Branding in Digital Entrepreneurship: Evaluating Branding Criteria in IT Entrepreneurship

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ABSTRACT

In today's digital economy, creating a strong brand is critically important for IT sector entrepreneurs in terms of sustainable growth and competitive advantage. However, many technology ventures founded primarily on technical expertise encounter various challenges in implementing branding processes. This study aims to analyze the extent to which digital enterprises operating in the IT sector are able to implement branding strategies, and to identify the factors that facilitate or hinder this process. Using the Analytic Hierarchy Process (AHP) method, the factors affecting the applicability of branding were evaluated through a multi-criteria approach. Based on expert opinions, the criteria—management vision, financial capacity, human resource competence, strategic alignment, marketing ability, and technical expertise—were weighted and prioritized. The findings indicate that, in addition to entrepreneurs' level of awareness regarding branding, tangible obstacles in the implementation process (such as budget constraints and lack of expertise) are also decisive. The study contributes both to academic literature and provides strategic guidance for technology ventures.

Keywords: Information Technology Sector, Digitalization, Branding, Sustainability, AHP, Technological Innovation, Evaluating Branding Criteria in IT Entrepreneurship

INTRODUCTION

Digital entrepreneurship is the procedure of developing business models, offering products/services, and creating value by utilizing the internet and digital technologies. Examples include e-commerce websites, mobile applications, SaaS (software as a service) ventures, and social media–based commerce models. The concept of digital entrepreneurship is defined as the restructuring of existing business models and processes through digitalization. The increasing impact of digital transformation has made digital entrepreneurship a critical element not only in enhancing economic prosperity but also in addressing unemployment and promoting innovative approaches (Turuk, 2018). In particular, the intense competitive environment experienced during the Covid-19 pandemic made value of digital entrepreneurship more visible and increased interest in this field. Artificial intelligence, big data analytics, blockchain are regarded as the beginning of a new era. The growing adoption of these technologies across different sectors has led to significant changes in social and economic life. These developments, driven by digital transformation, are reshaping the nature and functioning of entrepreneurship while creating new and diverse opportunities for entrepreneurs (Gigauri et al., 2023). Effectively leveraging these opportunities makes adopting a digital entrepreneurship approach a necessity. Unlike traditional entrepreneurship, digital entrepreneurship is based on the innovative possibilities offered by technology. Although there are numerous examples worldwide, it is still in a developmental stage in academic literature. Nevertheless, the shift of business processes to digital environments, accelerated by the Covid-19 pandemic, has made digital entrepreneurship practices more widespread and more visible (Özay & Kök, 2022).

Digital entrepreneurship largely refers to entrepreneurial activities carried out through digital platforms and technologies (Paul et al., 2023). In this context, digital entrepreneurship require creating new businesses or transforming currents by leveraging digital resources such as the internet, social media, mobile apps, and e-commerce platforms. Its scope is extensive, covering a variety of sectors including online retail, digital marketing, financial services, and the gig economy (Paul et al., 2023).

Digital entrepreneurship is particularly grounded in various theoretical approaches, such as technology adoption theories. These theories emphasize the significance of user attitudes in the acceptance of technology, which is an integral part of the entrepreneurial process (Sitaridis & Kitsios, 2024). The concept of innovation also stands out in digital entrepreneurship, as digital entrepreneurs are often regarded as innovators who transform traditional industries through new digital products, services, or business models (Sitaridis & Kitsios, 2024). Therefore, digital entrepreneurship represents a important advancement in the field of entrepreneurship, shaped by technological innovations and evolving consumer behaviors. While technology offers unlimited opportunities for development, it also presents various difficulties that require entrepreneurs to engage in continuous research and adaptation (Alzamel, 2024).

Unlike traditional entrepreneurship, digital entrepreneurship builds business models on digital tools such as the internet, mobile applications, social media, artificial intelligence, big data, and cloud computing. It is the entrepreneur's process of creating digital value through the use of various digital techniques to effectively acquire, process, distribute, and consume digital information (Sahut et al., 2021). Whether entrepreneurship is digital or traditional, it is always explained as a process. The entrepreneurial process generally involves multiple analytical elements, including the emergence of the business idea, identification of business opportunities, preliminary evaluation, feasibility study, securing and using financial resources, and building an organizational structure. Overall, these stages often overlap and complement each other (Carrier et al., 2004).

Various European funds and programs help digital entrepreneurs bring their innovative ideas to life and support their growth. These initiatives promote economic growth and reduce unemployment in line with the EU's sustainability policies. Moreover, the digitalization process, integrated with the EU's sustainability policies, should be addressed with consideration of environmental impacts. Digitalization and digital entrepreneurship play a significant role in achieving sustainability goals, such as reducing carbon footprints and developing green technologies (Parliament, 2023).

Conducting business in a digital environment and leveraging digital innovations provide organizations with access to new resources, and, most importantly, to high-quality, up-to-date information, services, and online communities, which facilitate their expansion in the markets (Jovanović et al., 2024).The advancement of digital technologies has transformed nearly every industry and sector. By 2023, with approximately 5.4 billion internet users worldwide, online transactions have become a significant aspect of consumer demand (A., 2024).

Driven by the concepts of digital entrepreneurship and innovation, the past two decades have seen the emergence of numerous companies within the digital economy. These digital enterprises utilize technology to generate new value in business models, customer experiences, and internal capabilities that support their core operations. The term includes both native digital brands and traditional organizations that are transforming their businesses through digital technologies. The rise of the digital economy represents one of the most significant phases of economic development since the Industrial Revolution, with digital entrepreneurship acknowledged as its key driver (Zaheer, 2019) (Kraus, 2019). The digital economy is largely driven by entrepreneurial initiatives generating innovations based on digital technologies. Digital innovations have advanced the growth of digital brands and adopted business models companies. As brands increasingly rely on continuous evolution and innovation, digital entrepreneurship emerges as an essential driver of brand management, facilitating transformative business practices that resonate at both global and local levels (Jovanović et al., 2024).

The growth of the digital economy has considerably advanced business development, as the adoption of innovative technologies has opened new opportunities for companies to create added value and expand their market presence. According to the OECD, the digital economy includes all economic activities that rely on digital inputs or are enhanced through their use, encompassing digital technologies, infrastructure, services, and data (OECD, 2024).

The essence of digital branding can be understood in two distinct contexts. The first relates to physical products, where the advancement of digital technologies enables the integration of traditional branding with the digital environment. In this sense, building a digital brand involves adding new benefits and values to products. The second context refers to virtual brands, such as Amazon, eBay, or Facebook. Unlike traditional brands, online brands are characterized by dynamism, information richness, and technological innovation (Grzesiak, 2018).

The rise of digital brands was shaped by the concept of Web 2.0, which introduced interactivity and paved the way for social media. Social networking became the foundation of the Web 2.0 philosophy and the digital space where global digital brands emerged (Tuten, 2023). As the global digital population grew, so did the popularity and influence of social media. Online platforms offering access to unlimited information became essential to modern life and transformed global communication. Major social networks are typically available in multiple languages, allowing users to connect across borders. Between 2010 and 2019, social media companies experienced rapid growth, with many going public through IPOs or being acquired by larger corporations—generating substantial wealth for their founders. Facebook is one of the most frequently cited examples in academic literature (Statista, 2024).

Digital brand positioning strategies significantly influence consumer decision-making. For virtual organizations, it's crucial to create a positive image in the minds of their audience and remain memorable. By sharing targeted messages through social media, these organizations can differentiate their products or services and enhance brand recall. This approach offers valuable opportunities for internet entrepreneurs and virtual organizations in the digital Marketplace (Bahcecik et al., 2019).

The dynamics of the Information Technology (IT) sector encompass the forces and trends that drive its continuous evolution, reflecting the interplay between technology, markets, people, and regulations. Technological innovation is a key driver, with rapid advancements in AI, machine learning, cloud computing, IoT, blockchain, cybersecurity, and quantum computing, coupled with very short product life cycles, making innovation both essential and a source of competitive advantage. The sector is increasingly data-centric, with data regarded as the "new oil" of the digital economy, where big data analytics, data security, and privacy protection shape business strategies and public policies. Operating in a borderless global market, the IT industry faces intense competition among global tech giants, regional firms, and innovative startups, with practices such as outsourcing, offshoring, and nearshoring widely adopted. Beyond technical capabilities, the effectiveness of a brand increasingly depends on the quality of the customer and user experience. Companies that embed customer-centric design principles into their offerings foster greater trust, satisfaction, and long-term loyalty. The regulatory and policy environment, including GDPR, data protection laws, cybersecurity regulations, intellectual property rights, and government incentives, significantly influences operations and innovation. Human capital is critical, requiring highly skilled professionals such as software engineers, data scientists, cybersecurity experts, and project managers, while remote work, the gig economy, and global talent mobility are reshaping the workforce. Economic and business models have evolved toward subscription services (SaaS, PaaS, IaaS), platform-based ecosystems, and open-source collaboration, supported by venture capital and startup ecosystems that drive disruption. Finally, sustainability and Green IT are increasingly important, with growing demand for energy-efficient data centers, eco-friendly hardware, and sustainable digital infrastructures, as environmental, social, and governance (ESG) considerations become integral to IT strategies.

IT sector is fast-moving, globally competitive and influenced heavily by technology, people, regulation. According to organizational strategy theory, agility is essential for safeguarding investments and sustaining business operations in volatile and uncertain conditions (Bondzi-Simpson, 2021). Ongoing changes in international competition, technological advancement, and customer preferences create the need for firms to get dynamic capabilities that allow them to anticipate and react to change effectively (Harsch & Festing, 2020). Lead IT firms have engaged in these changings by establishing comprehensive collaborative frameworks combining the expertise and resources of partner organizations, thereby stronger IT networks and capabilities develop to handle environmental changes (Kushwaha et al., 2021).

The application and impact of IT can be assessed by its infrastructural framework and its contributions to organizational value (Han et al., 2017). Key infrastructure challenges are most frequently associated with connectivity, hardware performance, and the compatibility of systems (Zhang et al., 2009). COVID-19 showed the important role of IT in supporting infrastructure and value creation in remote conditions. This situation has reinforced the necessity of organizational agility, encouraging the evolution of information systems and frameworks allowing operational flexibility. At the same time, growing interest in firmware-upgradeable products has consolidated the need for software tailored to customer needs (Kushwaha & Kar, 2020).

Research highlights challenges in maintaining sustainable brand management across sectoral processes. In this

context, it becomes evident that businesses require structured frameworks to guide their prioritization efforts. The core issue lies in identifying which criteria should be avoided when aiming for economic sustainability and determining the strategic actions necessary to address this.

This research analyzes the application of branding strategies and identifies the factors which facilitate or constrict success by focusing on the IT sector, The Analytic Hierarchy Process (AHP) was applied to evaluate and rank essential criteria, including management vision, financial resources, human capital, strategic alignment, marketing ability, and technical expertise.

Branding has become a critical strategic tool for IT entrepreneurs seeking to differentiate in highly dynamic and competitive markets. Unlike traditional industries, IT entrepreneurship requires integrating technological innovation, customer-centric strategies, and strong organizational vision to establish sustainable brand equity. This study proposes and evaluates a time-bound action plan for branding in IT entrepreneurship, grounded in expert-assigned priority weights. The plan emphasizes leadership vision, organizational culture, innovation, and customer satisfaction as the foundation of branding success

THEORETICAL FRAMEWORK

Until the 16th century, it was sufficient to know who produced a product or, from the producers' perspective, to use symbols proving that the product belonged to them. However, in the 17th and 18th centuries, due to the increase in the number of producers and the proliferation of substitute products, businesses moved to a stage of differentiation, emphasizing distinctive features that set their products apart from others (Atılgan, 2011). After this stage, the concept of a brand, derived from the Old Norse word *"brandr"*, meaning "to burn," began to gain greater importance. Initially, brands were used by farmers to mark their livestock, and later, with the development of commercial buyers, they served as a means to distinguish the animals of one farm from those of others (Clifton & Sımmons, 2003). The word "brand" entered our language from the Italian term *"marca"* and, similar to the definition by the American Marketing Association, the Turkish Language Association defines it as "a specific name or symbol used to promote a commercial good or any object and to distinguish it from similar items." (Özbaysal & Onay, 2018). The adoption of product branding and the use of brand names is believed to have emerged toward the end of the 19th century. While the effects of the Industrial Revolution played a role, the rise of competition and the resulting importance of marketing techniques likely contributed, as branding fulfills its greatest advantages: creating differentiation and enabling promotion (Alkara & Arıcı, 2019). Additionally, while institutionalization aims for a business to continue existing independently of individuals, branding seeks to make a product and/or service the preferred choice for consumers in every aspect. Nevertheless, both share a common point: they support the strong and sustained existence of the business (Atılgan, 2011).

As information and communication technologies advanced and computer usage became a crucial necessity, commerce inevitably shifted into the electronic realm. The movement of buying and selling goods and services online gave rise to the concept of e-commerce. With the rapid growth of internet-based social networks, e-commerce has gained prominence, driving increased use of digital marketing. This allows companies to focus on creating long-term brand value through digital marketing tools rather than relying solely on traditional methods. Additionally, analyzing the frequency and habits of social media use, along with consumer interests, has become a strategic priority, highlighting the significance of understanding how businesses employ e-commerce and digital marketing (Adalı & Sığrı, 2022).

Companies that have successfully embraced digitalization and digital transformation, and are able to deliver products to customers or consumers through digital technologies, gain a competitive advantage. This is because digitalization and digital transformation, which represent an internal change within the firm, enable a digital value exchange with the customer or consumer. Brand and brand value, which represent the consumer's perception and the added value to the product, also play a role in this value exchange. For these reasons, in the digital age, the concept of brand value needs to be reconsidered. Consumer behaviors are constantly changing. Generation Z, born into the digital era and demanding personalized content and customer experiences, along with the preceding Generation Y, are the largest consumer groups interacting with the digital world. The growth of brand value depends on the adoption of brands by Generations Y and Z (Kotler & Setiawan, 2020). Today,

the reasons e-commerce is increasingly preferred include companies being able to reach consumers more easily and quickly, minimizing costs, providing simple ways to enhance brand loyalty, and, consequently, offering businesses simpler arguments when building brand value. Other factors include ease and low cost of distribution, more comfortable interaction with consumers, instant feedback, attractiveness, exposure to the global market, 24-hour service, and immediate sales (İyiler, 2009). With digitalization, especially online companies measure brand value through digital marketing, which helps their consumers recognize the brand, become aware of it, prefer a specific brand over competitors, and thereby establish brand loyalty (Rios & Riquelme, 2008). In addition, companies' brand strategies have also shifted toward digital. A company's brand strategy is a plan that identifies at least one or several digital marketing tools and outlines how to support them through content and usage methods (Erkollar & Oberer, 2017). Digital marketing can be defined as the activities carried out by businesses—primarily using social media platforms and other digital channels—to achieve their sales goals, conduct advertising and promotional activities, manage brand image and brand management, and at the same time, engage in effective communication with their customers (Yuvaraj & Indumathi, 2018).

Analytic Hierarchy Process (AHP) Method

The Analytic Hierarchy Process (AHP), developed by Thomas L. Saaty in the 1970s, provides a methodical framework for decision-making by decomposing problems into hierarchical levels. Decision-makers can assign relative importance to criteria and alternatives, producing reliable and quantifiable priority scales by using pairwise comparisons, this technique has gained widespread application among organizations and governments for structured, expert-driven decision support (Saaty, 2008). AHP has strong scalability and adaptability for operating several levels of criteria. Since its development by Saaty in 1980, it has been widely used in a variety of industries, ranging from healthcare and education to finance, engineering, sales, project management, and telecommunications. (Abu-Sarhan, 2011). The central component of AHP is the pairwise evaluation of alternatives. Expert judgment is vital, yet the potential for bias in these evaluations presents an native limitation. (Velasquez & Hester, 2013). Another challenge with AHP is the potential for inconsistency in experts' evaluations when conducting pairwise comparison (Triantaphyllou & Mann, 1995). The potential for inconsistency is radically reduced by keeping the Consistency Ratio (CR) below 10%. AHP's popularity as a multi-criteria decision-making (MCDM) tool derive from its ease of use because it allows pairwise comparisons instead of requiring the simultaneous evaluation of several options. (C. et al., 2025).

In the 1960s, Thomas L. Saaty worked at the U.S. Arms Control and Disarmament Agency (ACDA), where he advised negotiators involved in nuclear disarmament discussions with the Soviet Union. He observed that participants often overlooked important factors, largely because human decision-making tends to rely more on intuition and emotions than on logic. Group dynamics can lead individuals to be influenced by the opinions of others, increasing the likelihood of social persuasion affecting their judgments.

The first step of AHP requires a clear formulation of the decision problem which includes the objective, relevant criteria and alternatives. For example, when deciding between two refrigerator models based on price, customer rating, and color, the hierarchy places the goal at the top, criteria in the middle, and the options at the lowest level.

After building the hierarchy, priorities have to be defined by judgments and pairwise comparisons. Pairwise comparison means evaluating two criteria against each other to decide which is more important and by how much. The AHP uses a scale from 1 to 9, where 1 indicates equal importance and 9 indicates extreme importance of one element over another. These comparisons are entered into a matrix, where the same criteria compared with themselves are given the value 1. For instance, if the woman decides that rating is moderately more important than price, she assigns a 3; if she believes color is far more important than price, she assigns a 7. Reciprocal values are then automatically derived—for example, if color is 7 times more important than price, then price is 1/7 as important as color.

The following step is to normalize the comparison matrix. This is done by summing the values in each column, then dividing each entry in the column by the column sum. For instance, if the sum of the first column is 1.476, then the value 1.000 in Row 1 is divided by 1.476 to get 0.677. This process is repeated for every column.

Once normalization is complete, row averages are calculated to determine the priority values of each criterion. For example, if the average of the normalized values in the price row is 0.643, then price holds a priority weight of 0.643 in the decision process. The same calculation is performed for rating and color.

The analysis reveals that price is the most influential factor in choosing a refrigerator, followed by customer ratings and then color. However, a deeper evaluation is required to compare the two models—Model X and Model Y—against each criterion. Once the priority values for both the criteria and the alternatives are calculated, they are combined to determine the overall ranking. This integrated assessment enables a rational decision about which refrigerator is the preferable choice. To ensure the robustness of the outcome, additional checks such as consistency and sensitivity analysis can be conducted (Rohland, 2025).

METHODOLOGY

Research model: AHP approach

In this study, the Analytic Hierarchy Process (AHP) was employed as the research model. AHP is a multi-criteria decision-making technique that facilitates the structured resolution of complex problems. It organizes the research problem hierarchically, placing the goal at the top level, criteria in the middle, and alternatives at the bottom. Pairwise comparisons are conducted between criteria and alternatives to assess their relative importance, typically using a scale from 1 to 9. Following this, normalization and weight calculations are performed to determine the numerical priority values of each criterion and alternative. The AHP method also ensures result reliability by evaluating the logical consistency of decisions through a consistency ratio check. Consequently, AHP is particularly well-suited for multi-criteria decision-making in the IT sector, enabling the prioritization of branding criteria and a systematic analysis of decision-making processes.

Identification of criteria and sub-criteria

In the process of identifying criteria for the applicability of branding in the information technology sector, the existing academic literature on the topic was first thoroughly reviewed. During this review, key factors influencing branding in the IT sector—such as management vision, human resources and corporate culture, technological competence and innovation capacity, customer experience and satisfaction, adequacy of financial resources, marketing-oriented brand strategy management, use of digital platforms, strong and consistent brand identity, sectoral collaborations and ecosystem participation, and reputation—were highlighted in various studies. Based on these findings, the criteria most frequently emphasized in the literature and particularly relevant to the sector were selected and systematically classified for use in the study.

Having a brand-oriented vision within management plays a critical role in the branding process of IT companies. Alignment of leadership with the company's vision and values facilitates employees' adoption of brand objectives and the implementation of innovative brand strategies. A brand-focused vision serves as a fundamental criterion for making long-term decisions and ensuring brand differentiation (Kotler & Keller, Analysis of Factors Affecting the Stickiness of Freight Forwarders Based on Customer Experience, 2016). Branding processes in the information technology sector require investments in marketing, advertising, and digital platforms. Financial capacity is a decisive factor for the sustainability and scalability of branding efforts (Aaker D. , 2014). Without sufficient financial resources, brand awareness cannot be increased, and brand value cannot be sustained. The branding process is not limited to the product or service; employees' brand awareness and competence are also central to the process. Employees serve as the most critical touchpoints connecting the brand with customers. Academic studies emphasize the contribution of human capital to brand value (Barney J. , 1991).

Corporate culture is seen as a structure that supports the internalization and consistency of the brand. Cultural dimensions are directly related to innovation and customer orientation, and in IT companies, it is important that a technology-focused culture aligns with the brand values (Cameron & Quinn, 2011). A brand strategy should be aligned with the company's overall objectives and strategic plans. The success of branding is achievable through planning that is integrated with strategic goals. Strategic alignment facilitates the brand's market positioning and helps secure a competitive advantage (Kapferer J.-N. , 2017). In the IT sector, branding is

directly related to visibility on digital platforms and customer experience. Technological competence, product/service innovation, and effective use of digital marketing channels provide the sustainability of the brand (Chaffey & Ellis-Chadwick, 2019). Branding is evaluated based on customers' experiences with the brand. Positive customer experiences enhance brand loyalty and repeat purchase behavior, directly demonstrating the impact of customer experience on brand value (Berry, 2000). The rapid evolution of products and services in the IT sector makes innovation critical in branding. R&D and innovation capacity enable the brand to maintain a competitive advantage and differentiate itself within the industry (Teece, 2010). Brand reputation is measured by a company's credibility and perception in the market. A strong brand reputation builds customer trust and loyalty. Effectively managing reputation, with attention to social responsibility and ethical standards, is vital for achieving sustainable brand value (Fombrun & Riel, 2008).

A set of ten criteria relevant to branding in the information technology (IT) sector was established through an in-depth analysis of scholarly literature and industry reports. Initially, a thorough examination of studies focusing on branding, digital entrepreneurship, and the IT sector was conducted to uncover the key factors that influence successful brand development. The review highlighted several key factors that consistently contribute to branding success in IT companies. These include: management vision, human resources and organizational culture, technological competence and innovation capacity, customer experience and satisfaction, adequacy of financial resources, marketing-driven brand strategy, effective use of digital platforms, a strong and coherent brand identity, time management, sectoral collaboration and ecosystem engagement, and brand reputation. These elements were frequently emphasized across academic literature and industry reports as essential components for the effective implementation of branding strategies in the information technology sector.

According to the findings, the most emphasized and sector-specific branding criteria were carefully selected and systematically categorized to ensure they reflect the diverse dimensions of branding within the IT sector. This structured classification process establishes a solid foundation for further analysis using multi-criteria decision-making techniques, particularly the Analytic Hierarchy Process (AHP). AHP enables the quantitative evaluation of each criterion's relative importance and applicability, supporting a more objective and data-driven approach to strategic branding decisions in the IT industry.

10 Criteria for the Applicability of Branding in the Information Technology Sector		
Nu.	**Criteria**	**Explanation**
1	**Management Vision**	Whether the founding team and managers possess a brand-oriented mindset.
2	**Human Resources and Corporate Culture**	A competent and creative workforce ensures the fulfillment of the brand promise.
3	**Technological Competence and Innovation Capacity**	Companies' R&D investments, new product development capabilities, and innovative structures are among the fundamental pillars of branding.
4	**Customer Experience and Satisfaction**	User-friendly interfaces, effective support systems, and loyalty management stand out.
5	**Adequacy of Financial Resources**	The budget required for branding, as well as the adequacy of investor support or funding sources.
6	**Marketing-Oriented Brand Strategy Management**	Clear definition of strategic foundations such as mission, vision, value proposition, and target customer, along with access to branding-experienced consultants and marketing experts.
7	**Use of Digital Platforms**	Effective use of digital channels such as websites, social media, SEO, and content marketing.
8	**Strong and Consistent Brand Identity**	A brand's logo, tagline, design language, and all elements visible to the public should be considered as a whole.

9	**Time Management**	Whether the company can allocate sufficient time to branding amidst its operational workload.
10	**Sectoral Collaborations and Ecosystem Participation**	Technology centers, incubation programs, and industry collaborations bring prestige to the brand.

Table-1

Participant profile (experts, entrepreneurs, academics)

Participants in this study include 12 IT experts, 7 IT director, 8 marketing experts, 7 IT entrepreneurs, and 9 academicians in the department of marketing, business administration, computer security, and management information systems. Experts bring sector-specific, practical insights; entrepreneurs offer real-world perspectives and academicians contribute theoretical knowledge and literature. Integrating these groups provides a comprehensive blend of practical and theoretical insights, strengthening the accuracy and robustness of the AHP decision-making process.

Data collection and comparative analysis

In this study, Analytic Hierarchy Process (AHP) was used to evaluate branding criteria in IT entrepreneurship. Opinions were gathered from experts and entrepreneurs working in the fields of software development, hardware supply, and information security. Opinions were also gathered from academic staff working in the departments of marketing, business administration, computer security, and management information systems at universities. Experts, entrepreneurs, and academic staff carried out pairwise comparisons of predefined criteria through structured online/face to face surveys and interviews. To optimize potential differences of opinion, the average of the responses given by each participant to the pairwise comparison questions was taken, and the Criteria Weights and Ranking were calculated. The resulting matrices were analyzed by using normalization and weight calculations with consistency ratios applied to ensure reliability. This process produced a prioritized decision-making framework, enabling systematic comparison across participant groups.

To calculate priorities from pairwise comparisons using the analytic hierarchy process (AHP) with eigen vector method, AHP online calculator which is the part of BPMSG's free web-based AHP online system AHP-OS was used (Goepel K. D., 2018). The calculation system can be accessed from https://bpmsg.com/ahp/ahp-calc.php (Goepel K. D., 2022).

In AHP online calculator, first input the number of criteria between 2 and 20 1) and a name for each criterion. Second, make pairwise comparisons: which of the criterion in each pair is more important, and how many times more, on 1 to 9 scale. When do check consistency, you will get the resulting priorities, their ranking, and a consistency ratio CR2) (ideally < 10%). Calculation is done using the fundamental 1 to 9 AHP ratio scale. An example for data entry of pairwise comparisons is presented below.

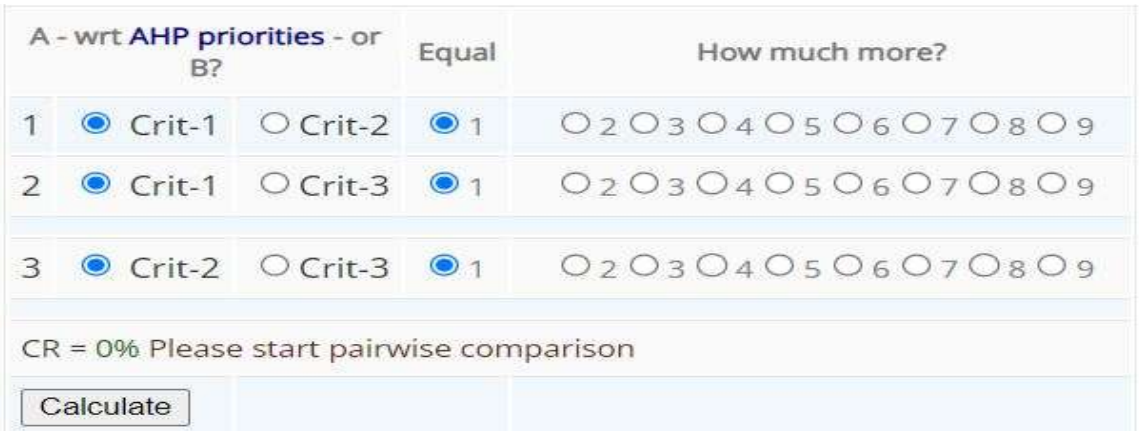

Table-2 AHP Scale: 1- Equal Importance, 3- Moderate importance, 5- Strong importance, 7- Very strong importance, 9- Extreme importance (2,4,6,8 values in-between).

FINDINGS, RESULTS AND ACTION PLAN

Criteria weights based on AHP results

Pairwise comparisons were conducted to determine the relative importance of the identified criteria by using the Analytic Hierarchy Process (AHP). These importance levels, expressed as criteria weights, quantitatively reflect the priority and influence of each criterion within the branding process. The calculations were based on the assessments of participants—including experts, entrepreneurs, and academicians—and the final priority values were obtained through normalization and averaging techniques. Additionally, the consistency ratio was checked to ensure the logical coherence and reliability of the obtained weights. Thus, the criteria could be ranked according to their priority, clearly indicating which criteria are more influential in the branding process.

Ranking of the most critical and least influential implementation factors

These are the weights obtained for the criteria based on pairwise comparisons.

AHP Results: Criteria Weights and Ranking

Criterion		Priority	Rank	(+)	(-)
1	Management Vision	20.7%	1	8.4%	8.4%
2	Human Resources and Corporate Culture	20.1%	2	11.4%	11.4%
3	Technological Competence and Innovation Capacity	14.8%	3	6.6%	6.6%
4	Customer Experience and Satisfaction	13.8%	4	5.9%	5.9%
5	Adequacy of Financial Resources	9.7%	5	4.4%	4.4%
6	Marketing-Oriented Brand Strategy Management	5.8%	6	2.0%	2.0%
7	Use of Digital Platforms	5.6%	7	2.4%	2.4%
8	Strong and Consistent Brand Identity	3.7%	8	1.3%	1.3%
9	Time Management	3.2%	9	1.2%	1.2%
10	Sectoral Collaborations and Ecosystem Participation	2.7%	10	1.2%	1.2%

Table-3 Table shows the relative importance (priority) of each criterion for branding applicability in the IT sector based on AHP analysis, along with their ranking and positive/negative deviation values.

Decision Matrix, the resulting weights are based on the principal eigenvector of the decision matrix.

	1	2	3	4	5	6	7	8	9	10
1	1	2.00	2.00	2.00	3.00	3.00	4.00	4.00	4.00	4.00
2	0.50	1	3.00	3.00	3.00	3.00	3.00	4.00	4.00	4.00
3	0.50	0.33	1	2.00	3.00	3.00	3.00	4.00	4.00	4.00
4	0.50	0.33	0.50	1	3.00	3.00	3.00	5.00	5.00	5.00
5	0.33	0.33	0.33	0.33	1	3.00	3.00	4.00	4.00	4.00
6	0.33	0.33	0.33	0.33	0.33	1	2.00	2.00	2.00	2.00

7	0.25	0.33	0.33	0.33	0.33	0.50	1	2.00	3.00	4.00
8	0.25	0.25	0.25	0.20	0.25	0.50	0.50	1	2.00	2.00
9	0.25	0.25	0.25	0.20	0.25	0.50	0.33	0.50	1	2.00
10	0.25	0.25	0.25	0.20	0.25	0.50	0.25	0.50	0.50	1

Table-4 Number of Comparisons: 45, Consistency Ratio (CR): 6.4%, Principal Eigenvalue: 10.854, Eigenvector Solution: 6 iterations, delta = 9.0E-8

This corresponds to the total number of pairwise comparisons required for 10 criteria. Formula: n(n−1)/2=10×9/2=45n(n-1)/2 = 10 \times 9 / 2 = 45n(n−1)/2=10×9/2=45.This confirms that all necessary comparisons were completed.

A CR less than 10% (0.10) is generally considered acceptable in AHP. Comparisons are logically consistent. Expert judgments are reliable, and the derived priority weights can be trusted.

The principal eigenvalue (λmax\lambda_{\text{max}}λmax) is close to the number of criteria (n = 10). Small deviations from 10 indicate minor inconsistencies, which is normal. The eigenvalue aligns well with the acceptable consistency ratio.

The eigenvector represents the priority weights of each criterion. 6 iterations and a delta of 9.0E-8 indicate that the calculation converged efficiently and the solution is highly accurate.

Pairwise comparisons are comprehensive. Judgments are consistent (CR = 6.4% < 10%). Eigenvector priorities are reliable for decision-making. The AHP model is robust and can be confidently used for ranking and prioritizing branding criteria in the IT sector.

Interpretation of results

Table-5

1. Top Priorities

Management Vision (20.7%) and Human Resources & Corporate Culture (20.1%) are the most critical criteria, jointly accounting for over 40% of the total weight. Leadership and organizational culture are fundamental to successful branding. Without a clear brand-focused vision and a capable, brand-aware workforce, other branding efforts may fail to achieve impact. The relatively high (+) and (−) deviations (8.4% and 11.4%) suggest some variability in expert opinions but still confirm their top-priority status.

2. Strong Supporting Criteria

Technological Competence & Innovation Capacity (14.8%) and Customer Experience & Satisfaction (13.8%) follow closely. In the IT sector, technological innovation and delivering high-quality customer experiences are essential for differentiating the brand and ensuring customer loyalty. These criteria reinforce the strategic

importance of aligning brand strategy with product/service quality and technological capabilities.

3. Moderate Priorities

Adequacy of Financial Resources (9.7%). Funding is important for sustaining marketing campaigns, digital initiatives, and brand visibility, though less influential than vision, culture, or innovation. Marketing-Oriented Brand Strategy Management (5.8%) and Use of Digital Platforms (5.6%). Effective marketing and digital presence are enablers rather than primary drivers. Their relatively lower weight indicates that without strong vision, culture, and innovation, marketing alone cannot compensate.

4. Lower Priorities

Strong and Consistent Brand Identity (3.7%), Time Management (3.2%), and Sectoral Collaborations & Ecosystem Participation (2.7%). While still important, these factors play a more supportive role. Consistency and collaborations enhance brand strength but cannot replace the core drivers (vision, human capital, technology, customer focus).

5. Overall Insights

Human and Strategic Factors are dominant factors, The results emphasize that people (leadership, employees) and strategic vision are the most decisive factors for branding success in IT.

Innovation and Customer Focus are critical factors. Technology-driven differentiation and satisfying user experience remain key for competitive positioning. Financial and Operational Support Matters: Adequate resources, digital channels, and time management support the primary drivers but are not standalone determinants. Collaborations are optional enhancers. Ecosystem participation can add prestige or reach but is the least critical among evaluated factors.

As a result, or IT sector companies aiming to strengthen their brand, prioritizing management vision, organizational culture, technological innovation, and customer experience is essential. Digital marketing, financial investment, and operational efficiencies serve as support mechanisms, while collaborations and brand identity refinement complement the overall strategy.

Action Plan and Relationship Matrix

The analysis builds on expert evaluations of branding criteria within IT entrepreneurship. Ten criteria were weighted according to their relative importance: Management Vision (20.7%), Human Resources & Corporate Culture (20.1%), Technological Competence & Innovation Capacity (14.8%), Customer Experience & Satisfaction (13.8%), Financial Resources (9.7%), Marketing-Oriented Brand Strategy (5.8%), Use of Digital Platforms (5.6%), Strong Brand Identity (3.7%), Time Management (3.2%), and Sectoral Collaborations & Ecosystem Participation (2.7%). Based on these weights, a phased action plan was developed, incorporating both sequencing and time sensitivity (0–12 months).

The proposed action plan provides a structured roadmap for branding in IT entrepreneurship, prioritizing criteria according to their strategic significance and aligning them with a time-bound execution framework. This approach is consistent with the literature emphasizing that branding in technology-driven industries must be grounded in leadership vision, organizational culture, and innovation capacity to ensure long-term differentiation and competitiveness (Aaker, 1996; Keller, 2003).

The plan correctly identifies Management Vision and Human Resources & Corporate Culture as the most critical factors, scheduled for early implementation within the first six months. Research highlights that a strong leadership vision and a brand-oriented organizational culture are the cornerstones of successful branding, particularly in dynamic sectors like IT where rapid change demands strategic clarity (Kapferer J. N., 2012; Urde, 1999). Without these, downstream activities such as marketing or digital presence risk being fragmented and ineffective.

Positioning Technological Competence & Innovation Capacity and Customer Experience & Satisfaction as

second-tier priorities reflects best practices in IT branding. Innovation-driven differentiation and superior customer experiences are recognized as primary drivers of brand equity in high-tech markets (Trott, 2017; Prahalad & Ramaswamy, 2004). Starting these actions after vision and culture are firmly established helps align organizational identity with technological outcomes.

Adequate financial resources are considered a moderate factor, serving as a supportive element instead of a primary determinant. Research highlights that funding enhances brand visibility but cannot substitute for vision and culture (Keller & Lehmann, 2006). Similarly, Marketing-Oriented Brand Strategy Management and Use of Digital Platforms are positioned as enablers to amplify brand reach. Their activation between months 3–12 aligns with the logic of first establishing internal brand coherence before external promotion.

Criteria such as Strong and Consistent Brand Identity, Time Management, and Sectoral Collaborations & Ecosystem Participation are rightly treated as long-term, supportive elements. According to branding studies, maintaining a consistent identity and engaging with the ecosystem contribute to credibility and stakeholder confidence, yet they do not independently determine brand success (Hatch & Schultz, 2001; Balmer, 2012). Their gradual implementation over 12 months supports sustainability rather than immediate impact.

Overall, the action plan demonstrates a logical sequencing and prioritization consistent with strategic branding theory. By allocating early phases to vision, culture, and resource foundation, followed by innovation, customer engagement, and finally promotional activities, the plan reflects a holistic branding approach. The action plan offers a time-sensitive and strategically grounded framework for branding in IT entrepreneurship. Its design ensures that core drivers (vision, culture, innovation, customer focus) precede and enable supporting drivers (finance, marketing, collaborations). Such an approach is not only aligned with contemporary branding literature but also provides practical guidance for sustainable brand development in the highly competitive IT sector.

Time-Bound Action Plan for IT Entrepreneurship Branding

Priority Level	Criteria	Action Steps	Responsible	Timeline	KPIs / Success Indicators
Top Priorities	Management Vision	1. Develop a clear, brand-aligned vision statement. 2. Integrate branding goals into corporate strategy. 3. Communicate vision across all departments.	CEO / Strategy Team	0–3 months	Vision statement approved; % of employees aware of vision
	Human Resources & Corporate Culture	1. Conduct workshops to strengthen brand awareness. 2. Align recruitment and training programs with brand values. 3. Encourage a culture of innovation and customer focus.	HR Director / Culture Champions	1–6 months	Employee engagement scores; % trained on brand values
Strong Supporting	Technological Competence & Innovation Capacity	1. Assess current tech capabilities and gaps. 2. Launch innovation projects aligned with brand promise. 3. Encourage R&D for differentiation.	CTO / R&D Team	2–9 months	Number of innovation initiatives; patents filed; product differentiation metrics
	Customer Experience & Satisfaction	1. Map customer journeys. 2. Implement feedback and satisfaction measurement systems. 3. Integrate customer insights into brand strategy.	Customer Experience Manager	1–6 months	NPS, CSAT scores; customer retention rates
Moderate Priorities	Adequacy of Financial Resources	1. Secure funding for brand campaigns. 2. Allocate budget for digital marketing, R&D, and events.	CFO / Finance Team	0–6 months	Budget approved; % of planned spend executed
	Marketing-Oriented Brand Strategy	1. Develop marketing campaigns aligned with vision. 2. Measure campaign effectiveness.	Marketing Director	3–12 months	Engagement metrics; ROI of campaigns
	Use of Digital Platforms	1. Optimize website and social media presence. 2. Launch digital content strategy. 3. Monitor digital engagement.	Digital Marketing Team	3–9 months	Web traffic; social media engagement; lead generation
Lower Priorities	Strong and Consistent Brand Identity	1. Standardize brand visuals and messaging. 2. Conduct brand audits.	Brand Manager	2–12 months	Brand consistency score; recognition surveys
	Time Management	1. Implement project management tools. 2. Optimize resource allocation for branding projects.	Project Manager	0–12 months	% of projects on schedule; resource utilization rate
	Sectoral Collaborations & Ecosystem Participation	1. Identify potential partnerships. 2. Engage in sectoral events and collaborations. 3. Integrate ecosystem feedback into strategy.	Business Development Manager	4–12 months	

Table-6

In the heatmap, the closer the color is to red, the stronger the relationship high. Orange tones represent a medium level of influence, while yellow tones indicate a low level of influence. In other words, the darker the color, the more directly and strongly one criterion influences another.

Human Resources & Corporate Culture have key strong relationships with Management Vision and Customer Experience . Human resources and company culture play a critical role in both implementing the vision and ensuring customer satisfaction. Technological Competence have key strong relationships with Customer Experience, innovation and technological capacity directly enhance customer experience. Marketing Strategy have key strong relationships with Digital Platforms and Brand Identity, marketing strategy is closely tied to digital presence and brand perception.

Technology has moderate relationships with Financial Resources and Collaborations, new technologies require investment and partnerships.

Financial Resources have moderate relationships with Time Management and Collaborations. Financial resources affect how efficiently operations are managed and how external collaborations are conducted.

Customer Experience has moderate relationships with Marketing and Digital Platforms. Customer experience is shaped through marketing and digital touchpoints.

Management Vision have weak relationships with Digital Platforms, Time Management, Brand Identity, vision plays an indirect role in these areas.

Brand Identity has weak relationships with Financial Resources, Time Management Brand perception is relatively independent of financial status and is more influenced by marketing.

As a result, The Human Resources , Customer Experience and Technological Competence triangle shows very strong interactions. This highlights the importance of people and customer-focused innovation for sustainable growth.

Marketing Strategy holds a central role, strongly linked to both digital platforms and brand identity. Time Management and Brand Identity serve more as supporting or indirect factors.

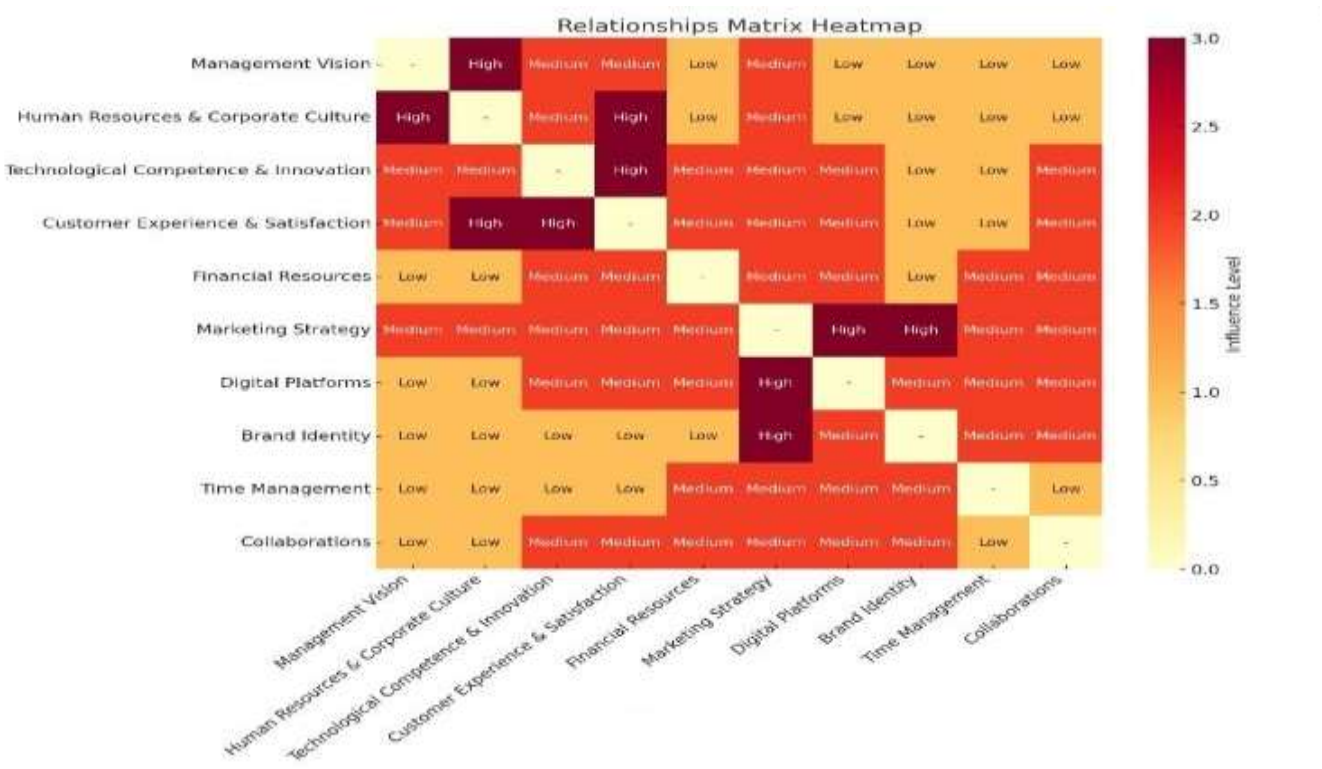

Table-7

The Interrelationship Matrix shows that Management Vision and Human Resources & Culture are the core drivers of branding in IT entrepreneurship. These drivers enable innovation, customer satisfaction, and financial sustainability, which act as strong supporting factors. Marketing, time management, and collaborations function as secondary enablers, amplifying overall effectiveness. Together, these interactions lead to the ultimate outcome: a strong and consistent brand identity.

Table-8

DISCUSSION

Comparison of findings with existing literature

Management Vision (20.7% - Highest Priority), Leadership vision is the most critical criterion for successful branding. Multiple studies emphasize that a clear, brand-oriented vision ensures alignment of organizational goals, guides innovative brand strategies, and enhances employee adoption of brand values (Kotler & Keller, Marketing Management, 2021) (Aaker D. , 1996). Result aligns strongly with the theories proposed by Kotler & Keller (2021) and Aaker D. (1996), confirming that leadership is a primary driver of IT brand success.

Human Resources and Corporate Culture (20.1%), Human capital and corporate culture are almost equally important as management vision. Research highlights that skilled, creative employees and a culture that internalizes brand values are essential for brand differentiation and innovation (Barney J. B., 1991) (Hatch & Schultz, 2001). Result aligns strongly with the theories proposed by Barney J. B., (1991) and Hatch & Schultz (2001). IT firms need to cultivate both talent and culture to sustain brand value, consistent with your findings.

Technological Competence and Innovation Capacity (14.8%), Innovation and technical expertise are critical for differentiation in the IT sector. Literature consistently points out that technology-driven innovation enhances product/service quality, customer satisfaction, and competitive advantage (Porter & Heppelmann, 2014) (Chatterjee & Kumar Kar, 2020). Result aligns strongly with the theory proposed by (Porter & Heppelmann, (2014). The priority aligns with the sector's reliance on technological superiority.

Customer Experience and Satisfaction (13.8%), Customer-centric approaches are key to brand loyalty. Studies show that positive user experience and customer satisfaction are closely linked to brand value, especially in digital services where interaction quality matters (Verhoef et al., 2009) (Lemon & Verhoef, 2016). Proposed theory supports the AHP result, emphasizing that IT branding cannot ignore the end-user experience.

Adequacy of Financial Resources (9.7%), Financial capability is necessary but secondary to vision, culture, and technology. Funding ensures marketing reach, brand promotion, and R&D investments, but it is most effective when combined with strategic vision and innovative capacity (Aaker D. , 1996). It matches the literature that money alone does not guarantee branding success.

Marketing-Oriented Brand Strategy Management (5.8%), Use of Digital Platforms (5.6%), Strong and Consistent Brand Identity (3.7%), Time Management (3.2%), Sectoral Collaborations and Ecosystem Participation (2.7%), These factors are important but rank lower relative to leadership, human capital, and technology. While essential for operationalizing branding, studies suggest they serve as enablers rather than primary determinants (Kapferer J. N., 2012) (Kotler & Keller, Marketing Management, 2021). The results reinforce the idea that foundational criteria like vision, culture, and innovation create the platform upon which other branding activities are effective.

The AHP results closely align with existing literature: leadership, talent, culture, and technological innovation are central to IT sector branding. Operational and tactical elements (marketing strategies, digital platforms, collaboration) support branding but are secondary. This validates the AHP findings as both empirically grounded and theoretically consistent.

CONCLUSION AND RECOMMENDATIONS

Contributions of the study

Management vision and leadership with a clear, brand-oriented vision is the most influential factor. Strategic decision-making, brand alignment across the organization, and innovative branding initiatives rely heavily on visionary management. Human Resources and Corporate Culture and skilled, creative personnel and a culture that internalizes brand values are nearly as important as leadership. Employees are critical touchpoints for delivering the brand promise and sustaining brand value in IT firms. Technological Competence and Innovation Capacity and technical expertise and capacity for innovation directly affect differentiation and competitive advantage. Continuous R&D and adoption of new technologies are essential for effective branding. Customer Experience and Satisfaction and customer-centric approaches drive loyalty and enhance perceived brand value. Positive user experiences and satisfaction metrics are essential for sustaining brand reputation. Adequacy of Financial Resources and sufficient funding supports marketing, R&D, and brand visibility but is less critical than vision, people, and innovation. Financial resources enable brand activities but cannot substitute strategic and operational competencies. Marketing-Oriented Brand Strategy Management and operational factors are supportive rather than primary drivers. Effective marketing and digital presence amplify branding efforts, but their impact depends on strong foundational elements. Strong and Consistent Brand Identity, visual and verbal brand elements matter, but they rank lower relative to strategic and human factors. Identity reinforces the brand but does not create it without leadership, culture, or innovation. Time Management, efficient resource and task management is necessary but less impactful on brand success compared to core factors. Operational discipline supports execution but is secondary to strategic priorities. Sectoral Collaborations and Ecosystem Participation, industry partnerships and network involvement are the least critical in isolation. Collaborations enhance credibility and visibility but rely on stronger primary factors to influence branding. Strategic and human-centric factors dominate applicability of branding in the information technology sector. Management vision and corporate culture collectively account for ~41% of total priority, highlighting the importance of leadership and workforce alignment. Technology competence and R&D rank third, reflecting the IT sector's reliance on continuous innovation. Operational and tactical elements are supportive, marketing, digital platforms, and collaborations are necessary but secondary to strategic and human factors.

Strategic recommendations for practitioners

Branding within the information technology sector should be understood not merely as a marketing endeavor but as a comprehensive integration of technological infrastructure, production systems, human resources, and corporate communication strategies. This study advances the literature by systematizing the applicability of branding through a set of clearly defined criteria and proposing a sector-specific conceptual model. Future research should undertake empirical investigations to validate these criteria and rigorously evaluate their measurability.

Suggestions for future research

Future studies should empirically test the proposed criteria through surveys, case studies, or large-scale

quantitative analyses to evaluate their relevance and reliability across different IT sub-sectors. Research could compare branding applicability in IT companies across different cultural and regional contexts to examine whether the identified criteria are universal or context-specific. Future work could explore the relationship between branding applicability and organizational performance indicators such as market share, innovation output, or customer retention. Investigating how new technologies (AI, blockchain, cloud computing) reshape branding strategies in IT firms would add depth to the model's applicability.

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