answer the first part of our research question (i.e. how growth hacking can help mitigate innovation failures), we postulate that growth hacking helps companies to develop specific capabilities and routines that reduce the probability of innovation failure (Bargoni et al., 2023; Troisi et al., 2020). More specifically, we posit that growth hacking differentiates from other agile methodologies by helping organizations to overcome the liability of interdisciplinarity, the risk of incorrect application of the agile process or the reduced quality due to a lack of rigour (lack of a codified process; Misra et al., 2012). In fact, the data-driven experimentation allows organizations to learn from the

intense customer-product interaction (Bohnsack and Liesner, 2019). Growth hacking changes the old axiom of learning from failure. In fact, extant literature (Tao et al., 2023; Wang, 2023) points out that individuals tend to make sense of failure by drawing upon their past experiences (Morais-Storz et al., 2020). This means that organizations learn from failure from a post-mortem perspective, that is, when innovation failure has already happened. Until now, research has suggested that learning from failure deals with the fundamental question of “what to do now”, to make sense of future actions (Tao et al., 2023; Weick et al., 2005). In the words of Thomas et al. (1993, p. 240), sensemaking is a dynamic process that “involves the reciprocal interaction of information seeking, meaning ascription, and action”. This means that knowledge is created only after the information from failure is acquired and effectively processed in order to revise capabilities, routines and beliefs (Shepherd et al., 2011).

In conclusion, while the classical approach to innovation-related failures entails a learning phase deriving from the post-mortem analysis of innovation (Cyert & March 1963; Smith et al., 2020), the iterative experimentation process proposed by growth hacking induces the organization to revise its goals, or outcomes, by implementing novel innovative hacks to overcome failure. While researchers in organizational learning have pointed out that failure can be considered a significant organizational substrate for companies seeking to innovate (Ferreira et al., 2020), we tried to operationalize this concept by providing practical examples through the interviews on how growth hacking can allow a business model to be repositioned after a market shock or how it enables rapid learning from a mislaunch of a product or service. This means that growth hacking addresses transversely the problem of innovation failure at any level, whether it is a small or big failure, a product failure or a process failure, a capability or a routine. In fact, extant literature has proven that failure is an inherent outcome of the innovation process due to the uncertain nature of seizing opportunities (D’Este et al., 2016; Jenson et al., 2016; Maslach et al., 2015). Indeed, gaining knowledge through direct encounters with experiences of failure is the main pillar of experiential learning. Furthermore, in the digital field such as in ecommerce, growth hacking fosters the continuous improvement of specific aspects (small failures) to get closer to product-market fit. It is a trial-and-error process that allows a continuous improvement boost to be triggered, which stimulates innovation at different levels. Hence, the continuous iteration of experiments makes it possible to decrease the probability of failure. Moreover, the implementation of the growth hacking process helps organizations in overcoming the – frequently – limited financial support. By leveraging the Internet network and data-rich properties, growth hacking can be implemented even with limited budgets (Bohnsack and Liesner, 2019; Conway and Hemphill, 2019), making this methodology viable also for startups and small companies. In conclusion, the distinctive components of growth hacking (i.e. timing and speed, iterativity and cost-effectiveness) allow companies to recover and learn from innovation failure in a quicker and cheaper manner than other agile methodologies (Bargoni et al., 2023; Bohnsack and Liesner, 2019; Cavallo et al., 2023; Ghezzi and Cavallo, 2020; Troisi et al., 2020).

5.1. Theoretical implications

The findings built from the multilevel perspective on growth hacking and innovation failure will provide a compelling answer to the research question of the study and insightful theoretical implications. In answering the first part of the research question, we show how the literature on innovation failure has lacked a general consensus on the definition of failure (Baumard and Starbuck, 2005; Cannon and Edmondson, 2005; Chambers et al., 2022; Khanna et al., 2016). We contribute to the advancement of the literature on innovation failure by positing that failure can be considered a wider concept in this research domain, and we bring forward a new perspective on the topic by analysing it on several levels of analysis (i.e. market, organization, project

and product perspectives). Moreover, we shed light on how the organizational culture of excellence is rapidly turning towards a culture of approval of failure, in terms of learning from failure intelligently. We operationalize this concept by providing, through growth hacking, new evidence on how failure can be considered a significant organizational substrate for companies seeking to innovate (Bargoni et al., 2023; Cavallo et al., 2023; Ferreira et al., 2020).

We then tried to answer the second part of the research question (i.e. how growth hacking can help companies to learn from failures) by adopting a multilevel analysis of the critical factors affecting innovation. We combined each level of analysis with the pillars of growth hacking to highlight the elements, capabilities, and routines that companies must undertake to minimize the likelihood of innovation failure. In this regard, the paper helps to shed light on how growth hacking may represent a powerful methodology to create useful loops, routines and mechanisms for learning from failures, analysing data and building a mindset related to experimentation. In conclusion, many studies have been conducted to investigate learning from innovation projects. Our research has adopted a novel approach by combining extant success-based learning literature (Alegre and Chiva, 2013; Ferreira et al., 2020; Ritala et al., 2015) and learning from failure literature (D’Este et al., 2016; Leoncini, 2017) to posit that learning from failure differs fundamentally from success-based learning (J. Y. Lee et al., 2020). In this sense, we highlight that, in a highly dynamic competitive environment, these models prove to be inefficient and ineffective. Growth hacking, together with other methodologies such as design thinking and agile and lean start-up, allows for greater experimentation and testing for innovative ideas, leading businesses to avoid wasting time and resources on innovations that may not work.

5.2. Managerial implications

Managerial implications are also relevant. In particular, we have outlined for the first time how growth hacking can prevent innovation failure. The analysis of the interviews has made it possible to identify, for each phase of the growth hacking process, which strategic decisions managers should take to avoid innovation failure. For example, an interviewee has highlighted the importance of engineering virality, not just by creating a product that contains “viral features” per se but by creating behavioural residue in consumers that sticks around even after people have bought the product. Second, we showed the role of growth hacking in stimulating new views, taking advantage of lessons learned and increasing antifragility by implementing an iterative experimentation approach, thus making agility a long-lasting capacity rather than just an improvised reaction. As an example, one of the interviewees (a tax services company) has suggested that when appointed head of digital marketing, the first step was to create an experimentation framework in order to establish experimentation processes that would establish routines for the team. For instance, this involved working on creatives on Facebook, testing them for two weeks and creating methods to clearly define the assets involved. Establishing these research protocols, in the words of the interviewee, had the objective of increasing the acquisition rather than the retention of customers. They needed to optimize the acquisition cost because many people were signing up but not using the app, and they required additional flows to engage customers. After implementing growth hacking strategies, the customer retention increased and between 50% and 60% of users from the previous year returned, and generally much earlier than the previous year. In the first year, they came to the app between June and August, and in the following year, even in May, because they realized it was beneficial as they would receive their tax refund earlier.

To sum up, the study suggests that managers and practitioners that employ growth hacking can prevent innovation failure by helping businesses to test their innovative ideas before they invest a significant amount of time and resources into them. This is done through: a) rapid experimentation. Growth hacking involves a lot of experimentation with

different marketing strategies and tactics to see what works best. This same approach can be applied to testing innovative ideas. By quickly testing and validating an innovative idea, businesses can avoid wasting time and resources on ideas that may not work; b) a data-driven approach: this methodology relies heavily on data and analytics to measure the success of different marketing strategies. This same approach can be applied to testing innovative ideas. By collecting and analysing data on the success of an innovative idea, businesses can make informed decisions about whether or not to invest more resources into it; c) being customer-focused: growth hacking is all about understanding the needs and expectations of customers. This same approach can be applied to innovative ideas. By understanding the needs and wants of customers, businesses can develop innovative ideas that solve their problems and meet their needs; d) agility: growth hacking needs and fosters agility. By being agile and adaptable, businesses can quickly pivot if an innovative idea is not working as expected, thus limiting the negative effects of innovation failures.

6. Limitations and future research avenues

Our study has limitations to be considered in validating the results we have outlined, and for future research in general. In particular, the explorative nature of the research will be confirmed by a larger set of in-depth interviews that might reveal further information on innovation failure and the implementation of growth hacking. However, further evidence in different organizational settings is needed to validate what we have observed. Nonetheless, this research suggests several future research directions that should be considered to further investigate the intertwining of growth hacking and innovation failure. As technology and business landscapes continue to evolve, new challenges and possibilities emerge. Here are some potential avenues for future research in the field of growth hacking. First, future research could investigate the ethical implications of growth hacking practices, especially in areas like data privacy, user consent and the impact on vulnerable populations. Research could focus on developing ethical guidelines for growth hacking and develop useful insights for policymakers to shape the boundaries between data protection and data exploitation. Second, researchers could delve deeper into the domain of interculturality in international business to examine how cultural differences impact the effectiveness of growth hacking strategies across regions or in multi-cultural settings. Future research could explore how to adapt and tailor growth hacking techniques for different cultural contexts. Third, future research could tackle the – now important – topic of sustainability by investigating the long-term sustainability of growth hacking strategies in fostering innovation. Through longitudinal studies, researchers could explore how companies put into practice sustainable growth hacking strategies at the macro, meso and micro level to suggest the best practices for achieving sustainable growth. Fourth, future research could deepen the impact of new generative technologies such as artificial intelligence and automation to explore their role in developing growth hacking strategies that minimize innovation failure. Fifth, future research could address the business-to-business (B2B) research context to study growth hacking and innovation failure, analysing the dynamic capabilities necessary for companies to develop growth hacking strategies specific to B2B companies, and exploring the connection between growth hacking and overall customer experience when the customer is a company. Sixth, we propose investigating the intertwining of growth hacking and innovation failure from a human psychology perspective to deepen the understanding of human psychology and behavioural economics in the context of growth hacking and failure. Future research could investigate the cognitive biases and heuristics that growth hackers leverage, and the ethical considerations that arise. In conclusion, future research in the domain of growth hacking should continue to adapt to the evolving business landscape, technological advancements, and regulatory changes to provide valuable insights for companies aiming to achieve sustainable and ethical growth.

Declarations of competing interest

None.

Data availability

Data will be made available on request.

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