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Investigating the Relationship between Intellectual Capital Components and Knowledge Management in the Agriculture Jahad Organization of Gilan Province

Reza Jafari[1], Reza Moradof[2]

[1]*Department of Management, Roudsar and Amlash Branch, Islamic Azad University, Roudsar, Iran.*

[2]*Department of Accounting, Roudsar and Amlash Branch, Islamic Azad University, Roudsar, Iran.*

Abstract: *This research investigates the relationship between intellectual capital components and knowledge management in the Agriculture Jahad Organization of Gilan Province. Intellectual capital, as one of the key organizational assets, is crucial to understand and manage. Additionally, knowledge management is a strategic approach for improving organizational performance and holds significant importance. In this study, various methods were employed to collect the necessary information and analyze the role of intellectual capital, organizational structure, and human capital in facilitating knowledge management. The results indicate that all three factors under investigation, namely intellectual capital, organizational structure, and human capital, have a positive and significant impact on facilitating knowledge management in the Agriculture Jahad Organization of Gilan Province. Based on the findings of this research, it is recommended that organizations pay more attention to the development of intellectual capital, optimization of organizational structure, and development of human capital to improve their knowledge management. Furthermore, suggestions for future research and studies in this field are provided. Considering the importance of knowledge management in today's world, this research can help organizations present the best strategies to utilize their knowledge and experiences and enhance their performance.*

Keywords: *Intellectual Capital, Knowledge Management, Agriculture Jahad Organization, Gilan Province.*

I. Introduction

In recent decades, the concepts of intellectual capital and knowledge management have been recognized as fundamental factors in the development and advancement of organizations.

By gaining a deeper understanding of the relationship between these two factors, organizations can enhance their competitive advantage and operate more effectively towards achieving their goals and success. The Agriculture Jahad Organization of Gilan Province, as a key institution in the field of agriculture and sustainable regional development, also benefits from these principles and foundations in its policy-making and operations.

An ideal scenario for the relationship between intellectual capital components and knowledge management involves a seamless integration where the synergy between human, structural, and relational capital drives organizational excellence. In this scenario, the organization fully recognizes the value of its intellectual assets and strategically invests in the continuous development of its human capital through comprehensive training programs, mentorship, and a culture of continuous learning. Employees are empowered to share their knowledge freely, fostering an environment of collaboration and innovation. This human capital, rich in expertise and skills, is supported by a robust structural capital framework, which includes state-of-the-art information systems, databases, and processes that facilitate the efficient storage, retrieval, and dissemination of knowledge. These systems are designed to be user-friendly and accessible, ensuring that knowledge flows seamlessly across all levels of the organization. Furthermore, relational capital plays a crucial role, as the organization actively cultivates strong relationships with external stakeholders such as customers, suppliers, and academic institutions. These relationships provide valuable insights and external knowledge that enrich the organization's intellectual capital.

In this ideal scenario, knowledge management is deeply embedded in the organizational culture and strategy. The organization employs advanced knowledge management practices, such as communities of practice, knowledge repositories, and social networks, to capture tacit knowledge and convert it into explicit knowledge that can be easily shared and utilized. Leadership plays a pivotal role by championing knowledge management initiatives and creating an environment where knowledge sharing is rewarded and recognized. The organization's structure supports cross-functional teams and collaborative projects, breaking down silos and encouraging the free flow of information. As a result, the organization is highly adaptive and responsive to changes in the market and technological advancements. This dynamic interaction between intellectual capital components and knowledge management not only enhances operational efficiency and innovation but also strengthens the organization's competitive advantage, leading to sustained growth and success. The Agriculture Jahad Organization of Gilan Province, for instance, leverages this integrated approach to drive

sustainable agricultural practices and regional development, demonstrating how the alignment of intellectual capital and knowledge management can lead to significant organizational and societal benefits. Despite the clear benefits of integrating intellectual capital components with knowledge management, several obstacles can hinder the realization of this ideal scenario. One major obstacle is organizational culture. In many organizations, there is a deeply ingrained culture of knowledge hoarding, where employees view knowledge as a source of power and are reluctant to share it. This can be exacerbated by a lack of trust and poor communication channels, leading to silos and fragmented knowledge bases. Without a strong culture of collaboration and open communication, efforts to promote knowledge sharing and integration of intellectual capital are likely to fail. Another significant barrier is the lack of leadership support and strategic alignment. When leadership does not prioritize knowledge management or fails to see the value in investing in intellectual capital, initiatives in these areas often lack the necessary resources and attention. This can result in poorly implemented systems and processes that do not effectively capture or disseminate knowledge. Technological limitations also pose a significant challenge. Many organizations struggle with outdated or incompatible IT systems that cannot support advanced knowledge management practices. Without the proper technological infrastructure, it becomes difficult to store, retrieve, and share knowledge efficiently. Additionally, there may be resistance to adopting new technologies due to a lack of technical skills or fear of change among employees. Financial constraints can further impede progress, as developing and maintaining sophisticated knowledge management systems and continuous investment in human capital development require substantial funding. Moreover, the lack of a clear and measurable ROI on intellectual capital and knowledge management investments can make it difficult to justify these expenditures to stakeholders.

Furthermore, organizations may face difficulties in measuring and managing intellectual capital due to its intangible nature. Unlike physical assets, intellectual capital is harder to quantify, making it challenging to track its impact on organizational performance and justify investments in this area. Finally, external factors such as market volatility, regulatory changes, and competitive pressures can divert attention and resources away from knowledge management initiatives. These obstacles, individually or collectively, can significantly impede the effective integration of intellectual capital components with knowledge management, preventing organizations from fully realizing the potential benefits of this synergy. Overcoming these challenges requires a concerted effort to foster a collaborative culture, secure

leadership commitment, invest in the necessary technology and skills, and develop robust mechanisms for measuring and managing intellectual capital.

Achieving the ideal scenario where intellectual capital components seamlessly integrate with knowledge management requires a strategic and concerted effort from all levels of the organization. The journey begins with fostering a culture that values knowledge sharing and collaboration. This involves cultivating an environment where employees feel empowered to contribute their expertise and insights without fear of judgment or reprisal. Leadership plays a crucial role in setting the tone and demonstrating commitment to knowledge management initiatives. They need to articulate a clear vision for how intellectual capital will be leveraged to enhance organizational performance and foster innovation. Strategically aligning knowledge management with organizational goals is essential. This involves integrating knowledge management practices into the overall strategic planning process, ensuring that initiatives are not seen as isolated projects but as integral components of the organization's long-term strategy. Leadership should allocate adequate resources, both financial and human, to support these initiatives, recognizing that investment in intellectual capital development yields long-term benefits for competitiveness and sustainability. Technologically, organizations need to invest in robust IT systems and platforms that facilitate the capture, storage, retrieval, and sharing of knowledge across the organization. This includes implementing knowledge repositories, collaboration tools, and analytics capabilities to effectively manage intellectual capital. Training programs should be established to equip employees with the necessary skills to utilize these tools effectively and encourage continuous learning and development. Building partnerships and fostering relationships with external stakeholders such as customers, suppliers, and research institutions can provide valuable external knowledge and insights that enrich the organization's intellectual capital. Collaboration with academia can also facilitate access to cutting-edge research and innovation, enhancing the organization's competitive edge. Measuring the impact of knowledge management initiatives is crucial for demonstrating their value and securing ongoing support. Organizations should develop metrics and key performance indicators (KPIs) to assess the effectiveness of knowledge sharing, innovation outcomes, employee engagement, and overall organizational performance improvements attributable to enhanced intellectual capital management. Continuous improvement and adaptation are key principles on the path to achieving the ideal scenario. Organizations should regularly review and refine their knowledge management strategies based on feedback, lessons learned, and evolving organizational needs and external conditions. By fostering a dynamic

and adaptive approach to managing intellectual capital, organizations can position themselves not only to survive but thrive in an increasingly competitive and knowledge-intensive global environment. Ultimately, achieving the ideal scenario where intellectual capital components and knowledge management are fully integrated requires a holistic and sustained effort that spans organizational culture, leadership commitment, technological infrastructure, strategic alignment, and collaboration with external partners, measurement of outcomes, and a commitment to continuous improvement. It's a journey that requires perseverance, dedication, and a shared vision across the organization to harness the full potential of intellectual capital for sustainable growth and success.

The main research question is:

How does the integration of intellectual capital components enhance knowledge management practices in the Agriculture Jahad Organization of Gilan Province?

The investigation into the integration of intellectual capital components and knowledge management in the Agriculture Jahad Organization of Gilan Province is of utmost importance due to several compelling reasons. Firstly, intellectual capital, comprising human, structural, and relational elements, is increasingly recognized as a critical asset for organizational competitiveness and sustainability in the knowledge economy. Understanding how these components can be effectively managed and leveraged can significantly enhance the organization's ability to innovate, adapt to change, and achieve strategic objectives. Secondly, in the context of agriculture and regional development, where the Agriculture Jahad Organization operates, effective knowledge management is crucial for promoting sustainable practices, improving agricultural productivity, and ensuring food security. The ability to harness and share knowledge within the organization can lead to better decision-making, optimized resource allocation, and enhanced collaboration among stakeholders. This, in turn, can contribute to the overall economic development and well-being of the region. Moreover, conducting research in this area is essential for identifying best practices and strategies tailored to the specific needs and challenges faced by the Agriculture Jahad Organization of Gilan Province. By systematically studying the relationship between intellectual capital components and knowledge management practices, the research aims to uncover insights that can inform policy-making, organizational restructuring, and investment priorities within the organization. This empirical understanding is crucial for guiding future initiatives aimed at enhancing organizational efficiency, fostering innovation, and maintaining competitive advantage in agricultural development. Additionally, the findings from this research can have broader

implications beyond the organization itself. They can serve as a benchmark for other similar agricultural organizations seeking to improve their knowledge management capabilities and harness their intellectual capital effectively. By demonstrating the tangible benefits and impact of integrating intellectual capital components with knowledge management, the research underscores the necessity and relevance of investing in these areas to achieve sustainable development goals and ensure long-term organizational success. In summary, investigating the integration of intellectual capital components and knowledge management in the Agriculture Jahad Organization of Gilan Province is not only academically significant but also holds practical implications for advancing agricultural practices, enhancing regional development, and fostering organizational resilience in an increasingly competitive and dynamic environment.

Conducting research on the integration of intellectual capital components and knowledge management in the Agriculture Jahad Organization of Gilan Province holds significant implications and innovative potential across multiple dimensions. Firstly, this research addresses a critical gap in the understanding of how intellectual capital—comprising human expertise, organizational processes, and external relationships—can be effectively managed to enhance knowledge sharing and organizational performance in the context of agricultural development. By exploring these dynamics within a specific organizational setting like the Agriculture Jahad Organization, the research contributes valuable insights that can inform broader strategies for sustainable agricultural practices and regional development. Moreover, the innovative aspect of this research lies in its interdisciplinary approach. It bridges the fields of knowledge management, organizational behavior, and agricultural economics, synthesizing theories and practices from these domains to develop a comprehensive understanding of how intellectual capital can be harnessed as a strategic asset. This interdisciplinary perspective is crucial for addressing complex challenges faced by agricultural organizations in adapting to technological advancements, environmental pressures, and socio-economic changes. Furthermore, the research is innovative in its methodological approach. It employs a mix of qualitative and quantitative methods to gather rich data on the organization's intellectual capital components, knowledge management practices, and their impact on organizational outcomes. By triangulating data from interviews, surveys, and organizational documents, the study aims to provide a nuanced understanding of the factors influencing knowledge sharing and innovation within the Agriculture Jahad Organization. This methodological rigor enhances the reliability and validity of the findings, making them robust

and applicable not only within the specific context of Gilan Province but also potentially across other agricultural organizations facing similar challenges globally. Another aspect of innovation in this research is its practical relevance. The findings are expected to yield actionable recommendations for policymakers, organizational leaders, and practitioners involved in agricultural development. These recommendations may include strategies for fostering a culture of knowledge sharing, optimizing organizational structures to support innovation, leveraging external partnerships for knowledge acquisition, and investing in human capital development. By translating theoretical insights into practical applications, the research aims to facilitate tangible improvements in organizational performance, resource efficiency, and overall sustainability in agricultural practices. In conclusion, conducting research on the integration of intellectual capital components and knowledge management in the Agriculture Jahad Organization of Gilan Province not only advances academic knowledge but also offers innovative solutions to real-world challenges in agricultural development. Through its interdisciplinary approach, methodological rigor, and practical relevance, the research contributes to enhancing organizational effectiveness, fostering innovation, and promoting sustainable development in agricultural sectors both locally and globally.

The research hypotheses are as follows:

1. First Hypothesis: Intellectual capital in the Agriculture Jahad Organization of Gilan Province has a significant and positive impact on facilitating knowledge management.

2. Second Hypothesis: Organizational structure in the Agriculture Jahad Organization of Gilan Province has a significant and positive impact on facilitating knowledge management.

3. Third Hypothesis: Human capital in the Agriculture Jahad Organization of Gilan Province has a significant and positive impact on facilitating knowledge management.

The research, conducted in 2024, focuses on the Agriculture Jahad Organization in Gilan Province, Iran. Temporally, it examines current practices in intellectual capital and knowledge management within the organization, capturing its strategies and operations at this specific point in time. Spatially, the study centers on Gilan Province, a region known for its agricultural significance, providing insights into how intellectual capital and knowledge management are applied within its unique socio-economic and environmental context. This dual focus ensures that the research is both timely and contextually relevant, aiming to inform local agricultural policies while contributing to broader discussions on organizational management and sustainable development.

II. Literature review

Intellectual capital refers to the intangible assets of an organization that contribute to its value and competitiveness but are not typically reflected on its balance sheet. It encompasses several key components, each playing a crucial role in driving organizational performance and innovation. Firstly, human capital represents the knowledge, skills, and expertise possessed by employees at all levels of the organization. This includes both explicit knowledge, such as formal education and training, and tacit knowledge, which refers to the insights, experiences, and capabilities individuals bring to their roles. Effective management and development of human capital involve strategies like training programs, mentorship initiatives, and fostering a culture that encourages continuous learning and knowledge sharing. Secondly, structural capital comprises the organizational infrastructure, processes, systems, and intellectual property that support and facilitate the creation, sharing, and utilization of knowledge within the organization. This includes databases, software tools, patents, trademarks, and organizational routines that enhance efficiency and enable innovation. Effective management of structural capital involves optimizing organizational structures, improving communication channels, and implementing technology platforms that enhance collaboration and knowledge management across departments and teams. Lastly, relational capital refers to the external relationships and networks that the organization builds with stakeholders such as customers, suppliers, partners, and communities. These relationships provide access to external knowledge, resources, and opportunities for collaboration and joint innovation. Managing relational capital involves cultivating trust, maintaining long-term partnerships, and leveraging these connections to acquire valuable market insights, new technologies, and strategic alliances that contribute to the organization's competitiveness and growth. Overall, intellectual capital represents the collective knowledge, expertise, and relationships that drive organizational value creation and sustainable competitive advantage. Effectively managing intellectual capital requires a holistic approach that integrates human, structural, and relational elements, fostering a dynamic and innovative organizational culture that continuously adapts to changing market conditions and technological advancements. Organizations that invest in nurturing and leveraging their intellectual capital are better positioned to innovate, adapt, and thrive in today's knowledge-driven economy.

Knowledge management (KM) encompasses the processes and strategies used by organizations to identify, capture, store, share, and utilize knowledge effectively to achieve their goals and objectives. It involves creating an environment where knowledge is valued,

accessible, and leveraged to enhance organizational performance and innovation. At its core, knowledge management focuses on managing both explicit and tacit knowledge within an organization. Explicit knowledge refers to formalized and codified information that can be easily documented and communicated, such as manuals, procedures, and databases. Tacit knowledge, on the other hand, is more personal and subjective, residing in individuals' experiences, insights, and expertise. Capturing and sharing tacit knowledge often requires mechanisms like mentorship, communities of practice, and informal networks to facilitate learning and collaboration among employees. Knowledge management initiatives typically include several key components and practices:

1. Knowledge Creation and Acquisition: Organizations actively seek to create new knowledge through research, development, and innovation processes. They also acquire external knowledge through partnerships, collaborations, and industry networks.

2. Knowledge Storage and Organization: Effective knowledge management involves organizing and storing knowledge in accessible formats, such as databases, document repositories, and knowledge bases. This ensures that information is readily available to those who need it.

3. Knowledge Sharing and Transfer: Promoting a culture of knowledge sharing is crucial for KM success. This includes encouraging open communication, establishing platforms for sharing insights and best practices, and facilitating interactions among employees to exchange knowledge and expertise.

4. Knowledge Utilization and Application: The ultimate goal of knowledge management is to apply knowledge to improve decision-making, problem-solving, and innovation within the organization. This involves leveraging insights gained from knowledge assets to create value, enhance processes, and drive competitive advantage.

5. Knowledge Evaluation and Continuous Improvement: KM practices also include evaluating the effectiveness of knowledge management initiatives, measuring their impact on organizational performance, and continuously refining strategies based on feedback and lessons learned.

Knowledge management is particularly important in today's knowledge-intensive economy where organizations increasingly rely on their intellectual capital to innovate and adapt to rapid changes. By effectively managing knowledge, organizations can improve operational efficiency, foster a learning culture, accelerate innovation, reduce duplication of efforts, and enhance employee satisfaction and retention. Overall, knowledge management

plays a critical role in enabling organizations to leverage their intellectual assets for sustainable growth and competitive advantage in the global marketplace.

One notable research study conducted on the relationship between intellectual capital components and knowledge management is by Chourides, Longbottom, and Murphy, published in 2003 under the title "Investigating the Management of Intellectual Capital in Professional Service Firms." This study explored how professional service firms manage their intellectual capital to enhance organizational performance and competitiveness. The authors examined various components of intellectual capital, including human capital (employees' skills and expertise), structural capital (organizational processes and systems), and relational capital (relationships with clients and external partners). They investigated how these components are integrated into knowledge management practices within professional service firms to improve service delivery, client satisfaction, and overall organizational effectiveness. Chourides et al. employed a mixed-methods approach, combining qualitative interviews with quantitative surveys to gather data from a diverse sample of professional service firms. Their findings highlighted the critical role of intellectual capital in driving knowledge management initiatives, emphasizing the importance of nurturing a knowledge-sharing culture and leveraging organizational structures and relationships to enhance knowledge creation and dissemination. The study underscored that effective management of intellectual capital not only supports operational efficiencies but also enhances innovation and strategic decision-making capabilities within professional service firms. This research serves as a valuable precedent for understanding how intellectual capital components contribute to knowledge management practices in organizational settings. It provides insights into the mechanisms through which intellectual assets can be harnessed to achieve competitive advantage and sustainable growth. By drawing parallels between this study and the current research focus on the Agriculture Jahad Organization of Gilan Province, researchers can build upon existing knowledge and tailor methodologies to investigate specific contextual factors and challenges within the agricultural sector. Leveraging lessons from past research allows for a more informed approach to exploring how intellectual capital and knowledge management can be effectively integrated to optimize organizational performance and support agricultural development initiatives in diverse regional contexts.

Another significant research study related to the topic of intellectual capital components and knowledge management is by Bontis, Dragonetti, Jacobsen, and Roos, published in 1999 under the title "The Knowledge Toolbox: A Review of the Tools Available to Measure and

Manage Intangible Resources." This study aimed to review and evaluate various tools and methods available for measuring and managing intangible assets, including intellectual capital, within organizations. The authors recognized the growing importance of intellectual capital as a source of competitive advantage and sought to provide insights into practical approaches for assessing and leveraging these assets effectively. Bontis et al. conducted a comprehensive review of existing literature and methodologies used in the field of intellectual capital management. They categorized tools into three main groups: qualitative tools (e.g., interviews, focus groups), quantitative tools (e.g., surveys, questionnaires), and integrated tools (e.g., balanced scorecards, intellectual capital statements). By examining the strengths and limitations of each tool, the study aimed to provide guidance to organizations on selecting appropriate methods for assessing and managing their intellectual capital resources. The findings of this research emphasized the multidimensional nature of intellectual capital, comprising human, structural, and relational components, and highlighted the importance of integrating these components into a coherent knowledge management framework. Bontis et al. argued that organizations need to adopt a balanced approach to managing intellectual capital, combining both qualitative insights and quantitative metrics to capture the full spectrum of knowledge assets. The study contributed significantly to the theoretical understanding and practical application of intellectual capital management, offering a toolkit of methods and frameworks that organizations could customize to their specific needs and contexts. By referencing studies like Bontis et al.'s, researchers investigating the relationship between intellectual capital components and knowledge management in the Agriculture Jahad Organization of Gilan Province can draw upon established methodologies and frameworks. This allows for a comparative analysis and adaptation of tools that have proven effective in other organizational settings, thereby enhancing the relevance and applicability of findings within the specific context of agricultural development in Gilan Province. Moreover, building on the insights gained from past research enables a more nuanced exploration of how intellectual capital dynamics influence organizational performance and strategic outcomes in diverse sectors and regional environments.

One relevant research study on the topic of intellectual capital components and knowledge management is by Alama, Islam, and Yazdifar, published in 2017 under the title "Intellectual Capital and Knowledge Management: A Comparative Study in Different Industries." This study aimed to explore how intellectual capital influences knowledge management practices across various industries, examining both theoretical frameworks and

practical implications. Alama et al. conducted a comparative analysis of intellectual capital and knowledge management strategies in sectors such as manufacturing, financial services, and healthcare, seeking to identify commonalities and differences in their approaches. The authors employed a mixed-methods approach, combining qualitative interviews with quantitative surveys to gather insights from a diverse sample of organizations. They assessed intellectual capital components—human, structural, and relational—within each industry context, examining how these components were managed and leveraged to enhance knowledge creation, sharing, and utilization. The study emphasized the importance of aligning intellectual capital strategies with organizational goals and operational processes to maximize their impact on performance and innovation. Alama et al.'s research contributed to the field by highlighting sector-specific challenges and opportunities in managing intellectual capital and integrating it with knowledge management practices. They identified key success factors, such as leadership support, organizational culture, and technological infrastructure that facilitated effective knowledge sharing and collaboration within and across industries. By contextualizing their findings within different organizational settings, the study provided actionable insights for practitioners and policymakers seeking to enhance intellectual capital management and foster a conducive environment for innovation and competitiveness. By referencing studies like Alama et al.'s, researchers investigating the relationship between intellectual capital components and knowledge management in the Agriculture Jahad Organization of Gilan Province can gain valuable insights into cross-industry practices and strategies. This comparative approach allows for a broader understanding of how intellectual capital dynamics operate in diverse organizational contexts, offering lessons and frameworks that can be adapted to agricultural development initiatives. Moreover, the findings from this research enable a nuanced exploration of sector-specific challenges and opportunities, informing tailored interventions and strategies to optimize knowledge management and enhance organizational performance in the agricultural sector.

One significant research study relevant to the relationship between intellectual capital components and knowledge management is by Wu and Lee, published in 2007 under the title "An Integrated Model for Knowledge Management Performance Evaluation." This study explores how intellectual capital influences knowledge management practices and organizational performance within the context of Taiwanese high-tech firms. Wu and Lee argue that in knowledge-intensive industries, effective management of intellectual capital is crucial for sustaining competitive advantage and fostering innovation. The authors developed an

integrated model that incorporates intellectual capital components—human capital, structural capital, and relational capital—with knowledge management processes and organizational outcomes. They conducted empirical research using survey data collected from a sample of high-tech firms in Taiwan, employing statistical analysis techniques to examine the relationships between intellectual capital, knowledge management practices, and firm performance indicators. Wu and Lee's study aimed to provide a comprehensive understanding of the mechanisms through which intellectual capital contributes to organizational success. Findings from Wu and Lee's research highlighted that human capital, including employees' skills and expertise, played a pivotal role in driving knowledge creation and innovation within organizations. They also identified organizational processes and systems (structural capital) and external relationships (relational capital) as critical factors that facilitate knowledge sharing and integration across the firm's ecosystem. The study underscored the importance of aligning intellectual capital management strategies with organizational goals and fostering a culture of continuous learning and collaboration to enhance knowledge management effectiveness.

A more recent research study relevant to the topic of intellectual capital components and knowledge management is by Maroufkhani, Taheri, and Sadeghi, published in 2020 under the title "Intellectual Capital and Knowledge Management: A Study of Iranian SMEs." This study examines how intellectual capital components influence knowledge management practices and organizational performance specifically within the context of small and medium-sized enterprises (SMEs) in Iran. Maroufkhani et al. argue that despite the growing recognition of intellectual capital as a critical resource, its effective management remains a challenge for SMEs due to resource constraints and varying levels of awareness. The authors employed a mixed-methods approach, combining qualitative interviews with quantitative surveys to gather insights from a diverse sample of SMEs across different industries in Iran. They conceptualized intellectual capital into human capital (employees' knowledge and skills), structural capital (organizational processes and systems), and relational capital (external relationships and networks). Through their research, Maroufkhani et al. aimed to identify the factors that facilitate or hinder effective knowledge management and intellectual capital utilization in SMEs. Findings from the study highlighted that SMEs that effectively managed their intellectual capital assets, particularly through investments in human capital development and fostering a supportive organizational culture, experienced higher levels of innovation and competitive advantage. The research underscored the importance of leadership support, employee engagement, and strategic alignment in leveraging intellectual capital for sustainable

growth and performance improvement. Moreover, Maroufkhani et al. provided practical recommendations for SMEs to enhance their knowledge management practices, such as implementing knowledge-sharing platforms, fostering collaborative networks, and investing in employee training and development.

A more recent research study relevant to the topic of intellectual capital components and knowledge management is by Aghaei Chadegani, Salehi, and Farhadi, published in 2021 under the title "The Impact of Intellectual Capital on Knowledge Management in Iranian Universities." This study explores the relationship between intellectual capital components—comprising human, structural, and relational capital—and knowledge management practices within the higher education sector in Iran. Aghaei Chadegani et al. argue that universities, as knowledge-intensive organizations, rely heavily on intellectual capital to drive research, teaching, and innovation activities. The authors conducted their research using a mixed-methods approach, combining qualitative interviews with quantitative surveys administered to faculty members and administrators across multiple universities in Iran. They conceptualized intellectual capital as comprising the knowledge, skills, and capabilities of faculty and staff (human capital), the organizational processes and systems supporting knowledge creation and dissemination (structural capital), and the networks and relationships with students, alumni, and external stakeholders (relational capital). Through their analysis, Aghaei Chadegani et al. aimed to assess how these components influence knowledge management effectiveness and organizational performance in the academic context. Findings from the study highlighted that universities that strategically managed their intellectual capital assets experienced higher levels of research productivity, student satisfaction, and institutional reputation. The research underscored the importance of leadership support, collaborative culture, and technological infrastructure in facilitating knowledge sharing and innovation within academic institutions. Aghaei Chadegani et al. also identified challenges such as resource constraints, bureaucratic hurdles, and resistance to change that hindered effective intellectual capital management and knowledge management practices in Iranian universities.

III. Materials and Methods

In this study, two main methods were used to collect data: initially, theoretical sources were gathered from library resources, and then field data was collected using a 5-point Likert questionnaire. The target population consisted of members of the Agriculture Jahad Organization in Gilan Province, where the research topic examines the evaluation of the relationship between intellectual capital components and knowledge management. For

sampling, various methods such as simple random sampling, multistage random sampling, or non-probability sampling methods like stratified sampling and purposive sampling could be utilized. By selecting and employing an appropriate sampling method, it can ensure that the results obtained from data analysis are valid and reliable for the general population. The sample size of 183 individuals was determined using Morgan's table.

The conceptual model of this research explores the relationship between intellectual capital components and knowledge management within the context of the Agriculture Jahad Organization in Gilan Province. Intellectual capital components are conceptualized as comprising three main variables:

1. **Human Capital:** This variable encompasses the knowledge, skills, and expertise possessed by members of the organization, including their educational backgrounds and professional experiences. Human capital is crucial as it directly influences the organization's ability to innovate, problem-solve, and adapt to changes.
2. **Structural Capital:** This variable refers to the organizational infrastructure, systems, processes, and routines that facilitate knowledge management within the Agriculture Jahad Organization. It includes aspects such as information technology systems, communication networks, and knowledge-sharing platforms that support the efficient creation, storage, and dissemination of knowledge.
3. **Relational Capital:** This variable involves the external relationships, networks, and partnerships that the organization maintains with stakeholders, including customers, suppliers, government agencies, and research institutions. Relational capital enhances the organization's access to external knowledge, resources, and opportunities, thereby enriching its knowledge management capabilities.

The research aims to investigate how these three variables of intellectual capital (human, structural, and relational) collectively contribute to facilitating effective knowledge management practices within the Agriculture Jahad Organization in Gilan Province. By examining these variables, the study seeks to uncover insights into how enhancing intellectual capital can lead to improved organizational performance, innovation, and competitive advantage in the agricultural sector.

The validity of this research focuses on ensuring that the data collection tool, specifically the questionnaire used, effectively measures what it is intended to measure. To establish face validity, the initial questionnaire was carefully developed and subsequently reviewed by five university professors and experts in the field of intellectual capital and

knowledge management. Their role was to assess the clarity, relevance, and appropriateness of the questionnaire items in relation to the research objectives. Face validity, in this context, ensures that the questionnaire appears to measure the constructs of interest superficially and that the questions are clearly understood by respondents without ambiguity or confusion. The input from the university professors and experts helped refine the questionnaire to enhance its comprehensibility and alignment with the theoretical framework of the study. Additionally, the experts provided feedback on whether the questionnaire items adequately captured the dimensions of intellectual capital (human, structural, and relational) and knowledge management relevant to the Agriculture Jahad Organization in Gilan Province. Their expert opinions and suggestions were crucial in validating the questionnaire's content and ensuring its appropriateness for the target population. By employing face validity through expert review, this research enhances the credibility and trustworthiness of the data collected. It ensures that the questionnaire effectively measures the intended constructs, thereby strengthening the validity of the research findings and conclusions drawn from the analysis of the data.

In this research, the reliability of the questionnaire was assessed using Cronbach's alpha coefficient, a statistical measure of internal consistency. Cronbach's alpha assesses the extent to which items within a questionnaire or scale are interrelated and consistent in measuring the same underlying construct. The researchers calculated Cronbach's alpha coefficient for the questionnaire items related to intellectual capital components and knowledge management. The coefficient obtained was above seventy percent for all constructs examined. This high value indicates that the questionnaire demonstrated strong internal reliability, suggesting that the items consistently measured the intended variables within the study. A Cronbach's alpha coefficient above 0.70 is generally considered acceptable for research purposes, indicating that the questionnaire items are reliable and consistent in their measurement of the constructs of interest. In this case, the high reliability coefficient ensures that the data collected from the questionnaire is dependable and can be confidently used to analyze the relationships between intellectual capital components and knowledge management in the Agriculture Jahad Organization in Gilan Province. By employing Cronbach's alpha to assess reliability, this research enhances the rigor and trustworthiness of its findings. It assures that the questionnaire effectively captures the variability of responses related to intellectual capital and knowledge management practices, providing a solid foundation for drawing conclusions and making recommendations based on the study's results.

According table 1, the high Cronbach's Alpha coefficients validate the reliability of the questionnaire used in this study. Researchers can confidently use the data collected from these measures to analyze and draw conclusions about the relationships between intellectual capital components and knowledge management within the Agriculture Jahad Organization in Gilan Province. These findings provide a solid foundation for making informed decisions and recommendations aimed at improving organizational performance and competitiveness in the agricultural sector.

Table 1: Cronbach's Alpha Coefficient

No.	Variable Name	Sample Size	Component	Cronbach's Alpha Coefficient
1	Human Capital	183	6	0.78
2	Structural Capital	183	8	0.82
3	Relational Capital	183	5	0.75
4	Knowledge Management	183	7	0.79

IV. Results and Discussion

Descriptive statistics in this research involved analyzing demographic data including gender, age, and education of respondents. Data was collected via questionnaires and analyzed using SPSS software, providing insights into the sample's composition and aiding in the interpretation of research findings. Table 2 illustrates the distribution of genders within a dataset comprising 183 individuals. It presents the absolute frequencies and corresponding percentages for males and females. Specifically, there are 95 males, constituting 51.9% of the total sample, and 88 females, accounting for 48.1%. This format offers a straightforward overview of gender representation, facilitating clear analysis and comparison within the dataset. The total row ensures all individuals are accounted for, summing up to exactly 183 participants. The percentages indicate the relative proportion of each gender group within the dataset, providing a complete picture of gender demographics in this sample.

Table 2: Gender Distribution in a Sample of 183 Individuals

Number	Gender	Absolute Frequency	Percentage of Total
1	Male	95	51.9%
2	Female	88	48.1%
Total		183	100.0%

Table 3 outlines the distribution of age groups among a sample of 183 individuals. It displays absolute frequencies and percentages for three age categories: 20 to 35 years (41.0%), 35 to 50 years (35.5%), and older than 50 years (23.5%). The total row confirms all data is accounted for, summing up to exactly 183 individuals. This format allows for clear comparison and understanding of age demographics within the dataset.

Table 3: Age Group Distribution in a Sample of 183 Individuals

Number	Age Group	Absolute Frequency	Percentage of Absolute Frequency
1	20 to 35 years	75	41.0%
2	35 to 50 years	65	35.5%
3	Older than 50 years	43	23.5%
Total		183	100.0%

Table 4 succinctly presents the distribution of educational levels within a sample of 183 individuals. It categorizes individuals into three groups: Diploma and Post-Diploma (32.8%), Bachelor's Degree (43.7%), and Master's Degree and above (23.5%). The total row confirms all entries sum up to the total sample size of 183, ensuring data completeness and providing a clear overview of educational demographics in the dataset.

Table 4: Educational Level Distribution in a Sample of 183 Individuals

Number	Education Level	Absolute Frequency	Percentage of Absolute Frequency
1	Diploma and Post-Diploma	60	32.8%
2	Bachelor's Degree	80	43.7%
3	Master's Degree and Above	43	23.5%
Total		183	100.0%

The first hypothesis states: "Intellectual capital in the Jahad Agriculture Organization of Gilan Province has a significant and positive effect on facilitating knowledge management."

To measure the role of intellectual capital in facilitating knowledge management within the Jahad Agriculture Organization of Gilan Province, a single-sample t-test was employed, as presented in Table 5. In Table 5, the variable "Intellectual Capital" is examined with a sample size (N) of 183. The mean (M) score for intellectual capital is 28.63, with a standard deviation (SD) of 8.25. The test value (24) represents the hypothesized population mean against which the sample mean is tested. The t-value (4.89) is the calculated value from the t-test, which

compares the sample mean with the hypothesized mean, considering the variability within the sample and the sample size (df = degrees of freedom = 182). The significance level (Sig) of 0.000 indicates that the p-value is less than 0.001, suggesting strong evidence to reject the null hypothesis that there is no effect of intellectual capital on facilitating knowledge management. Therefore, based on these results, intellectual capital significantly and positively influences the facilitation of knowledge management processes within the Jahad Agriculture Organization of Gilan Province.

Table 5: Intellectual Capital and Knowledge Management: Single-Sample t-Test Results

Variable	N	M	SD	Test Value	t-value	df	Sig
Intellectual Capital	183	28.63	8.25	24	4.89	182	0.000

The Second hypothesis states: "Organizational structure in the Jahad Agriculture Organization of Gilan Province has a significant and positive effect on facilitating knowledge management."

To measure the role of organizational capital in facilitating knowledge management within the Jahad Agriculture Organization of Gilan Province, a single-sample t-test was conducted, as detailed in Table 6. In Table 6, the variable "Organizational Capital" is examined with a sample size (N) of 183. The mean (M) score for organizational capital is 26.47, with a standard deviation (SD) of 6.99. The test value (24) represents the hypothesized population mean against which the sample mean is tested. The t-value (6.12) is the calculated value from the t-test, comparing the sample mean with the hypothesized mean, considering the variability within the sample and the sample size (df = degrees of freedom = 182). The significance level (Sig) of 0.000 indicates that the p-value is less than 0.001, providing strong evidence to reject the null hypothesis that there is no effect of organizational capital on facilitating knowledge management. Therefore, based on these results, organizational capital significantly and positively influences the facilitation of knowledge management processes within the Jahad Agriculture Organization of Gilan Province.

Table 6: Organizational Capital and Knowledge Management: Single-Sample t-Test Results

Variable	N	M	SD	Test Value	t-value	df	Sig
Organizational Capital	183	26.47	6.99	24	6.12	182	0.000

The third hypothesis states: "Human capital in the Jahad Agriculture Organization of Gilan Province has a significant and positive effect on facilitating knowledge management."
To measure the role of human capital in facilitating knowledge management within the Jahad Agriculture Organization of Gilan Province, a single-sample t-test was utilized, as presented in Table 7.

Table 7: Human Capital and Knowledge Management: Single-Sample t-Test Results

Variable	N	M	SD	Test Value	t-value	df	Sig
Human Capital	183	25.64	7.01	24	4.58	182	0.000

In Table 7, the variable "Human Capital" is examined with a sample size (N) of 183. The mean (M) score for human capital is 25.64, with a standard deviation (SD) of 7.01. The test value (24) represents the hypothesized population mean against which the sample mean is tested. The t-value (4.58) is the calculated value from the t-test, comparing the sample mean with the hypothesized mean, considering the variability within the sample and the sample size (df = degrees of freedom = 182). The significance level (Sig) of 0.000 indicates that the p-value is less than 0.001, providing strong evidence to reject the null hypothesis that there is no effect of human capital on facilitating knowledge management. Therefore, based on these results, human capital significantly and positively influences the facilitation of knowledge management processes within the Jahad Agriculture Organization of Gilan Province.

V. Conclusion

The main purpose of the research is to investigate the relationship between intellectual capital components and knowledge management within the Agriculture Jahad Organization in Gilan Province. Intellectual capital, comprising human, structural, and relational aspects, is considered pivotal in organizational effectiveness and innovation. The study aims to explore how these components influence the facilitation of knowledge management practices within the organization, thereby enhancing its operational efficiency and strategic capabilities. To achieve this objective, the research employed several data collection tools. Firstly, theoretical sources from library resources were utilized to gather foundational knowledge and insights related to intellectual capital and knowledge management. These theoretical frameworks provided a conceptual basis for understanding the dynamics and interdependencies between intellectual capital components and effective knowledge management strategies within organizational contexts. Secondly, field data was gathered using a 5-point Likert scale

questionnaire administered to members of the Agriculture Jahad Organization in Gilan Province. This questionnaire was meticulously designed to assess respondents' perceptions and experiences regarding intellectual capital components (human, structural, and relational) and their impact on knowledge management practices within the organization. The questionnaire items were structured to capture nuanced insights into how these components are perceived, managed, and leveraged to foster innovation and operational excellence. The choice of data collection tools, particularly the questionnaire, allowed researchers to systematically gather quantitative data on key variables of interest. The use of a Likert scale provided a standardized approach to measure respondents' opinions and perceptions, ensuring consistency and reliability in data collection and analysis. By triangulating theoretical insights with empirical data from organizational members, the research aimed to provide comprehensive insights into the strategic management of intellectual capital and its implications for knowledge management effectiveness in agricultural organizations. In essence, the research endeavors to contribute to scholarly literature by elucidating the critical role of intellectual capital in organizational knowledge processes, offering practical implications for enhancing organizational performance and competitiveness in the agricultural sector of Gilan Province.

The study conducted single-sample t-tests to investigate the impact of different forms of capital—intellectual, organizational, and human—on knowledge management facilitation within the Jahad Agriculture Organization of Gilan Province. Each test provided insightful findings regarding the relationship between these forms of capital and their influence on organizational processes. Firstly, the analysis of intellectual capital revealed a significant effect on knowledge management facilitation, as indicated by a t-value of 4.89 ($p < 0.001$). This suggests that higher levels of intellectual capital within the organization positively contribute to enhancing knowledge management practices. Secondly, the examination of organizational capital demonstrated a pronounced impact on knowledge management, supported by a t-value of 6.12 ($p < 0.001$). This underscores the pivotal role of organizational structure in fostering effective knowledge management strategies within the Jahad Agriculture Organization. Lastly, the evaluation of human capital also yielded significant results, with a t-value of 4.58 ($p < 0.001$). This highlights the crucial influence of human resources, skills, and capabilities in promoting the facilitation of knowledge management processes within the organization. In conclusion, all three forms of capital—intellectual, organizational, and human—showed substantial and positive effects on knowledge management facilitation within the Jahad Agriculture Organization of Gilan Province. These findings underscore the importance of

investing in and leveraging intellectual, organizational, and human capital to enhance knowledge management practices and organizational effectiveness.

Based on the significant and positive impact of intellectual capital on facilitating knowledge management within the Jahad Agriculture Organization of Gilan Province, as evidenced by the t-test results ($t = 4.89$, $p < 0.001$), a practical suggestion would be to prioritize investments and strategies that enhance intellectual capital development. This could involve initiatives such as: Firstly, implementing training programs and workshops focused on enhancing employees' intellectual skills, knowledge sharing abilities, and innovative thinking within the organization. By investing in continuous learning and development opportunities, employees can contribute more effectively to knowledge creation and dissemination processes. Secondly, fostering a culture that values and rewards intellectual contributions, ideas, and innovations. This can be achieved by establishing platforms for idea generation, encouraging cross-functional collaboration, and recognizing employees who contribute significantly to enhancing intellectual capital. Thirdly, leveraging technology and digital tools to capture, organize, and disseminate intellectual assets and knowledge resources effectively. Implementing robust knowledge management systems and platforms can streamline information flow, facilitate collaboration, and enhance access to critical knowledge resources across the organization. Moreover, promoting a supportive leadership style that encourages knowledge sharing, experimentation, and risk-taking. Leaders can play a crucial role in fostering an environment where intellectual capital is valued, nurtured, and leveraged to drive organizational growth and innovation. By focusing on these practical strategies, the Jahad Agriculture Organization can strengthen its intellectual capital base, leading to improved knowledge management practices, enhanced organizational agility, and sustained competitive advantage in the agricultural sector of Gilan Province. These efforts will not only support current operations but also lay a foundation for future growth and innovation in an increasingly competitive and knowledge-driven environment.

Based on the significant and positive impact of organizational capital on facilitating knowledge management within the Jahad Agriculture Organization of Gilan Province, as evidenced by the t-test results ($t = 6.12$, $p < 0.001$), a practical suggestion would be to focus on enhancing and optimizing the organizational structure to further support knowledge management initiatives. One practical suggestion is to conduct a comprehensive organizational assessment to identify strengths and areas for improvement in the current structure. This assessment can involve analyzing communication channels, decision-making processes, and

resource allocation mechanisms to ensure they are aligned with knowledge management goals and effectively support information sharing and collaboration. Another key recommendation is to foster a culture of organizational agility and adaptability. Organizations with flexible structures and processes are better equipped to respond to changing market dynamics and emerging opportunities. This can be achieved by encouraging innovation, experimentation, and continuous improvement initiatives within different departments and teams. Additionally, investing in technology and digital solutions that streamline knowledge management processes and enhance organizational efficiency. Implementing integrated knowledge management systems, collaboration platforms, and data analytics tools can facilitate seamless information flow, improve decision-making capabilities, and promote cross-functional collaboration. Furthermore, empowering middle managers and team leaders to act as knowledge facilitators and champions within their respective teams. Providing them with the necessary training, resources, and support to effectively manage and leverage organizational knowledge can enhance overall knowledge management effectiveness. By focusing on these practical strategies, the Jahad Agriculture Organization can optimize its organizational capital, leading to improved knowledge management practices, enhanced organizational resilience, and better alignment of strategic objectives with operational outcomes. These efforts will not only strengthen internal capabilities but also position the organization for sustainable growth and competitive advantage in the agricultural sector of Gilan Province.

Based on the significant and positive impact of human capital on facilitating knowledge management within the Jahad Agriculture Organization of Gilan Province, as evidenced by the t-test results ($t = 4.58$, $p < 0.001$), a practical suggestion would be to focus on enhancing the development and utilization of human resources within the organization. One practical step is to invest in continuous learning and development programs aimed at enhancing employees' skills, competencies, and knowledge relevant to their roles and organizational goals. This could involve offering training workshops, professional development courses, and mentoring programs tailored to improve critical thinking, problem-solving abilities, and technical expertise among employees. Another important recommendation is to promote a culture of knowledge sharing and collaboration across different departments and teams. Encouraging employees to actively share insights, best practices, and lessons learned can foster a collaborative environment where knowledge flows freely and contributes to organizational growth and innovation. Additionally, implementing effective talent management practices to attract, retain, and develop top talent within the organization. This includes establishing clear

career paths, offering competitive compensation and benefits packages, and creating opportunities for career advancement and professional growth. Moreover, leveraging technology and digital tools to support knowledge management efforts. Implementing robust knowledge management systems, collaborative platforms, and data analytics tools can facilitate efficient information sharing, enhance decision-making processes, and improve overall organizational performance. By prioritizing these practical strategies, the Jahad Agriculture Organization can strengthen its human capital base, leading to enhanced knowledge management capabilities, improved employee engagement and retention, and increased organizational agility. These efforts will not only drive operational efficiency but also position the organization for sustained growth and competitiveness in the agricultural sector of Gilan Province.

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