

Article

The Effect of Knowledge Management on the Sustainability of Technology-Driven Businesses in Emerging Markets: The Mediating Role of Social Media

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Abstract: Sustainability is a fundamental principle for human resource management worldwide. This study aimed to examine the effect of knowledge management components on the sustainability of technology-driven businesses mediated by social media in emerging markets. This descriptive-correlational study was conducted in April 2022. The statistical population comprised 537 businesses, and the sample size (estimated using Cochran's formula) was 224 research and development employees. A 25-item questionnaire scored on a 5-point Likert scale was administered to collect data, which were analyzed in SmartPLS 3. The findings showed that for technology-driven businesses to be in a sustainable environment, knowledge management components must be applied in all parts of the company. The application of knowledge management creates value and a sustainable competitive advantage in a dynamic environment. Furthermore, effective participation in the organizational social network can activate knowledge management and create value. Thus, knowledge acquisition through social media optimizes learning and ideation, and for technology-driven companies that lack resources, this acquisition enables development and sustainability in a dynamic environment.

Keywords: sustainability; social media; knowledge creation; competitive advantage; technology-driven businesses



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1. Introduction

The durability and sustainability of technology-driven companies in ambiguities, uncertainties, and risks caused by environmental change is a major problem. To continue their operation, technology-driven companies face challenges such as turmoil, fierce competition, an unpredictable environment, and market variations. Therefore, corporate sustainability is no longer a mere strategic option since it is an essential business for the future survival of companies [1]. As such, the use of traditional methods to survive and sustain in today's competitive environment is no longer effective or sufficient [2]. In fact, discussing sustainability and establishing these kinds of companies can be good options to deal with high unemployment rates. Employment concerns can be addressed by considering the correct structure for technology-driven businesses. Evidence reveals that the failure rate of technology-driven companies is very high [3]. Still, these companies should make most of their limited resource as they are constantly looking for the perfect business model for their operations as their operating environment is filled with uncertainty and turmoil. A major part of these resources is their human resources, including people such as employees and managers who try to use other tools to maximize the company's chances of success [4]. The growing significance of sustainability in corporate governance has motivated researchers to understand how sustainability can be introduced to business practices [2]. One way to

achieve this goal is to use knowledge management [5] since it can have a significant impact on the organizational structure. Consequently, the need to use knowledge management in technology-driven companies has both epistemological and phenomenological roots. In terms of epistemology, explicit knowledge creation within these companies provides the ground for sustainability and development. In terms of phenomenology, the knowledge possessed by people who form a technology-driven company should be disseminated throughout the organization for its practical use [6]. Thus, knowledge management is of great potential importance given the nature of technology-driven companies and their reliance on knowledge and sustainability to ensure access to knowledge and preserve intellectual property (which is their most important asset). Therefore, these companies must effectively use the existing knowledge to develop and implement development and sustainability strategies [7]. Technology-driven companies can support employees' ideas by removing organizational barriers, training skilled employees and entrepreneurs, and supporting investment programs such as entrepreneurial culture and networks [8]. Global experience shows that companies operating in the field of technology are more responsive to the opinions and ideas of employees, the needs of innovation in society, business education and research, and research and industrial centers [9]. In this regard, social media provides equipment for users to share their thoughts, interests, and activities [10]. Social networks also let people create public or private profiles and communicate with others [11]. In recent years, social networks such as LinkedIn and Instagram have become very popular due to the use of smartphones and other growing technologies [12]. With different needs such as acquiring knowledge and information, communicating with others, spending leisure time, fun, and entertainment, the employees and managers of technology-driven companies increasingly use these sites [13]. The wide-ranging spread of social networks in different societies has affected work environments and companies, too [14]. Therefore, it has become essential to study social media and its outcomes for the sustainability of the work environment of technology-driven companies.

Emerging markets are countries that have the characteristics of developed markets of industrialized countries but do not meet the necessary conditions to be classified as developed countries. In these countries, the process of growth of industrial and social activities is rapid, and they move quickly towards industrialization. Since the Iranian economic condition faces numerous challenges, the sustainability of technology-driven companies is important for overcoming these challenges. The general nature of technology-driven companies in Iran is based on the management, application, analysis, and evaluation of information to generate science and knowledge. However, this can only be achieved if these companies can institutionalize the knowledge management process within them in the first place. Knowing that most technology-driven companies are independent, with the departure of the original and key idea creator, the whole set falls apart or cannot continue with the same quality. Thus, a requirement of these companies is the proper implementation of the knowledge management process.

The significance and necessity of the present study lie in both academic and applied perspectives. From a theoretical and academic viewpoint, conducting this research helps enrich the literature on knowledge management in technology-driven companies. From a practical viewpoint, its results can provide solutions to managers of technology-driven companies to formulate proper planning for the effective implementation of knowledge management and contribute to the success of their companies. As such, the current study aimed to investigate the impact of knowledge management components on the sustainability of technology-driven businesses in emerging markets mediated by social media.

The manuscript is structured as follows: In the literature review, the related hypotheses are defined and the conceptual framework is extracted accordingly. Then, data analysis is performed using an applied research method. The paper concludes with some remarks and directions for future research.

2. Theoretical Framework and Hypotheses Development

Recently, altered conditions of organizations have changed their attitudes towards their environment [15]. Environments which are more dynamic than in the past provide more significant opportunities for organizational growth and success. Meanwhile, such environments may also pose significant threats to organizational success and efficiency. Environmental disruptions, e.g., political unrest, natural hazards, economic instability, and human error, seriously threaten the performance of technology-driven companies [16]. In such environments, the main factor in the success of companies, especially technology-driven ones, is taking advantage of the existing competitive advantage or identifying innovations and sustainability in the business environment that will determine the future competitive advantage [17]. In this way, these companies can flourish and survive in complex environments [18] and improve business compatibility and reliability [19]. Technology-driven businesses are newly established companies or enterprises that try to bridge the gap in the market and solve a problem if the solution is not evident [4]. Due to their significance to scientific and technological development, these companies have been chosen to commercialize knowledge and ideas by supplying new services and products, promoting previous services and products through joint research and development (R&D) activities, maintaining and developing a sustainable competitive advantage in hardware, software, e-readiness, and Internet development. Thus, in recent years, numerous studies have been conducted on the failure rate of technology-driven companies.

Based on one report, of all the companies launched in 2014 in this field, only 56% entered 2018, and the rest failed [20]. Consequently, the main problem in these companies is their high rate of failure. They also face certain challenges to the life cycle, the awareness of which prepares them for facing these challenges. This preparedness can be attained via factors contributing to sustainability. Although organizational capabilities become a powerful resource due to repetitive activities and serve as the main source of organizational advantage, over time, the solutions that used to prove successful gradually lose their core function in different competitive conditions [21]. Thus, the difference between technology-driven and other companies of the same level, including start-ups, lies in the knowledge factor. Overall, technology-driven companies aim to provide the knowledge needed by all decision-makers in all sectors to make quick, effective, and beneficial decisions [22]. Owing to their efficient human capital and agile structure, technology-driven companies can easily open their way forward during crises and contribute to economic sustainability and achieving the goals of resistance economy [23]. Morioka et al. (2022) increased the sustainability of economy through the development of new technologies and innovations. Participation in sustainable development processes can improve business performance and create shared value [24]. To move towards a sustainable business model, innovative activities are essential to creating sustainable values [25]. However, despite the significance of sustainability in technology-driven companies, studies published in Iran have not yet specifically addressed this domain.

Knowledge management can be defined as the systematic management of an organization's knowledge resources to create value commensurate with strategic requirements. Knowledge management includes the processes, strategies, storage systems, sustainability measures, and the transfer, evaluation, creation, and modification of knowledge [26]. Knowledge can create value only if it is applied in the company. If technology-driven companies cannot easily determine the accurate form of knowledge in the right place, they will face problems in competitive areas. These companies need to apply the right knowledge in the right place [27]. Given the innovative nature of technology-driven companies, what is the most important to them is technical knowledge. If the failures, successes, and details emerging with each cycle are not properly recorded and used in the next stages of product development, the time to market will be delayed, which increases the risk of the total failure of the business due to increased costs and lost market opportunities [28]. If the required knowledge is not found in the internal and external resources of the organization, such companies should implement measures related to research and creation of

knowledge, considering their core capabilities [29]. Recruiting creative experts, effective communication with stakeholders, and gaining knowledge from partner organizations should be considered by technology-driven companies so that they can remain sustainable in the environment [30]. Therefore, the main hypothesis of the present study is formulated as follows:

Hypothesis 0 (H0): *Management Knowledge has a meaningful effect on business sustainability, with social media as a mediator.*

Knowledge creation is the process of creating new knowledge or replacing and improving the existing knowledge through organizational relationships and collaborations. This process occurs at the individual, group, and organizational levels and creates new knowledge [31]. Knowledge creation culture is an effective factor in organizational learning and contributes to organizational executive processes [21]. Given the role of new knowledge in the survival and growth of businesses, the created knowledge is sometimes more important than the existing knowledge. This is how knowledge is created, shared, evolved, and consolidated. This process requires knowledge exchange and acquisition in the communication network that exists across the boundaries of the organization [32]. In this context, to align with the frontiers of knowledge and adapt to dynamic environmental conditions, technology-driven businesses need strategies to better acquire their employees' knowledge and understand the factors affecting the creation of new knowledge [33]. To survive and remain competitive, technology-based companies must create new knowledge with their knowledge-based activities and present it to the target market in the form of products [34]. Knowledge creation involves unlocking the knowledge held by individuals in organizations. Discovering, evaluating, and combining this knowledge with other individual and organizational knowledge, and using it to develop sustainability, services, products, ideas, or new ways of doing business processes creates knowledge in organizations [35]. Note that the creation of knowledge is the outcome of human interaction, and no knowledge can be useful as long as it is hidden in the minds of individuals [36].

Social media is ubiquitous and has attracted the attention of various domains due to its newly emerging nature. Accordingly, various businesses seek to take advantage of these technologies to create knowledge. Knowledge and value can promote customer survival and prevent them from withdrawing. Therefore, the first hypothesis is presented as follows:

Hypothesis 1 (H1): *Knowledge creation has a meaningful effect on business sustainability.*

Hypothesis 2 (H2): *Knowledge creation has a meaningful effect on business sustainability, with social media as the mediator.*

Knowledge presentation is a key step in knowledge management. Based on the company's scenarios, the knowledge perspective is visualized, and a strategic knowledge plan is drawn up based on knowledge strengths and weaknesses. The important point at this stage is to set standards for providing knowledge to employees [27]. Knowledge transfer plays a key role in the sustainability of technology-based companies and their competitive advantage, but it also creates significant tension and challenge [37]. To address these challenges, businesses need to expand their knowledge resources to improve their understanding of the factors that contribute to knowledge transfer and its impact on business sustainability. Thus, knowledge transfer is an important learning base for activities and plays a pivotal role in achieving sustainable outcomes [38]. The transfer of new knowledge depends on several factors, including internal capabilities [39]. Learning and collaboration capabilities facilitate corporate learning and enhance knowledge transfer. Knowledge is, therefore, an essential resource for transfer and sustainability since it plays a key role in acquiring and keeping a competitive advantage in business [40]. By integrating

knowledge into the existing business processes to formulate new processes, learning can enhance organizational development and sustainability [41].

Despite the significant contribution of knowledge transfer to innovation, few studies have analyzed sustainability in technology-driven businesses [42]. To achieve a sustainable advantage for business survival, creating and transferring new knowledge using social media is critical [43]. Social media is a novel source of information that can help companies gain customer insights to create unique and personal experiences. It provides relevant information about customer interactions in multiple environments with multiple stakeholders and contact points, as well as a valuable opportunity to convey people's experiences in an informal space. Therefore, the second hypothesis is given as follows:

Hypothesis 3 (H3): *Knowledge transfer has meaningful effect on business sustainability.*

Hypothesis 4 (H4): *Knowledge transfer has a meaningful effect on business sustainability, with social media as the mediator.*

The application of knowledge is related to business processes whereby effective storage and retrieval mechanisms allow the company to easily access knowledge. In terms of technology-based innovation, knowledge transfer, integration, and practical application are the main elements for the development of technological capabilities [44]. New information may create a conflict with the previously acquired knowledge, thereby leading to a sense of imbalance for comprehending and integrating the new concept into the knowledge structure [45]. Dynamic capabilities as a competitive advantage seek to describe the success of companies in a changing environment. Companies create and modify day-to-day operational activities in an organized way through dynamic capabilities to achieve greater effectiveness. Nevertheless, dynamic capabilities are evolutionary and develop through organizational learning and can, therefore, alter a company's resources depending on the circumstances. Companies learn from internal and external sources, which helps them build and improve their knowledge assets [46]. Knowledge application refers to the company's ability to recognize the value of new external knowledge, integrate and commercialize it, and requires a set of routines to manage knowledge and the collective effect of continuous learning in the company. This process eventually leads to achieving and maintaining a competitive advantage. Management experience and skills coming from these interactions help develop human capital capabilities because the greater the managers' reasoning and information acquisition increases, the better their management experience and skills [47]. Therefore, the use of social media as a communication and information tool can help technology-driven businesses properly manage, obtain the necessary information from users, communicate with them, and greatly develop their business. Consequently, these businesses need to communicate and interact with customers through social media. Still, the use of social media only to communicate does not lead to a competitive advantage and development of these businesses; rather, knowledge needs to be used to complement it. Therefore, the third hypothesis is given as follows:

Hypothesis 5 (H5): *Knowledge application has a meaningful effect on business sustainability.*

Hypothesis 6 (H6): *Knowledge application has a meaningful effect on business sustainability, with social media as the mediator.*

Sustainability is a key principle for management and includes the sustainable contribution of human resources to the company's financial performance and goals. The sustainable nature of this process lies in mitigating the damage to stakeholders and maximizing the outcomes of companies [48]. This process indicates the maintenance and improvement of generational well-being while ensuring continuity, past, present, and future cultural values, and creating a harmonious living environment to improve the quality of life and eliminate social gaps and inequalities [49]. Kramar (2014) states that to achieve sustainability, one

should think beyond the strategic sector and emphasize the creation of an innovative work environment with internal and external social participation, increasing awareness and responsibility for environmental protection, and improving the distribution and consumption of resources to promote organizational success in a competitive environment [50].

Sustainability and social media are two superpowers shaping the new management paradigm in the 21st century. Both have enhanced customer engagement and altered the way companies perceive performance. Unfortunately, many businesses have not yet fully grasped how these two domains can be successfully aligned. Research on the gap between these two domains can be a good reference [51].

Social media plays a vital role in implementing more sustainable operational practices across an organization as it promotes awareness of sustainability, enables employees to participate more effectively, and has been an important source of information for businesses [52]. Social media can thus be introduced as a powerful and influential tool to present ideas and perspectives and an evolving field in technology-based companies. As such, it can play a key role in consumers' informed decisions through their peers [53]. Social media is defined to convince employees and consumers to use goods and services [54]. The evolution in the market has been as strong as a storm, and it is no exaggeration to claim that sustainability and social media are in the eye of this storm [51]. The knowledge gained from social media refers to information that can potentially create value for the company. Therefore, the fourth hypothesis is as follows:

Hypothesis 7 (H7): *Social media has a significant effect on business sustainability.*

Most studies have examined the outcomes of knowledge management and social media but have overlooked the effect of knowledge management components (knowledge creation, transfer, and application) on the sustainability of technology-driven businesses in emerging markets with the mediating role of social media. Therefore, the present study and its conceptual model were developed based on scientific sources and previous studies with a new arrangement. The conceptual model was designed as follows according to the research literature (See Figure 1):

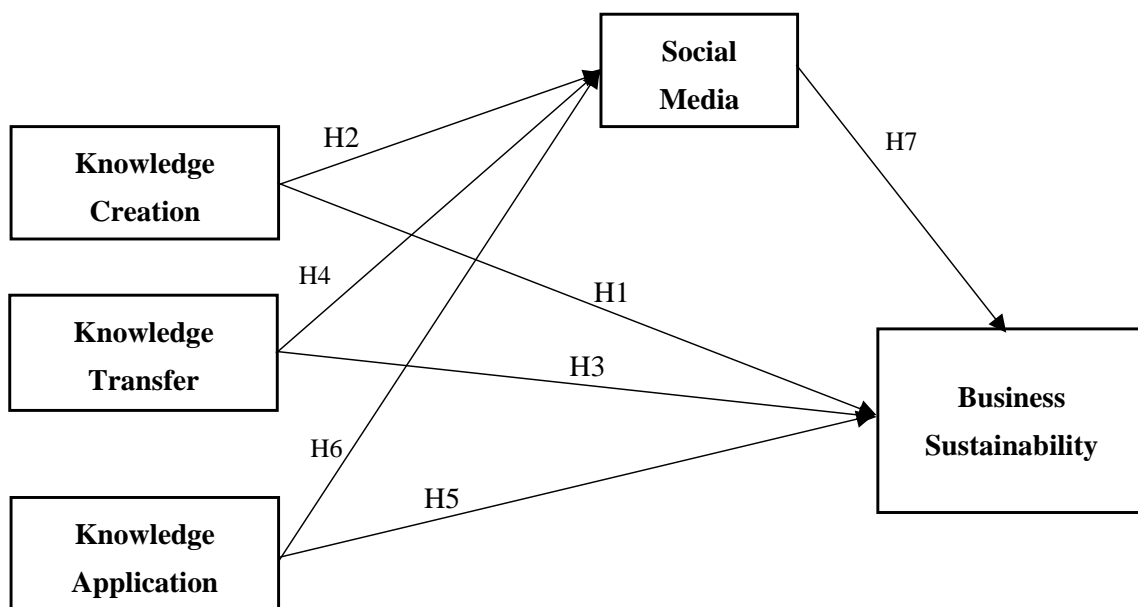


Figure 1. The Conceptual Model of the Study (Source: Authors' elaboration).

3. Materials and Methods

The present research was applied and descriptive-correlational. The statistical population comprised all technology-driven businesses in the Iranian cities of Tehran, Yazd,

Isfahan, and Shiraz in April 2022, which amounted up to 537 businesses working in different fields of software for at least five years. A list of active companies is annually published by the Science Parks website. Using this list, we accessed and sampled some active companies. These companies in scientific parks included digital start-ups defined based on the conventions of evaluating Iranian start-ups and digital institutions. They were private companies or institutions established primarily to promote and implement innovations. Such companies were also expected to commercialize R&D results (e.g., how products and services are designed) for advanced technologies. They mediated businesses, universities, and the government to develop a knowledge-based economy. The simple random sampling method was adopted because the authors had access to companies located in these cities with respect to their location, especially during the COVID-19 epidemic. The Cochran formula was used to determine the sample size. Accordingly, a sample size of 224 employees working in R&D in these companies was estimated. To use structural equation modeling (SEM), the sample size should be 5–10 times higher than the number of questionnaire items; therefore, the sample size was adequate [55].

For data collection, a questionnaire comprising 25 closed-ended questions, 15 questions on knowledge management, 5 questions on social media, and 5 questions on business sustainability was administered. Based on the measurement of the conceptual model variables, the 5-point Likert scale (*strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree*) was used. The questionnaire was distributed in person and online. Finally, the relationships between variables were examined using SEM in SmartPLS 3. This software was chosen since it does not require the distribution to be normal [56].

Reliability and Validity Measurement

Knowledge management was the independent variable, business sustainability the dependent variable, and social media the mediating variable. To guarantee the accuracy and precision of the results, the technical properties of the questionnaire were assessed in two parts of validity and reliability, using various criteria. The validity of the questionnaire was confirmed via content and construct validity. To measure the content validity, the opinions of experts and professors were sought. To assess its construct validity, SEM, convergent, and divergent validity were employed. To examine the convergent validity, the average variance extracted (AVE) index, and to assess divergent validity, the root AVE were utilized. The mean standard deviation extracted for the variables was >0.5 , denoting a high validity. The reliability of the questionnaire was measured using Cronbach's alpha and composite reliability (CR). Since the Cronbach's alpha of all the variables was >0.7 and the total alpha of the questionnaire was 0.85, the research instrument had a good level of reliability (Table 1).

Table 1. Variables, The Number of Questions, and Reliability (Source: Authors' elaboration).

Variables	Questions	Cronbach's Alpha	Reliability	Composite Reliability	AVE
Knowledge Creation	M1–M5	0.854	0.895	0.869	0.632
Knowledge Transfer	M6–M10	0.824	0.877	0.842	0.590
Knowledge Application	M11–M15	0.831	0.883	0.874	0.612
Social Media	M16–M20	0.852	0.894	0.856	0.629
Business Sustainability	M21–M25	0.794	0.852	0.826	0.540

The root mean extracted variance is greater than the acceptable minimum of 0.5, so the research variables have adequate divergent validity (Table 2). Moreover, because the root mean variance extracted is greater than the correlation of the variable with other variables, divergent validity is acceptable only if the numbers on the main diagonal are higher than the numbers below it [57]. Therefore, the variables were valid and had divergent validity.

Table 2. Divergent Validity (Source: Authors' elaboration).

Variables	1	2	3	4	5
Knowledge Application	0.872				
Knowledge Creation	0.858	0.881			
Social Media	0.818	0.769	0.854		
Business Sustainability	0.505	0.444	0.543	0.735	
Knowledge Transfer	0.782	0.795	0.793	0.604	0.868

Based on the above and the output of the SmartPLS 3 (Tables 1 and 2), the measurement model had good validity (convergent and divergent) and reliability (CR coefficient and Cronbach's alpha).

4. Results

4.1. Descriptive Statistics

Among the participants, 53.12% were men and 46.88% were women. As for age, 30.9% were under 35 years old, 63.17% were 35–45 years old, 17.53% were 45–55 years old, and 10% were >55 years old. In terms of work experience, 34.88% had under 10 years, 43.84% had 10–20 years, and 17.70% had 20–30 years of work experience.

4.2. Inferential Statistics

The fit of the model was examined in three levels of measurement, structural, and overall fit. Several criteria were used to evaluate the fit of the structural model via the partial least squares method. The first and most basic criterion is the significance coefficient or the t statistic. The fit of the structural model is assessed using the t statistic as follows: These coefficients must be more than 1.96 to confirm their significance at the 95% confidence level [58]. Based on the findings, the values having a critical value of more than the critical value (1.96) at the 95% confidence were confirmed (Figure 2).

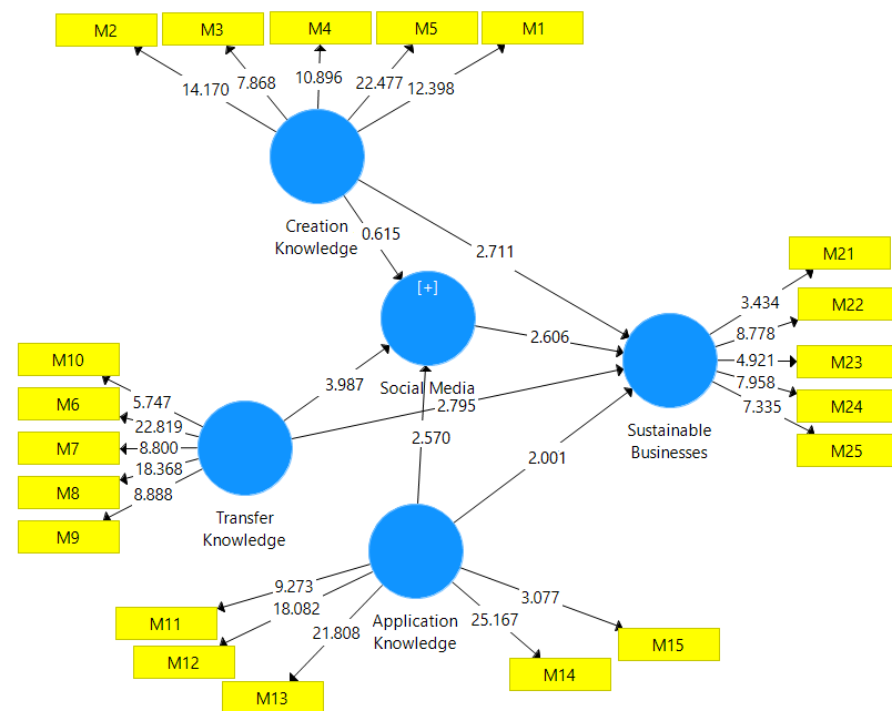


Figure 2. The t Statistic (Source: Authors' elaboration).

4.3. Coefficient of Determination (R^2)

The second criterion for investigating the fit of a structural model is the R^2 coefficients of the latent endogenous variables of the model. This criterion is adopted to explore the intensity of relationships between constructs. It only applies to dependent and not to independent constructs. The values of 0.19, 0.33, and 0.67 indicate weak, moderate, and strong R^2 , respectively. In this study, the R^2 for social media and business sustainability was 0.754 and 0.387; thus, the structural model had a good fit based on this criterion (Figure 3).

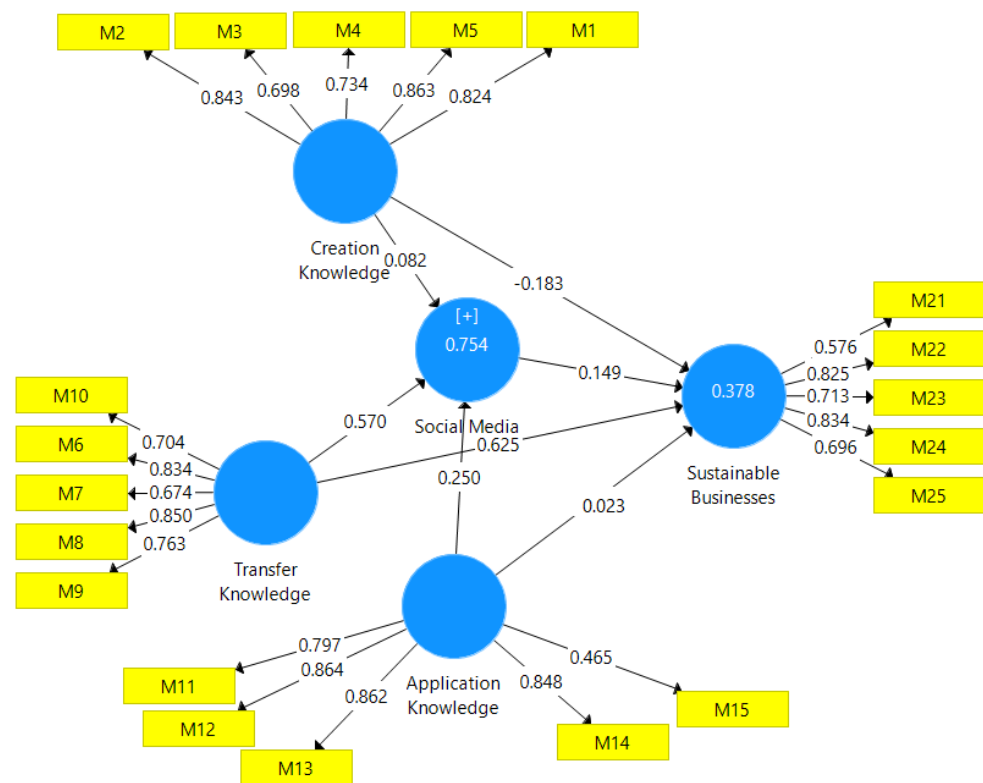


Figure 3. The Model with Standard Factor Loading Coefficients (Source: Authors' elaboration).

4.4. Predictive Relevance (Q^2)

The Q^2 criterion is calculated for all dependent constructs and represents the outcome of multiplying the combined values of the research constructs by their R^2 . This criterion demonstrates the predictive power of the model for dependent variables. According to Kline (2015), if the relationships between constructs are well defined in a model, the constructs can sufficiently influence each other's indicators, and thus, the hypotheses are accurately confirmed. The values of 0.2, 0.15, and 0.35 for all endogenous constructs indicate a low, moderate, and strong predictive power, respectively [56]. Herein, this criterion was 0.320 and 0.645 for business sustainability and social media (0.645), demonstrating the strong and acceptable fit of the structural model.

4.5. Goodness of Fit (GOF)

The general model includes both the measurement and structural models; by confirming its fit, the fit of the model is fully supported. The overall fit of the model can be examined using the goodness-of-fit (GOF) index. Given the three values of 0.01, 0.25, and 0.36 for weak, moderate, and strong GOF, respectively, the value of 0.698 for this criterion shows the strong fit of the overall research model.

$$GOF = \sqrt{\text{average}(\text{Commonality}) \times \text{average}(R^2)} \quad (1)$$

Another indicator is the standardized root mean square residual (SRMR). The value of 0.05 according to Bayern (2005), 0.08 according to Mohiuddin et al. (2022), and less than 0.10 according to some studies indicates the acceptable fit of the overall model [59,60]. This index is at an acceptable threshold (Table 3), so the current research model has a very good fit. The normed fit index (NFI) was also used to measure the fit of the model. The range of acceptance of the SRMR is 0 to 1, and NFI should be more than 0.9 [56]. Based on Table 3, this value is equal to 0.901, so this index is confirmed as well.

Table 3. Goodness of Fit Indices.

	SRMR	NFI
Acceptable Values	$0.10 \geq$	$0.9 \leq$
Calculated Values	0.010	0.957

The Sobel test was carried out to examine the mediating role of social media.

$$\text{VAF} = (a \times b) / (a \times b) + c \quad (2)$$

- (a) The coefficient of the independent and mediator variable = 0.301
- (b) The coefficient of the path of the mediator and dependent variables = 0.149
- (c) The coefficient of the path of the independent and dependent variable = 0.277
- (Sa) The standard error for the path of independent and mediator variable = 0.073
- (Sb) The standard error for the path of mediator and dependent variable = 0.061

The value of 2.057 obtained in this test, which is greater than the baseline value of 1.96, denotes a mediating role for the construct of social media. The VAF statistics indicate that the intensity of social media mediation is 0.139, showing a minor mediating effect. Accordingly, the fit of the proposed model in both measurement and structural models is confirmed.

4.6. Testing the Hypotheses

The t statistic was used to investigate the hypothetical relationships between the variables. To test the main hypothesis, seven sub-hypotheses were formulated. According to Table 4, the t statistic of six relationships was confirmed. To determine the degree of effect of predictor variables on the dependent variables, the standardized factor loading coefficients related to the paths of each hypothesis were examined. These coefficients denote what percentage of variation in dependent variables is explained by the independent variables.

Table 4. The t Statistics and Impact Coefficients.

Row	Path	T Statistic	Impact Coefficient	Test
1	Knowledge Creation—Business Sustainability	2.711	0.183	Verified
2	Knowledge Creation—Social Media—Business Sustainability	0.615	0.082	Reject
3	Knowledge Application—Business Sustainability	2.759	0.023	Verified
4	Knowledge Application—Social Media—Business Sustainability	3.987	0.250	Verified
5	Knowledge Transfer—Business Sustainability	2.001	0.625	Verified
6	Knowledge Transfer—Social Media—Business Sustainability	2.570	0.570	Verified
7	Social Media—Business Sustainability	2.606	0.149	Verified

5. Discussion

This study examined the impact of knowledge management components on sustainability, mediated by social media, in technology-driven businesses. The management style of technology-driven businesses is not traditional anymore, as the nature of technology-driven businesses has shifted to the centrality of knowledge, intellectual property, and human capital, thereby creating a different perspective compared to the past. That is why technology-driven businesses are an important tool for disseminating knowledge, creating jobs, and economic growth. From the perspective of knowledge management, technology-driven businesses elucidate knowledge creation, enrichment, and transfer, and thus lead to sustainability. Therefore, the potential role of knowledge sharing in aiding the sustainability of technology-driven businesses should not be overlooked. When people share their knowledge, skills, and expertise with the members of their company, performance is enhanced and companies become more innovative, which improves sustainability and survival in the business environment. In this way, technology-driven businesses try to be a learning organization in which the members of the firm (as a group and individually) seek to improve their knowledge transfer capacity. Thus, successful technology-driven businesses can potentially grow more than mature companies, meaning that with less capital, they can grow more than simple, old companies. Furthermore, given the fierce competition in today's world, managers need to be aware of how to deal with this strategic factor and learn to use this competitive advantage as effectively as possible. In this case, the organization will gain strong competitive power.

The first hypothesis, i.e., the effect of knowledge creation on the sustainability of technology-based companies, was confirmed, while the second hypothesis, i.e., the effect of knowledge transfer on the sustainability of technology-based companies mediated by social media, was rejected. Sustainability management in a digitalized environment should be central for policy-makers. Information technology (IT) offers a wide range of opportunities for positive change combined with sustainability goals. According to Ali and Tang (2022), social media can be used to solve specific and immediate problems [61]. This is done by publishing problems and receiving answers to questions. In this way, problem-solving using social media can support data transfer and contribute to the company's sustainability in a dynamic environment. In this way, companies connect with their users and customers through social media and create new ideas that lead to new learning and the creation of new knowledge. This is why social media increases awareness and knowledge creation by enabling conversation, creating ideas, and updating knowledge, thereby allowing people to process knowledge beyond their mental ability and, thus, create value. Thus, social media expands knowledge creation by enriching individual and collective awareness through social communication in an organization. From this perspective, social media reinforces an intermediate level that influences employees' knowledge processes. Therefore, managers should make arrangements so that employees can participate in training courses and receive counseling by interacting with users at the lowest cost.

The third hypothesis, i.e., the positive effect of knowledge transfer on the sustainability of technology-based companies, the and fourth hypothesis, i.e., the positive effect of knowledge transfer on the sustainability of technology-based companies mediated by social media, were confirmed. The lack of a reasonable relationship between managers and staff of technology-driven companies in the enactment of laws and executive regulations reduces people's performance motivation. Therefore, informing employees through the dissemination of extensive information leads to the creation of constructive ideas to solve problems in technology-driven companies. Bari et al. (2020) emphasize the transfer of knowledge as employees' desire to share information (in the form of ideas, experiences, facts, processes, or formulas) with other employees in the company [62].

Markovic and Bagherzadeh (2018) stated that achieving partnership with external stakeholders stimulates knowledge transfer, thereby offering the benefits of innovation in companies [63]. Team spirit, self-efficacy, and self-confidence are also enhanced by the manager's behavioral honesty in providing information. Arsawan et al. (2020) stated that

knowledge transfer significantly affects the culture of innovation, business performance, sustainable competitive advantage, and sustainability [64]. Lu et al. (2014) also noted that the practical use of social media can contribute to the success of a collective knowledge that ultimately promotes sustainability in a dynamic environment [65]. Therefore, people can express their experiences in the form of opinions and ideas without fear. Collaborative decision-making in technology-based companies can promote the efficiency of subordinates by providing opportunities to acquire new skills, learn from each other, and expand their knowledge.

The outcomes of the fifth and sixth hypotheses (the positive effect of knowledge application on the sustainability of businesses mediated by social media) showed that knowledge application is important for the successful operation of businesses [66]. Knowledge application effectively increases the capacity of technology-driven businesses to utilize external resources for better business performance in the market, forming operational capabilities, and promoting the performance of technology-based companies and external cooperation [67]. The stronger this knowledge application in technology-driven companies, the better they can absorb new environmental knowledge, integrate this knowledge into business routine processes, and modernize operational capabilities in proportion to new environmental requirements. At the macro level, sustainability is a form of understanding that helps comprehend the realities of the environment, the rules governing the complex context of competition among companies, and identify new attributes of competition before others. Through better sustainability, environmental opportunities can be exploited to gain a competitive advantage, turn environmental threats into opportunities, and formulate innovative and value-creating solutions to respond to environmental evolutions. Consequently, knowledge application affects the sustainability of technology-based companies by offering a competitive advantage on the market using data analysis, thereby improving the sustainability of businesses. Moreover, the use of knowledge in technology-driven businesses increases flexibility and constructive changes in the company. The managers of technology-driven companies are thus advised to improve the sustainability of the business by developing innovation and creativity in the company. In so doing, they can create value and a competitive advantage in their business.

6. Conclusions

Knowledge management in technology-based companies is a key necessity. Technology-driven companies are essentially in the same cycle; a cycle that helps them find solutions to problems, measure the product's compatibility with the market, and ensure the balance of their business model. The nature of technology-based companies is based on innovation and knowledge management, which is why knowledge management has recently made significant progress. Knowledge management can be a suitable tool for technology-based companies in this field. If one of the founders or the main designers of the business leaves, they will probably take away a significant part of the company's intellectual and knowledge assets. Those who remain have to make conjectures about the product design and the rationale behind some of the product decisions. Therefore, intellectual property and knowledge in technology-based companies are among the most vital assets, and these companies usually cannot afford to lose them. All this motivated the present study.

Suggestions and Limitations

According to the results, competent organizational systems should be created with technical and individual capabilities so that the organization can function properly in the face of risks. Besides, technology-based companies should equip themselves with knowledge management. Merely creating and transferring knowledge is not enough; rather, companies that want to survive and succeed in the long run must use their knowledge, too. In general, the following suggestions are made to policy-makers, managers, and owners of technology-based companies:

- Technology-driven companies should adopt different methods to encourage their staff to acquire new skills to offer new solutions, and instill in them the notion that the fastest solution is not always the best one.
- They should correctly identify customer problems and propose effective solutions to train their staff through customer development principles at the lowest cost.
- Managers should improve their creative thinking to promote adaptability and timely adoption of new initiatives to help the business out of crises.

This study is novel, but not free from limitations. First, the analysis was performed on companies located in the Science and Technology Park of Iranian state-run universities; thus, the results should be generalized with caution as they may not be valid for different regional conditions. Second, this study was conducted on a group of technology-based companies; future research should expand the existing model, include other components, and target a wider statistical population.

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