



Growth hacking: A scientific approach for data-driven decision making¹

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ABSTRACT

Today's businesses necessitate data-driven decisions to continuously adapt (and even shape) their environment to stay competitive. Growth hacking, with its emphasis on experimentation and data analysis, offers a promising approach to meet this need. Even though interest in growth hacking is increasing, the literature on the topic is still developing, and not clear guidance in how to implement it has yet been provided. Combining the scientific method and Taylor's scientific management principles with growth hacking insights from academic research and practice, we present growth hacking as a scientific approach for data-driven decision making in organisations. Through its iterative cycle of analysis, ideation, prioritisation, testing, and evaluation of prerequisites and facilitators, growth hacking empowers companies to make data-driven decisions, enabling them to navigate uncertainty, identify and seize opportunities, and transform their operations to adapt to or shape their environment. We also provide point out tools for the real-world business applications of growth hacking.

1. Introduction

The best management is a true science, resting upon clearly defined laws, rules, and principles, which are applicable to all kinds of human activities, from our simplest individual act to the work of our great corporations

Frederick W. Taylor (1911; p. 7)

In today's fast-paced business environment, data analysis is essential for informed decision-making, enabling strategic adaptation and a sustained competitive advantage (Brynjolfsson & McElheran, 2016; Hedgebeth, 2007; Brynjolfsson et al., 2011; Teece et al., 1997). For instance, using advanced data analytics techniques and state-of-the-art technologies, Amazon converts raw data into valuable insights that drive its operations, marketing strategies, and customer-focused approach. McKinsey (2017) revealed that 35 % of Amazon's consumer purchases were influenced by its recommendation system, which, in turn, directs the company's relationship with its vendors. However,

despite the recognised importance of data-driven decisions (Statista, 2020), many companies worldwide continue to rely on intuition (PwC, 2016; S&P Global, 2022; Zeenea, 2024).

Leveraging data to make informed decisions requires a structured approach; thus, *growth hacking* comes into play (Ellis, 2017).¹ "Growth" signifies a steadfast commitment to improvement through rapid experimentation (Holiday, 2014; 2017), while "hacking" embodies a mindset focused on overcoming challenges with scientific-oriented thinking (Barboni & Simonetti, 2017). A prime example illustrating the practical impact of growth hacking is Airbnb's strategic revamp of its cross-posting tactics to tackle growth challenges (Barboni & Simonetti, 2017). Airbnb created attractive listings and automatically reposted them on Craigslist, a classified advertisements website, leveraging Craigslist's large user base to drive traffic back to Airbnb's platform. This allowed Airbnb to tap into an existing market of users searching for accommodation while promoting their platform.

Moreover, recent scholarly research has highlighted that growth hacking is no longer confined solely to growth and marketing initiatives

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¹ The conceptualisation of growth hacking is attributed to a blog post by Sean Ellis, Chief Executive Officer and founder of GrowthHackers.com, considered the most important blog for growth hackers globally. Over the years, Ellis, who coined the term growth hacking, held marketing leadership or consulting roles with companies including Dropbox, LogMeIn, Uproar, Eventbrite, and Lookout, helping them to scale-up and reach billion-dollar market evaluations. Furthermore, in 2015, Sean Ellis and Everette Taylor created "GrowthHackers", the largest community dedicated to growth hacking.

(Bargoni, Santoro, Petruzzelli, & Ferraris, 2024; Bargoni, Smrčka, Santoro, & Ferraris, 2024). These scholars asserted that since growth hacking relies heavily on data-driven insights and rigorous experimentation, its principles may contribute to improved performance across all business aspects, from optimising marketing campaigns and developing innovative products to enhancing customer experiences and streamlining operations, ultimately enhancing aspects like business resilience and sustainability (Bargoni et al., 2024; Florez-Jimenez et al., 2024).

However, despite the emergence of academic (e.g., Bargoni et al., 2024; Troisi et al., 2020) and practical literature (e.g., Adhiya, 2020; Barboni and Simonetti, 2017) on the topic and its relevance for data-driven decisions (Troisi et al., 2020), *there is still a lack of academic work that explicitly defines growth hacking by detailing its prerequisites, process steps, facilitating elements, and how it effectively functions to improve data-driven decision-making in organisations.* Indeed, although some academic works provide insights into the steps of growth hacking, they are often inconsistent compared to real-world practices.

For instance, Conway and Hemphill (2019) outlined a three-stage growth hacking process involving testing hypotheses, understanding users, and prioritising planning. Nonetheless, this contradicts the process initially proposed by Ellis and Brown (2017; explained later), which forms the basis of the proposal for growth hacking as an approach based on the scientific method. Furthermore, the growth hacking process has been mistakenly associated with the AAARRR (awareness, acquisition, activation, retention, revenue, referral) funnel (Feiz et al., 2021); one of many frameworks that may be used within growth hacking, not the approach itself. It is also believed that growth hacking lacks predictability in its process steps (Bargoni et al., 2024, p. 5), contrary to Ellis and Brown (2017), who define it as an approach outlining precise actions for growth teams to follow. Moreover, growth hacking is often misunderstood as either digital marketing or as agile project management, as they all massively rely on data analysis and user feedback to adjust strategies for performance purposes quickly (Conway & Hemphill, 2019; Bargoni et al., 2024), or, with the production of ‘unconventional’ tactics (von Briel & Davidsson, 2019). This confusion hampers practitioners’ understanding of implementing growth hacking effectively and inhibits its application to data-driven decision making, contributing to producing ambiguous scientific literature. We rectify the misunderstanding by proposing a perspective article (e.g., Lovallo et al., 2023) that establishes growth hacking as a data-driven decision approach built on the scientific method and scientific management principles (Taylor, 1911), that form the theoretical background of this proposal. This design choice adheres to the recommendations for exploring nascent research streams, encouraging an open-ended inquiry into phenomena of interest (Edmondson & McManus, 2007).

To further this goal, we reviewed six practice-oriented growth hacking books (e.g., Barboni & Simonetti, 2017; Ellis & Brown, 2017) and ten practice-oriented books on data-driven decision making (e.g., Gandhi et al., 2021; Pera, 2022; Singh et al., 2023) to incorporate the practical insights and real-world applications of growth hacking and data-driven decision-making principles. We conducted a thorough examination of the existing *academic literature*, including all 14 published articles on growth hacking (see [supplementary material S1](#)), and relevant publications on data-driven decision making (e.g., Mandinach et al., 2006; McAfee et al., 2012; Provost & Fawcett, 2013). This review helped identify theoretical frameworks and methodological approaches within the academic community. We analysed *professional reports and publications* on growth hacking totaling 256 pages (e.g., *Growth Hackers*, 2022; *Growth Hackers*, 2023) and gathered insights from 16 h of video interviews and speeches (e.g., Ellis, 2017; Ellis, 2018; Ellis, 2019). This step ensured we captured the latest industry trends, practical insights, and the evolving nature of growth hacking practices from multiple interactive sources. To further enrich our analysis, we integrated the *expertise of a professional growth hacker* with over a decade of business

consulting experience, whose firsthand knowledge and practical suggestions provided invaluable perspectives. Finally, we combined the above insights with the scientific method and scientific management principles (Taylor, 1911) to provide a solid theoretical basis for growth hacking and help its interpretation and implementation. This synthesis allowed us to frame growth hacking within the scientific management theoretical context, offering a comprehensive understanding of how growth hacking can be applied to data-driven decision-making.

By synthesising information from these diverse sources, we identified the ‘prerequisites’, the ‘process’, and the ‘facilitators’ through which growth hacking represents a viable scientific approach for data-driven decision making. As a result, our work offers relevant theoretical implications. We contribute to the nascent growth hacking literature (Bargoni et al., 2024; Bohnsack & Liesner, 2019; Cavallo et al., 2023; Jaring et al., 2015), solving ambiguities surrounding its definition and application. We emphasise and draw parallels to illustrate how growth hacking represents an explicit application of the scientific method and the scientific management principles empowering organisations to leverage data-driven decision making to improve their businesses (Camuffo et al., 2020; Camuffo et al., 2024; Taylor, 1911; Thomke, 2003). Moreover, we fill a critical void in the data-driven decision-making literature. Indeed, data-driven decision making has been primarily explored within decision science and operations science (e.g., Mariani et al., 2023; Wamba et al., 2021), often lacking a formal framework for its implementation in the real-world business context, potentially leading to missed opportunities, poor choices, and wasted resources. Following an iterative cycle of analysis, ideation, prioritisation, testing, and considering prerequisites and facilitators enables companies to navigate uncertainty, identify and capitalise on opportunities, and transform their operations for adaptation or to shape their environment. We also point out tools for the real-world business applications of growth hacking.

This perspective article is structured as follows. First, we introduce the theoretical roots of growth hacking, data-driven decision making, scientific method and management principles. Second, we present our approach, outlining its prerequisites, process, and facilitators. We illustrate this by contextualising growth hacking within an example of business scaling. We conclude the article by discussing the theoretical and practical implications and suggesting directions for future research.

2. Theoretical background

2.1. Growth hacking

Growth hacking was initially defined as leveraging data-driven insights and continually experimenting across the entire customer journey to gain profound knowledge of user behaviour and preferences, to scientifically find the most efficient and impactful tactics to accelerate business expansion in customer and revenue growth (Ellis & Brown, 2017). Growth hackers systematically observe user behaviour (or other input elements), formulate hypotheses, and conduct experiments to test hypotheses, gathering empirical evidence to validate their solutions for improving every aspect of the business (Cavallo et al., 2023; Ellis & Brown, 2017).

To implement the scientific method *practically*, growth hacking blends the Lean Startup (Blank & Dorf, 2012; Ries, 2011) and Agile Project Management (Beck et al., 2001; hereafter Agile) principles – two approaches respectively rooted in the entrepreneurial effectuation and bricolage literature (Baker & Nelson, 2005; Sarasvathy, 2001) and contingency and configuration theories (Delery & Doty 1996; Doty et al., 1993). Stemming from the Lean Startup and Agile approaches, growth hacking empowers firms to continuously iterate and optimise products, services and distribution strategies based on real-time feedback and data analysis (Sanasi et al., 2023). In this sense, Ellis and Brown (2017, p. 18)

aptly express that “what those two approaches have done for new business models and product development, respectively, growth hacking does for customer acquisition, retention, and revenue growth.” Consequently, growth hacking shares common elements with these approaches while exhibiting differences (see Table 1).

Specifically, Agile is recognised for its adaptable and collaborative project management executed through fixed sprints (see the Scrum methodology; Schwaber, 2004), aiming to respond to changing requirements and enhance organisational processes swiftly. Notably, it employs metrics such as velocity, sprint/release burndown, and lead/cycle time. Similarly, growth hacking aligns with Agile in advocating for cross-functional teams and regular standing meetings, promoting collaboration and efficient communication (Beck et al., 2001). On the other hand, Lean Startup and growth hacking emphasise rapid experimentation and testing, enabling growth teams to make data-driven decisions through iterative development, frequent feedback loops, and hypothesis-driven experimentation based on different metrics according to the maturity phase of the organisation, product, or project.

2.2. Data-Driven decision making

According to Decision Theories, decision making aims to identify, evaluate, and select decision alternatives based on the value associated with each option under conditions of uncertainty or certainty (Fellows, 2004). According to classical economists, individuals engage in decision-making processes in a fully rational way, as they can consistently maximize their utility based on complete information and logical reasoning, called a *normative* approach to Decision Theory (how decisions *should* be made; Cristofaro, 2017). However, Simon's (1947) ground-breaking contribution, which offered a *descriptive* approach to Decision Theory (how people *actually* make decisions), challenged this assumption. The author argued that individuals deviate from rational behaviours due to their innate restricted computational capacities, access to information, and physical constraints. In other words, individuals cannot accurately perceive, memorise, represent, and compare *all* the possible alternatives in complex decision-making processes, failing to find the optimal, but settling for the satisfying option. In brief, individuals are subject to bounded rationality (Kahneman, 2003).

This is particularly relevant in the current digital age, where humanity generates more than 2.5 quintillion bytes of data daily, exacerbating the difficulty of comprehensively evaluating all available information (Farrell, 2023). With increasing available data, individuals and organisations struggle to filter, prioritise, and interpret relevant information effectively. As a result, they are more likely to rely on

simplified models, past experiences, and rules of thumb to navigate complex decision-making environments (Gigerenzer & Gaissmaier, 2011). Nevertheless, the swift advancement and pervasive integration of information technology tools, like artificial intelligence and machine learning, represent a viable solution to deal with it (Balasubramanian et al., 2022); they allow exploiting data for competitive advantage through data-driven decision making. This refers to basing decisions on data analysis rather than intuition (Brynjolfsson et al., 2011), opening a *prescriptive* approach to Decision Theory (*how to improve* decision making).

Thus, a data-driven decision-making process is characterised by the following sequential steps (see Mandinach et al., 2006; Sheema & Ramesh, 2021; Troisi et al., 2020): i) identifying the area that needs improvement and defining specific, measurable, achievable, relevant, and time-bound (SMART) goals as well as outlining constraints, ii) determining, collecting, organising, extracting, and integrating necessary data from primary or secondary sources using appropriate methods, iii) interpreting data by using initial exploratory analysis followed by statistical methods and advanced analytics to gain deeper insights to allow generating potential solutions to the problem, iv) synthesising and prioritising alternatives among the hypothesised solutions, v) implementing the prioritised alternative, vi) measuring the impact of the action and storing data, and vii) sharing data and collecting feedback in a post-implementation review to identify successes and areas for improvement, thereby fostering continuous improvement.

Research consistently highlights the benefits of data-driven decision making across industries (Shamim et al., 2019). However, the literature on data-driven decision making primarily resides within decision science and operations science, lacking an implementation framework tailored to business contexts (Mariani et al., 2023; Wamba et al., 2021) and limiting its formal adoption. Similarly, the nascent output on growth hacking literature has not allowed scholars to fully understand its prerequisites, process, and facilitators (Bargoni et al., 2024), impeding its practical application for data-driven business choices.

2.3. The scientific method and scientific management principles

The need of optimising resources and processes has been central to human progress throughout history (e.g., specialisation and division of labour; Smith, 2002). However, individuals in organisations usually do so by relying on intuition and rules of thumb (Kahneman, 2003; Kahneman et al., 2011), potentially limiting the effectiveness and efficiency of their effort. In this regard, the scientific method (e.g., Gauch, 2003) offers a structured approach to deal with it. Indeed, by emphasising a)

Table 1
Commonalities and differences between growth hacking, Agile, and Lean startup.

	Growth hacking	Agile	Lean startup
<i>Definition</i>	A process of scaling and sustaining business growth by identifying and capitalising on unconventional opportunities for user acquisition and retention through rapid experimentation, creativity, and data-driven decisions	A flexible project management and development approach that prioritises collaboration, adaptability, and incremental progress to swiftly respond to changing requirements	An entrepreneurial approach that focuses on rapid iteration, customer feedback, and efficient resource use to develop and launch products or services in a streamlined and cost-effective manner
<i>Origin</i>	Coined in the context of marketing and startups	Originated in software development	Originated in entrepreneurship and startups
<i>Theoretical lenses</i>	Scientific method (e.g., Gauch, 2003)	Contingency and configuration theories (Magistretti & Trabucchi, 2024)	Entrepreneurial effectuation (Sarasvathy, 2001) and bricolage (Baker & Nelson, 2005)
<i>Focus area</i>	Rapid and scalable business growth	Iterative and flexible project development	Rapid experimentation and validated learning
<i>Iterative development</i>	Emphasises rapid experimentation and testing	Divides projects into small, iterative cycles	Builds, measures, and learns in continuous loops
<i>Data-driven decisions</i>	Relies heavily on data analysis	Utilises metrics for continuous improvement	Informed decision-making through validated learning
<i>Cross-functional collaboration</i>	Collaboration across teams for growth	Cross-functional teams for project development	Collaboration among teams to achieve validated learning
<i>User-centric approach</i>	Focuses on user needs and behaviours	Customer involvement throughout the process	Continuous customer feedback and iteration
<i>Timeframe</i>	Emphasis on quick, short-term results	Iterative development with regular releases	Continuous cycles of experimentation and learning

systematic observation, b) hypothesis testing, c) controlled experimentation, and d) data-driven analysis, it ensures that decisions are grounded in empirical evidence rather than gut feelings (see also [Coali et al., 2024](#)). Systematic observation involves the careful and structured data collection, allowing researchers to identify patterns and generate hypotheses based on empirical evidence. Hypothesis testing then involves making predictions derived from these hypotheses and rigorously evaluating them through experimentation. Controlled experimentation isolates variables to determine causal relationships, ensuring that external factors do not influence the results. Finally, data-driven analysis employs statistical techniques to interpret the collected data, providing objective insights that inform decision-making. Together, these elements of the scientific method give a robust framework for making well-informed and reliable decisions, enhancing both effectiveness and efficiency in organizational contexts. [Taylor \(1911\)](#) builds on this empirical foundation by proposing a series of principles to improve organizational efficiency ([Carlson Dean, 1997](#)), reported as follows.

Developing a ‘science’ for each element of a specific task. [Taylor \(1911\)](#) emphasised replacing traditional rule of thumb methods with a scientific mindset. This involves studying each task, breaking it into its simplest components, and determining the most efficient way to perform each.

Selecting workers based on their abilities and providing them with systematic training. [Taylor \(1911\)](#) found empirical evidence that matching workers to jobs that align with their skills and then training to embrace standardising tools, procedures, and work methods lead to more consistent and predictable outcomes.

Cooperation between management and workers. This principle involves management working closely with employees to guide and support them using the new methods. By fostering this cooperation, management, and workers can align their efforts toward common goals, reducing conflicts and boosting productivity.

Defining roles and responsibilities. [Taylor \(1911\)](#) observed that organisations with well-defined roles benefited from increased specialisation, allowing workers and managers to focus on specific tasks. This specialisation enabled workers to become more skilled and efficient, while managers concentrated on planning and organising operations; clearly defined roles also reduced time wastage, conflicts, and overlaps, leading to more streamlined operations and better resource utilisation.

In conclusion, although [Taylor’s \(1911\)](#) scientific management principles were formulated over a century ago, their core concepts of systematic optimization, empirical analysis, and efficient process management remain relevant and influential today ([Grachev & Rakitsky, 2013](#); [Kemp, 2013](#)). In this context, the following sections will thoroughly examine how organisations can combine the scientific method and [Taylor’s \(1911\)](#) principles to efficiently and effectively implement growth hacking for data-driven decision-making.

3. Growth hacking for Data-Driven decision making

[Fig. 1](#) shows the prerequisites, process, and facilitators of growth hacking for data-driven decision making.

We identify three *prerequisites* – i.e., ‘data-driven culture,’ ‘data-driven mission alignment,’ and ‘data-driven infrastructure’ – which are the necessary conditions that must be in place before the growth hacking process can begin effectively. The growth hacking *process* involves four iterative steps – i.e., ‘analyse,’ ‘ideate,’ ‘prioritise,’ and ‘test’ – to achieve data-driven decision making. Lastly, three *facilitators* – i.e., ‘dedicated growth hacking team,’ ‘budgeting growth hacking,’ and ‘growth hacking engineering’ – help to smoothen, enhance, or accelerate the growth hacking process, making it more efficient and effective for data-driven decision making. We detail these elements in the following sections.

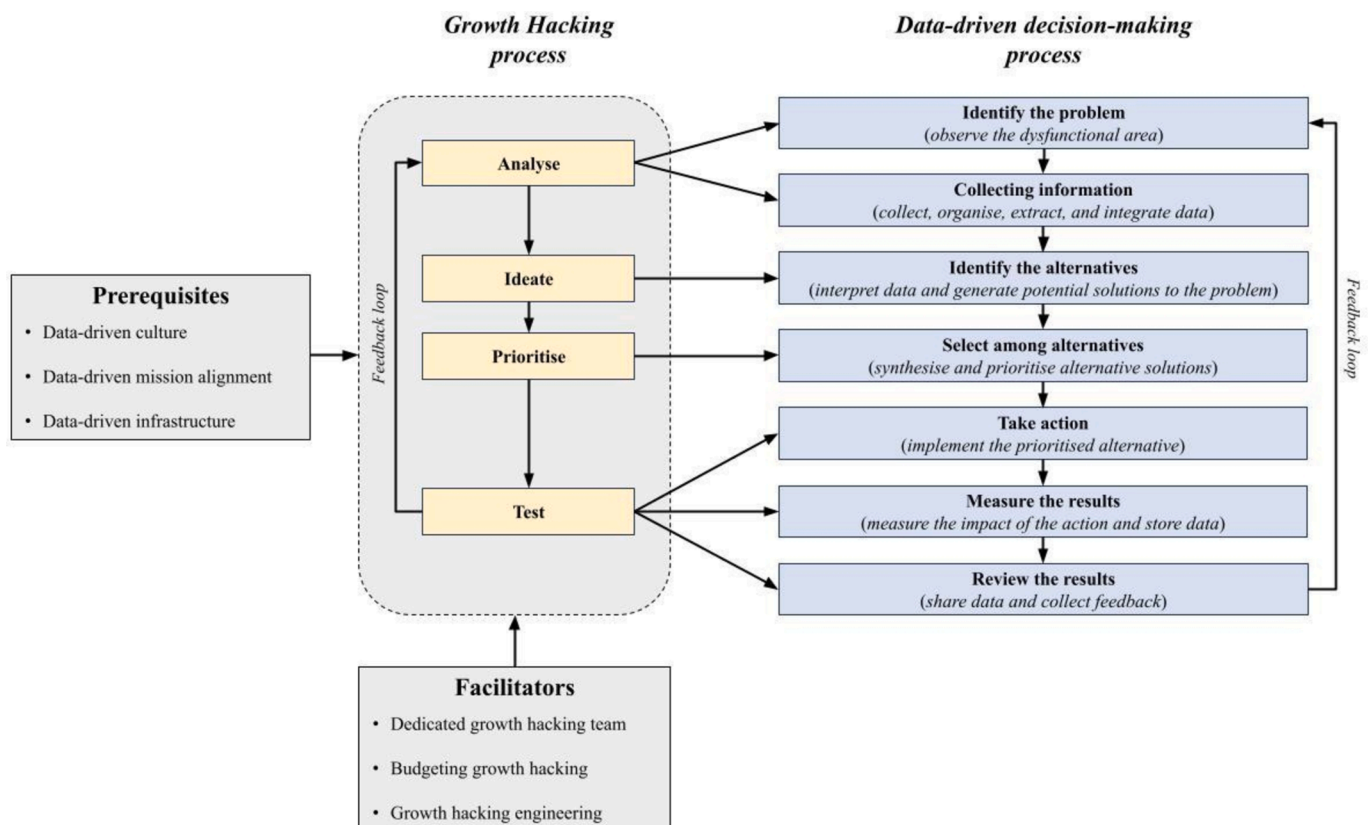


Fig. 1. Growth hacking as a scientific approach to data-driven decision-making.

4. Prerequisites

Organisations need to satisfy three prerequisites to successfully use growth hacking as an approach for data-driven decision making. Specifically:

Data-driven culture. As Taylor (1911) observed, the most formidable challenge in implementing scientific management is persuading managers that relying solely on intuition and beliefs is not enough to make optimal decisions – in line with the trends in behavioural decision research (Kahneman et al., 2011). For growth hacking, it is essential to encourage the use of data and intuition (Ellis, 2024a), as Newell and Simon (1961) observed, who first underlined the relevance of data for improving human problem solving. Thus, under the guidance of senior management and/or founders, organisations should prioritise cultivating an environment that challenges (empirically) established assumptions about aspects of organisational improvement – including the product, customers, etc. (Barboni & Simonetti, 2017). In this regard, Taylor (1911; p. 28) affirmed that “the workman who is best suited to doing the work is incapable of fully understanding this science, without the guidance and help of those working with him or over him.” Hence, leaders should guide and inspire followers to embrace new and challenging tasks (Gutiérrez-Broncano et al., 2024; Gutierrez-Broncano et al., 2024; Jiménez-Estévez et al., 2023; Murari & Gupta, 2012).

Companies committed to growth hacking experimentation must also acknowledge that some experiments will be unsuccessful (GrowthHackers, 2023). But they can still provide valuable insights. This is why it is imperative that the results of experiments, whether positive or negative, are shared throughout the entire organisation. This practice is a cornerstone of a learning organisation (Edmondson & Moingeon, 1998), which thrives on continuous learning and collective knowledge sharing. To facilitate this, regular weekly meetings to discuss alignment, results, and discoveries resulting from experimentation are encouraged, which will ensure ongoing learning, improvement, and alignment with business goals, embodying the principles of a learning organisation (Bargoni, Santoro, Petruzzelli, & Ferraris, 2024; GrowthHackers, 2023).

Data-driven mission alignment. This refers to ensuring that data consistently guides and informs organizations (Ellis & Brown, 2017; Hedgebeth, 2007). The concept emphasises the importance of aligning organisational activities, initiatives, and decision-making processes with its overarching mission (Chorn, 1991) using data as a critical tool. By defining clear and measurable objectives, for example the SMART approach, organisations create a roadmap to address every aspect of organisational improvement (Pearce, 1982). Stemming from scientific management principles (Taylor, 1911), this management-by-objectives approach (Odiorne, 1965) ensures that every growth hacking effort is not only guided by data but also rooted in the company's core mission and long-term vision, ensuring that resources are allocated to the most impactful initiatives (Florez-Jimenez et al., 2024; Mandinach et al., 2006).

Additionally, as per the active and fruitful collaboration between managers and workers endorsed by Taylor (1911), data-driven mission alignment fosters unity and coherence across the organisation (Chorn, 1991). Collaboration is enhanced when all team members understand how their work supports the company's mission through concrete data, ensuring their efforts are synergistic rather than siloed. This alignment creates a shared sense of purpose and direction (Henderson & Venkatraman, 1999). It provides transparency, as data can clearly show whether objectives are being met and where improvements are needed, motivating employees to contribute more effectively to growth hacking initiatives (Barboni & Simonetti, 2017).

Moreover, aligning growth hacking strategies with the company's mission through data-driven insights encourages top managers and

founders to actively champion and support these endeavours (Analoui & Karami, 2002). Indeed, as noted by Taylor (1911), “those in the management whose duty it is to develop this science should also guide and help the workman in working under it, and should assume a much larger share of the responsibility for results than under usual condition is assumed by the management” (p. 26). This top-down support is critical for overcoming obstacles and driving the success of growth hacking initiatives from inception (Ellis & Brown, 2017).

Data-driven infrastructure. This pertains to the organisation's systems, technologies, and processes that enable the collection, storage, basic analysis, and utilisation of data collected (Sheema & Ramesh, 2021; Troisi et al., 2020). Thus, organisations should invest in acquiring the proper tools and systems to facilitate gathering actionable insights and utilising data to evaluate the outcomes of growth hacking experiments, identifying successful tactics and iterating on the relevant ones (Adhiya, 2020). This may include IT systems, databases, analytics platforms, and visualisation tools (like GrowthSoftware, JIRA, Trello, Asana, etc.) that are designed to capture, store, and analyse experiment-generated data (GrowthHackers, 2022; 2023).

In this regard, according to Ellis, 2019; 2020; 2024a; 2024b and in line with the scientific method and Lean Startup methodology (Blank & Dorf, 2012; Ries, 2011), a company should launch at least three experiments weekly to maximise the chances of gathering sufficient data that allow identifying efficient and impactful growth tactics. Emphasis should be placed more on the speed of execution rather than the meticulousness of the test, which also aligns with Agile's principles (Beck et al., 2001). This is because the business landscape constantly evolves and organisations must swiftly adapt to stay competitive.

Thus, organisations need a robust infrastructure for tracking experiment results to scale growth hacking efforts effectively (Sanasi et al., 2023). By centralising experiment results in a dedicated infrastructure, organisations can gain valuable insights into the effectiveness of their growth tactics, identify areas for optimisation, and diffuse the results of experiments (Troisi et al., 2020). Moreover, an infrastructure enables organisations to monitor KPIs and track progress towards growth objectives in real-time (Bargoni et al., 2024). By investing in infrastructure to track experiment results, organisations can support a data-driven culture, leading to continuous improvement in their growth hacking efforts (Mandinach et al., 2006).

5. The process

After meeting the necessary prerequisites, organisations can leverage growth hacking for data-driven decision making to achieve short-term and long-term objectives. Growth hacking is fundamentally based on the scientific method (e.g., Gauch, 2003), utilising data-driven experimentation to guide decision-making, thus embracing the empiricism typical of scientific inquiry (Barboni & Simonetti, 2017; Troisi et al., 2020). In particular, the process at the basis of this approach is based on four consequential steps – i.e., analyse, ideate, prioritise, and test – that, from a scientific management standpoint, allow organisations to make efficient and informed decisions (Sheema & Ramesh, 2021; Troisi et al., 2020). Precisely:

Analyse. This initial phase corresponds to the ‘observation and questioning’ stage of the scientific method, where growth hackers assess the user lifecycle and identify areas for improvement, akin to a scientist gathering information about a phenomenon or problem. In this regard, Taylor (1911) emphasises the importance for managers to break down tasks into their simplest elements to analyse them scientifically. Similarly, growth hackers start by analysing the areas requiring improvement, utilising frameworks tailored to grasp the necessary information. For instance, in business expansion, growth hacking teams might

employ the AAARRR funnel to break down the customer journey into six stages to understand and optimise the customer lifecycle, which is essential for sustainable growth (McClure, 2007). This aligns also with the rational decision-making model at the basis of data-driven decision making, which involves systematic problem identification and data evaluation to guide decisions (Sheema & Ramesh, 2021).

However, regardless of the areas requiring improvement and the related analysis frameworks, growth hackers must choose a ‘North Star,’ a key metric that best encapsulates the identified area for improvement (Ellis & Brown, 2017; Ellis, 2019; Ellis, 2024b). For example, WhatsApp focuses on the number of messages exchanged to measure engagement and satisfaction, driving organic growth and business expansion (Barboni & Simonetti, 2017). The concept of a North Star Metric is closely related to the management by objectives approach (Odiorne, 1965), where a specific objective drives all business decisions. It is essential to highlight that not only does the North Star metric need, logically, to differ across various areas of the business and management context, but it also needs to evolve according to the changing priorities of organisations (e.g., Facebook shifted from user acquisition to advertiser usage and international outreach to support its expansion strategy; Ellis, 2024b).

This reliance on metrics is also reflected in scientific management principles. Indeed, Taylor’s (1911) use of time and motion studies to set specific standards for tasks demonstrates how focusing on precise metrics can significantly enhance efficiency. Moreover, the North Star concept aligns with Taylor’s (1911) intuition to establish performance benchmarks and systematically analyse work processes, providing a central guiding measure to track efforts and drive organisational success.

Ideate. The second step of growth hacking concerns generating a wide range of diverse ideas to address issues targeted by the North Star metric. This stage emphasises creativity without self-censorship and encourages input from various stakeholders (Coviello, 2019; Ellis & Brown, 2017). This aligns with the ‘formulation of hypotheses’ that characterises the scientific method, where predictions about the outcomes of experiments are made based on analyses and prior knowledge (Coali et al., 2024). On this matter, Taylor (1911) suggests that the best ideas are achieved through a combination of feedback from different hierarchical levels and functional areas.

Ideation typically spans a few days, during which growth hackers submit their ideas using a standardised template (Appendix 1) for efficient evaluation and collaboration. In this regard, hypotheses should be simple and clearly define success criteria. At the same time, metrics must be carefully selected to assess the impact of the hypotheses on the targeted issue, thus ensuring proper data gathering to support the ongoing decision-making process (Ellis & Brown, 2017).

For instance, analysing hacks employed by companies like Airbnb has revealed a taxonomy comprising 34 patterns organised based on resource intensity and time lag, enabling firms to improve their operations (Bohnsack & Liesner, 2019; Feiz et al., 2021). However, firms may struggle with their dependence on data quality, exacerbated by a shortage of skilled growth hackers. Furthermore, given that “depending on the type of product or service as well as the target group, some patterns might be more sensible to apply than others” (Bohnsack & Liesner, 2019, p. 802); thus, firms have to iteratively test and align their hacks with the prevailing business conditions, customer preferences, and emerging market trends.

Prioritise. The scientific method requires to ‘prioritise hypotheses’ for testing based on factors such as feasibility, relevance, preliminary evidence, novelty, potential impact, and the balance of risk and reward (Gauch, 2003). Similarly, once growth hackers gather ideas with potential impact on the North Star metric, they must prioritise these ideas

to identify the most efficient and impactful ‘hacks’ (Ellis and Brown, 2017). Various frameworks like “time-impact-resources,” “hotwire’s points model,” or the “PXL framework” may be utilised for this purpose (Adhiya, 2020; Holst, 2023). However, the most common tool is the ‘Impact-Confidence-Ease’ (Appendix 2), which assesses each idea based on potential impact, growth hackers’ confidence in effectiveness, and ease of implementation, considering the firm’s unique characteristics and specific objectives (Barboni and Simonetti, 2017; Ellis & Brown, 2017). This reflects principles in Agile methodologies (Beck et al., 2001), which emphasise the need for dynamic adaptation to changing conditions and new data. Precisely, Agile practices, with their focus on iterative development and continuous feedback, echo Taylor’s (1911) emphasis on customising approaches and solutions to fit specific industry needs and tasks.

Test. Finally, as per the scientific method, growth hackers must engage in ‘testing the hypothesis’ (hack) with the highest priority using well-designed and implemented experiments capable of yielding statistically valid results that allow gathering sufficient information to enable data-driven evaluation and decision making (Brynjolfsson et al., 2011; Ellis & Brown, 2017). This aligns also with scientific management principles (Taylor, 1911) which suggest observing and measuring every aspect of a process, conducting controlled experiments, and refining the process based on results of the experiments (Brecht et al., 2021). This is also rooted in the scientific method (Gauch, 2003), which focuses on conducting experiments that effectively test hypotheses and produce valid results. To implement it, growth hackers should use an experiment card (Strategyzer, 2015; see Appendix 3), which contains information such as hypotheses to be tested, experiment design, and expected results. After testing, analysis follows to evaluate the implemented hack’s results and plan the next steps. However, in line with the best practices of data-driven decision making (Sheema & Ramesh, 2021) and before starting a new hacking process, growth hackers must prepare an exhaustive experiment report summarising actions to date (Appendix 4). By comparing the data obtained in the experiment with the expected outcomes and considering the factors that may have influenced the experiment’s results, growth hackers can empirically evaluate whether the experiment was successful (Ellis & Brown, 2017).

In this context, to ensure a proper data-driven process, it is crucial to consider both quantitative metrics and qualitative learning, where the first informs about “what happens” and the second “why it happens” (Sheema & Ramesh, 2021) in line with scientific management principles (Taylor, 1911). Next, the report must be shared with the firms’ leadership for their endorsement or rejection of the proposed tactics. Their decision will ultimately determine whether the hack is integrated into the firm’s processes, and “it remains standard for all workmen to use until superseded by an implement which has been shown, through motion and time study, to be still better” (Taylor, 1911; p. 118). Hence, the growth hacking process starts again (Barboni & Simonetti, 2017).

6. Facilitators

Three are the facilitators that can help implement growth hacking for data-driven decision making by ensuring focused experimentation, resource availability, and technical optimisation, driving competitive advantage. Precisely:

Dedicated growth hacking team. In smaller firms, the Chief Executive Officer (CEO) often takes on the role of a growth hacker, while larger enterprises may require a specialised team. This team should consist of individuals with diverse backgrounds (e.g., big data analytics, digital marketing, coding, and automation) operating in a cross-functional manner (Adhiya, 2020; Bargoni et al., 2024; Gutiérrez-Broncano, Linuesa-Langreo, Ruiz-Palomino, & Silva, 2024; Gutiérrez-Broncano,

Linuesa-Langreo, Ruiz-Palomino, & Yáñez-Araque, 2024; Jiménez-Estévez et al., 2023; Murari & Gupta, 2012; Santoro, Jabeen, Klietk, & Bresciani, 2024). Following Taylor's (1911) principles, organizations implementing growth hacking would benefit from employing specialists to conduct time and motion studies, adopt solutions, and manage training, enhancing continuous improvement and operational efficiency.

Consequently, the prevailing structure for growth teams should be cross-functional, integrating diverse skill sets and viewpoints to foster innovative problem-solving (GrowthHackers, 2023). In this regard, possessing 'T-shaped skills' is essential, where a growth hacker understands various domains (e.g., creativity, communication, problem-solving) and excels in specific areas (e.g., programming, financial analysis, marketing analysis) (Barboni & Simonetti, 2017). This combination facilitates deep mastery of data for generating insightful decisions (Demirkan & Spohrer, 2015). However, coordinating efforts across departments can be challenging; hence, assigning responsibility to a high-level executive is imperative to grant the team authority to transcend departmental boundaries.

Indeed, growth initiatives are crucial for fostering data-driven decision making and must not be relegated to side projects. Thus, in line with the scientific management principles (Taylor, 1911), a clear commitment from leadership is necessary to avoid bureaucracy, turf wars, inefficiency, and inertia, ensuring the team achieves a competitive advantage through accurate, informed decisions based on data analysis (Ellis & Brown, 2017; Hedgebeth, 2007). Assigning a leader to oversee the growth hacking process also addresses potential agency issues (Gailmard, 2014) by ensuring alignment between growth initiatives and organisational goals, thus preventing inefficiency and fostering accountability.

Specific budget allocation. A general misconception regarding growth hacking is that it "aims for rapid business growth using tiny budgets, by utilising the advantage of the network of internet and data-rich properties" (Conway & Hemphill, 2019, p. 166). Often exemplified renowned cases have fueled this inaccurate view about funds required for growth hacking; for example, Hotmail, which grew fast in terms of its user base thanks to its tactic of automatically attaching a short advertising message at the bottom of emails sent by Hotmail users to others (Barboni & Simonetti, 2017; Ellis & Brown, 2017).

According to this biased view, growth hackers focus on low-cost and innovative alternatives to traditional data-driven processes (Biyani, 2013; Feiz et al., 2021). However, while growth hacking prioritises cost-effective approaches over conventional methods (Conway & Hemphill, 2019), it does not imply a lack of budget allocation. Stemming from the Resource Based View of the firm (Wernerfelt, 1984), having an adequate budget is essential for successfully leveraging growth hacking as an approach for data-driven decision making. Indeed, organisations need access to advanced tools and technologies and hire skilled professionals to gather, analyse, and interpret data effectively. This emphasises experimentation and research to generate impactful data-driven decisions (Bargoni et al., 2024; Von Krogh & Cusumano, 2001; Weinberg & Mares, 2014).

Despite the perception that experimentation is inherently inexpensive, scholars like Cavallo et al. (2023) challenged this notion, underlining that significant investments are necessary, as evidenced by PayPal's substantial expenditure (\$60 million) on its referral incentive system aimed at scaling up operations (Pillai et al., 2020). Therefore, while digital technologies have reduced costs associated with the entire data analytics process, the notion of "cheap" experimentation is contested (Christensen, 2013).

Growth hacking engineering. Growth hacking is usually performed

rudimentarily during firms' nascent stages as an approach for data-driven decision-making processes. For instance, Airbnb struggled with advertising in its first year, trying unsuccessful methods like selling branded cereal boxes during the presidential election. However, by cross-publishing listings on Craigslist using sophisticated programming, they tapped into a large user base for free, a move that became legendary in Silicon Valley and pivotal to Airbnb's success (Ellis & Brown, 2017).

This story highlights the need that has existed throughout history concerning extracting actionable insights from extensive datasets and tailoring decisions accurately. For example, while Taylor (1911) used a stopwatch to optimise organisational processes, today's advanced technologies allow organisations to build on this legacy to enhance efficiency across all business aspects. In this regard, Troisi et al. (2020) illustrated how companies in the agrifood, construction, and transportation sectors successfully implemented growth hacking by employing integrated artificial intelligence algorithms and analytics platforms to gather and interpret stakeholder data. This is because artificial intelligence-powered analytics platforms sift through vast data troves to discern patterns and trends, offering invaluable guidance for ideation and testing; similarly, automation tools are pivotal in expediting experimentation processes within growth teams (Adhiya, 2020; Santoro, Jabeen, Klietk, & Bresciani, 2024). These solutions facilitate the simultaneous launch and monitoring of multiple experiments, freeing team members to focus on higher-value activities such as brainstorming, data analysis, and related data-driven decision-making processes (Bohnsack & Liesner, 2019).

Looking towards the future, the evolution of the 'Internet of Things' promises to bridge physical and digital realms, unlocking opportunities for real-time data-driven decisions. Companies could continuously update and enhance their products to meet evolving consumer needs, facilitating their competitive advantage in a fast-paced business environment. In this regard, and connecting with the technology acceptance model (Davis, 1989), the successful implementation of growth hacking engineering heavily relies on two key factors: perceived usefulness and perceived ease of using these technologies. The usefulness of artificial intelligence and automation tools in providing accurate data-driven insights and simplifying complex processes drives their adoption and integration into growth hacking tactics. The ease of use ensures these technologies can be effectively utilised by the growth hacking team, allowing for rapid iteration and adaptation, which is critical in this age of dynamic business landscapes.

7. Implications

7.1. Implications for theory

Despite being conceived almost 15 years ago (Ellis, 2010), growth hacking is still a new concept; academic research is in its nascent stage of development, with just a handful of scientific contributions investigating it. Conversely, within the practice, growth hacking has increasingly captured the interest of gurus, bloggers, and professionals (e.g., Camera, 2017; Barboni and Simonetti, 2017; Ellis, 2024a; Ellis, 2024b; Ellis, 2024c). This discrepancy leads to many theoretical ambiguities and misconceptions, highlighting a disconnection between theory and practice, with the ultimate consequence of its limited application for marketing or strictly growth purposes. To bridge the gap between theory and practice and demonstrate that growth hacking is an approach that can be broadly used for every business area, we integrated growth hacking and data-driven decision making academic and practice-oriented literature, practitioner reports, and expert consultations. Then, several theoretical implications emerge by reading this

amalgamation through the lenses of the scientific management philosophy.

First, stemming from the lack of consensus regarding growth hacking (see [supplementary material S1](#)), our main contribution lies in formalising and delineating it as a scientific approach for enhancing decision making with data-driven insights, proposing a formal process, prerequisites, and facilitators. As growth hacking advocates for reliance on empiricism and systematic data analysis rather than intuition, it completely aligns with the principles of scientific management ([Taylor, 1911](#)) and more generally with the scientific method ([Gauch, 2003](#)), providing a solid theoretical background. Consequently, by enabling decision-makers to navigate the fast-paced business environment with rigorously validated hypotheses and efficient, impactful tactics, growth hacking offers a viable solution for informed decision-making ([Camuffo et al., 2024](#); [Ellis, 2024bc](#)). Furthermore, by disentangling its core philosophical foundations, its dynamics, and how to implement it effectively, we enhance the literature on growth hacking that, up to today, has primarily focused on debunking misconceptions and dissecting specific hacks ([Bargoni et al., 2024](#); [Bohnsack & Liesner, 2019](#); [Cavallo et al., 2023](#); [Jaring et al., 2015](#)).

Second, historically, scholars had not thoroughly explored the procedural steps involved in implementing a data-driven decision-making process in the business context, as such discussions were more common in decision science and operations science (e.g., [Mariani et al., 2023](#); [Wamba et al., 2021](#)), resulting in a limited understanding of how to implement the process effectively. We addressed this gap by integrating concepts from data-driven decision-making literature with growth hacking based on the scientific method and management principles. By doing so, we identified seven sequential steps of data-driven decision-making, ranging from scenario analysis to result review. We aligned them with the four phases of growth hacking (see also [Troisi et al., 2020](#)). Moreover, based on insights from growth hacking practices, addressing the prerequisites for executing such processes, exploring the benefits of initiatives such as establishing a dedicated growth hacking team, allocating specific budgets for growth hacking activities, and mastering growth hacking engineering, we offer a comprehensive understanding of how companies can excel in leveraging on growth hacking to make data-driven decisions.

Third, via the intersection of practice and academic literature on growth hacking and data-driven decision making, we derived theoretical connections not only with scientific method and management principles, as primarily discussed in this article, but also with Agile ([Beck et al., 2011](#)) and Lean Startup ([Ries, 2011](#)), as well as with learning organisation ([Edmondson & Moingeon, 1998](#)), management by objectives ([Odiorne, 1965](#)), Resource Based View ([Wernerfelt, 1984](#)), and other theoretical standpoints. However, building upon [Taylor \(1911\)](#) and expanding the insights of growth hacking ([Bargoni et al., 2024](#)), we assert that the full potential of growth hacking can be further explored considering the theoretical framework of dynamic capabilities ([Teece et al., 1997](#); [Cristofaro and Lovallo, 2022](#)). Indeed, through its cyclical process involving analysis, ideation, prioritisation, and testing, growth hacking enables organisations to effectively identify and capitalise on opportunities while also adapting and shaping their operations in response to changing environments ([Bargoni et al., 2024](#); [Florez-Jimenez et al., 2024](#)), which form the roots of the dynamic capabilities view. By leveraging growth hacking within the framework of dynamic capabilities, organisations can enhance their strategic agility and resilience, ensuring they remain adaptive and proactive in the face of rapid technological advancements and shifting consumer preferences. This synergy amplifies the effectiveness of growth hacking initiatives and reinforces the foundational principles of dynamic capabilities, ultimately leading to sustained growth and innovation ([Bargoni et al., 2024](#);

[Teece et al., 1997](#)).

7.2. Implications for practice

This article offers three key insights for practitioners aiming to integrate growth hacking into their data-driven decision-making processes, guiding them to successful implementation and highlighting pitfalls to avoid.

Our *first* contribution to practise regards growth hacking as a scientific approach to enable data-driven decision-making processes practically. Stemming from the scientific method and management principles ([Gauch, 2003](#); [Taylor, 1911](#)), which encompass hypothesis formulation and rigorous experimentation, growth hacking allows organisations to navigate uncertainty by sensing and seizing opportunities, transforming their operations for adaptation or environmental shaping and improving aspects like business resilience and sustainability ([Florez-Jimenez et al., 2024](#)). By embracing a continuous iteration and real-time monitoring culture, organisations can adapt rapidly to market dynamics. Moreover, the collaborative nature of growth hacking encourages cross-functional synergy, enabling diverse teams to harness their collective expertise to pursue shared business and managerial objectives ([Troisi et al., 2020](#)). The integration of growth hacking principles with data-driven decision making empowers organisations to optimise performance. Also, it fosters a culture of innovation and adaptability, positioning them for sustained success in modern fast-paced business environments by optimising resources and processes ([Bargoni, Santoro, Petruzzelli, & Ferraris, 2024](#); [Bargoni, Smrčka, Santoro, & Ferraris, 2024](#)); thus, fulfilling the scope of scientific management.

Second, as [Fig. 1](#) and extensive discussion show, growth hacking cannot be successfully implemented without three prerequisites: 'data-driven culture,' 'data-driven mission alignment,' and 'data-driven infrastructure.' Indeed, in the absence of a data-driven culture, experimentation, and informed decisions will be hindered; without mission alignment, focus on strategic objectives will be lost; and lacking proper infrastructure, effective data collection, analysis, and utilisation for decision making will not be possible ([GrowthHackers, 2023](#); [Sheema & Ramesh, 2021](#); [Troisi et al., 2020](#)). Consequently, we give practitioners a precise practical outlook of what elements are fundamental to leverage growth hacking to put the basis for their data-driven decision-making processes. Furthermore, we propose a bundle of elements to facilitate its adoption, especially in mature firms. These include formally establishing a dedicated team of 'growth hackers', budgeting for growth hacking initiatives with the necessary resources to collect, analyse, and interpret data to generate better decisions, and mastering growth hacking engineering by integrating artificial intelligence algorithms and analytics platforms to facilitate the extraction of actionable insights from extensive datasets, tailoring decisions with accuracy ([Ellis & Brown, 2017](#); [*Santoro, Jabeen, Klietnik, & Bresciani, 2024](#)).

To foster growth hacking, which forms our *third* contribution that lies in the provided prerequisites, entrepreneurs and executives of medium to large companies – often constrained by entrenched cultures and routines – could benefit from engaging growth hacker experts through tailored training programmes, as envisioned by Taylor in 1911 who pointed out that “the change in the mental attitude and in the habits [...] can be brought about only slowly and through a long series of object-lessons, which finally demonstrates to each man the great advantage which he will gain by heartily cooperating in his every-day work with the [growth hackers] in the management” (p. 101). Drawing from previous studies (e.g., [Camuffo et al., 2020](#); [Camuffo et al., 2024](#); [Felin et al., 2023](#)), these programmes should include foundational workshops covering key aspects of growth hacking like problem framing, hypothesis formulation, and rigorous experimental design. Additionally,

sessions should focus on analysing past, present, and future business scenarios and facilitating feedback exchange (247x, 2023), aiming to refine their use of growth hacking for data-driven decision making (Barboni & Simonetti, 2017). This can be unquestionably easier for young firms as their culture is still malleable, but it may pose challenges for more mature firms that may be more rigid and potentially lack a predisposition towards this approach (Ahlstrom et al., 2020; Bargoni et al., 2024; Proksch et al., 2024). To achieve efficient growth hacking, the leadership should inspire followers to take on new and challenging tasks, emphasising the importance of learning from failure (Gutiérrez-Broncano et al., 2024ab; Jiménez-Estévez et al., 2023; Murari & Gupta, 2012). Therefore, securing proactive executive support for growth hacking initiatives is critical (Ellis & Brown, 2017). Consequently, executives who want to adopt growth hacking in their companies should begin with internal pilot programmes to demonstrate the potential impact of growth hacking initiatives before formally establishing a dedicated team and scaling them across the organisation.

7.3. Limitations and future research

From the perspective of this article and the nascent stage of the growth hacking literature, some pertinent limitations of this research should be addressed by future research. We identify three principal lines of research arising from the intersection of academic and practice literature on growth hacking and data-driven decision making.

First, although we advocate growth hacking as an approach that uses data to inform decisions, it is essential to acknowledge that it is not a ‘silver bullet’ solution. Recalling Taylor “no single expedient within the control of any man or any set of men can insure continuous prosperity to either workmen or employers” (1911; p. 29). Indeed, despite the wealth of data and analytical tools available, human biases, constraints, and emotions persist, impacting the decision-making process (Cristofaro, 2019; 2020; Simon, 1947). For instance, confirmation bias can lead growth hackers to interpret data that confirms their preexisting beliefs. At the same time, overconfidence may cause them to overestimate the efficacy of specific tactics, while disregarding others (Kahneman et al., 2011). Thus, it is crucial to understand that growth hacking does not offer a panacea for flawless decision making; instead, it promotes decisions informed by data but still subject to human limits. Moreover, research on ‘ecological rationality’ posits that intuitive decision making often aligns with efficiency and adaptation to real-world contexts, resulting in superior outcomes (Gigerenzer, 2023; Gigerenzer & Gaissmaier, 2011; Goldstein & Gigerenzer, 2002; Luan et al., 2019). This notion is expressed in entrepreneurial literature, which underscores the effectiveness of intuitive decision making in navigating complex business landscapes and generating improved performances (Cristofaro et al., 2021; Cristofaro & Giannetti, 2021). Thus, it would be compelling to understand which approach (i.e., ‘scientific’ vs. ‘intuitive’) brings better results and under which individual, organisational, and contextual conditions (Guercini, 2023). Empirical studies could be conducted to systematically compare the outcomes of decisions implemented under scientific (data-driven growth hacking-backed) and intuitive paradigms. Yet, researchers could explore the moderating effects of individual characteristics (e.g., values, experiences, personalities, and cognitive frameworks) regarding their preference for a scientific or intuitive approach to growth hacking that could provide valuable insights into personalised decision-making processes.

Second, academic research on growth hacking is purely conceptual or predominantly adopts case studies to explore specific hacks in high-tech firms, overlooking a comprehensive view and examination of growth hacking as a scientific method viable for all kinds of business organisation regardless of their size and industry (e.g., Coll-Rubio & Micó, 2019; Jaring et al., 2015; Coll-Rubio and Micó, 2020), as we framed it by

adopting Taylorism as a philosophical lens. Thus, we call for future research that employs in-depth case studies and panel data to explore how growth hacking is adapted and implemented within various sectors, shedding light on practical approaches tailored to specific contextual nuances. Additionally, given the interplay between growth hacking and data-driven decision making, it is important to examine further the role of artificial intelligence and machine learning in improving growth hacking’s ability to produce valuable insights on how to sense and seize opportunities and point out their limitations and associated challenges (Santoro, Jabeen, Klietk, & Bresciani, 2024).

Third, despite the proposed recognition of growth hacking as an approach for making data-informed decisions, there is little empirical knowledge concerning the factors contributing to its failure or how it leads to different outputs, particularly within the context of varying business lifecycles. For instance, nascent firms often grapple with constrained budgets, limited human resources, and an inadequate data infrastructure, which can be significant barriers to adopting growth hacking and data-driven decision-making methods. Conversely, mature firms may resist change stemming from entrenched processes, impeding the integration of growth hacking strategies (Brown & Ellis, 2017). Additionally, during periods of decline, uncertainties regarding future trajectories and shareholder pressures may divert resources away from growth hacking initiatives, further complicating adoption efforts. Hence, future scholars should develop a more comprehensive understanding of growth hacking as an approach for data-driven decision making. They can explore growth teams’ challenges across firms’ lifecycles and discover potential solutions. Also in this case, qualitative methodologies such as in-depth interviews and case studies can uncover nuanced insights into the underlying reasons behind growth hacking failures, considering factors such as organisational culture, leadership dynamics, and external market forces (e.g., Troisi et al., 2020).

8. Conclusion

Our exploration has exposed the gap between theory and practice, underscoring the need for a comprehensive and in-depth understanding of how growth hacking should be implemented for data-driven decision making. Stemming from the connections between growth hacking and data-driven literature, we bridge the theory–practice gap and pave the way for businesses to harness the full potential of growth hacking. Growth hacking, rooted in rapid experimentation and data analysis thinking, is proposed as a scientific approach that follows Taylor’s (1911) philosophy, enabling organisations to adapt dynamically to this challenging environment. It relies on potentially superior decisions employing data and intuition, aiming to improve every aspect of businesses, regardless of size and industry. Growth hacking emerges as crucial for navigating the world’s complex business landscape. Organisations must judiciously identify and capitalise on opportunities and adjust their operations to adapt and influence. Only by doing so will they stave off market competition, thus becoming a resilient entity.

CRediT authorship contribution statement

Matteo Cristofaro: Writing – review & editing, Writing – original draft, Supervision, Methodology, Conceptualization. **Pier Luigi Giardinò:** Writing – review & editing, Writing – original draft, Visualization, Investigation, Formal analysis. **Luca Barboni:** Writing – original draft.

Declaration of competing interest

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

Appendix 1. Idea generation card

IDEA GENERATION CARD

Idea name: *Gamification of ProjectFlow*

Date: *23 March 2024*

Proposer: *Jennifer McKinsey*

Growth lever: *Retention*

Description: *Only 20% of our customers actively utilise ProjectFlow for more than 5 projects, with the majority of those who do not meet this threshold being Millennials.*

Hypotheses: *Introducing gamification can tap into Millennials' preference for interactive experiences, rewards, achievement, social interaction, and skill development, ultimately boosting their engagement with ProjectFlow's.*

Experiment duration: *4 months.*

Metric(s): *Number of active users; Number of users completing more than 5 projects.*

Expected result(s): *A growing trend of projects initiated through ProjectFlow, particularly among Millennial users.*

Appendix 2. Impact-Confidence-Ease scorecard

I.C.E. SCORECARD

Idea name: *Gamification of ProjectFlow*

I. × C. × E. score: *392*

IMPACT

"If this idea works, how big is the potential impact on the metric?"

Based on:

- Availability of customers through the channel
- Scalability
- Potential improvement

12345678910

WorstBest

CONFIDENCE

"How certain can we be that this specific idea will work?"

Based on:

- Case studies
- Historical data
- Competition
- Channel mastery
- Budget

12345678910

WorstBest

EASE

"How difficult is it to implement in terms of costs, time, complexity?"

Based on:

- Human resources
- Marketing costs
- Tech costs
- Timing
- Skills

12345678910

WorstBest

Appendix 3. Test card

TEST CARD

Idea name: Gamification of ProjectFlow	Date: 01 July 2024
Test number: 013	
Owner: Michael Perry	
Test duration: 3 weeks	
Hypotheses tested: <i>Introducing gamification can enhance the user experience for all, with a particular appeal to Millennials due to their preference for interactive experiences, rewards, achievements, social interaction, and skill development.</i>	
Test design: <i>We tested the implementation of two new badges: “Master Planner” for meeting deadlines on six projects and “Collaboration Champion” for actively engaging with respective team members.</i>	
Implemented metrics: <i>Number of active users; Number of users completing more than 5 projects.</i>	
Results: <i>We evaluated the hypothesis by conducting tests on a random sample of 2,700 users. Through monitoring performance indicators, we discovered a 31% increase in the overall retention rate, with Millennials experiencing a notable 74% boost.</i>	

Appendix 4. Experiment report

EXPERIMENT REPORT

Idea name: Gamification of ProjectFlow	Idea I.C.E. score: 392
Owner: Michael Perry	Growth lever: Retention
Sample size: 2,700 randomly selected users	Experiment duration: 4 months
Hypotheses: <i>Introducing gamification can enhance the user experience for all, with a particular appeal to Millennials due to their preference for interactive experiences, rewards, achievements, social interaction, and skill development.</i>	
Metrics: <i>Number of active users; Number of users completing more than 5 projects.</i>	
Expected results: <i>Introducing gamification into user experiences holds promising potential to elevate engagement, retention rates, and overall user satisfaction. We forecast a minimum 20% increase in retention rates, with Millennials likely to experience an even more substantial boost, potentially over 50%.</i>	Actual results: <i>Over the experimentation period, we found that accounts engaging in more than five projects increased by 31% overall. Millennials demonstrated a remarkable 74% increase in retention rates, indicating a high level of receptivity towards gamified experiences.</i>

Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jbusres.2024.115030>.

Data availability

No data was used for the research described in the article.

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