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HUMAN SUSTAINABILITY AND THE COMPETITIVENESS OF JORDANIAN INDUSTRIAL COMPANIES: THE MEDIATING EFFECT OF EMPLOYEE PARTICIPATION

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ABSTRACT

There is much discussion about sustainability and its dimensions at the macro level (sustainable development) and at the micro level as important additional dimensions, including human sustainability. In this context, the contribution of this study comes in addressing the research gap in expanding the dimensions of sustainability to include a fourth dimension, represented by the human dimension with its four components: effective learning, sustainable innovation, functional sustainability, and sustainable teamwork. Human sustainability still needs to be rooted as a concept, representative components, and their effect on the two main determinants of the company's competitiveness. Accordingly, this study aimed to determine the effect of human sustainability components (effective learning, sustainable innovation, functional sustainability and sustainable teamwork) on the competitiveness of industrial companies in its two determinants: competitive ability and competitive performance. The current study also sought to investigate the effect of employee participation on the relationship between human sustainability and company competitiveness.

Keywords: Sustainability, human sustainability, effective learning, sustainable innovation, functional sustainability and sustainable teamwork, competitiveness.

JEL classification: M12, M14

I. INTRODUCTION

For a long time, the business model based on production at the expense of human conditions is not sustainable (El-Haggar & Samaha, 2019). The business policies associated with this model, which focused on economic responsibility in order to protect invested capital (Avishai, 1994), have exacerbated social (Unemployment, poverty, social conflicts, and crime) and environmental (Climate change, pollution, depletion of natural resources, threat to natural life) problems. In the face of these problems, sustainability was the rational and long-term choice in order to find the necessary balance between the three dimensions of sustainability (Chow & Chen, 2012; Hubbard, 2009): economic (making profit as an important function of survival and growth), social (caring for and thriving the community in which the company operates), and environmental (protecting the environment for the sake of a viable planet and the continuation of business). Since the introduction of the concept of sustainability into United Nations literature with "The Report of Brundtland Commission" (1987) and its many applications until now, sustainability has faced many challenges. One of these important challenges is the need to develop the dimensions of sustainability by adding human sustainability or the human dimension as a fourth dimension of sustainability. Efforts to address social and environmental problems resulting from corporate activities in various fields have helped embrace the social and environmental dimensions of sustainability. The exacerbation of human problems in the general environment (unemployment as a lack of job opportunities or technological unemployment due to the automation and digitization of corporate activities) and the work environment (tension, stress, burnout, attrition, low employee satisfaction that leads to increased labor turnover) (Yee *et al*., 2023; Fitriantini *et la.*, 2019; Alam & Asim, 2019). Overcoming these problems requires serious attention to the human dimension as a long-term option, and this is what can be achieved through human sustainability and considering the human dimension as a fourth dimension of sustainability.

Today's work environment, due to competition and the large number of competing companies in the physical and digital worlds, is accompanied by more anxiety, stress, exhaustion, burnout, depletion, and negative feelings and attitudes toward work (Oquendo *et al.,* 2019; Upadyaya *et al.*, 2016; Kinman & Jones, 2005; Maslach *et al.*, 2001). These troubling aspects of work are more widespread among professional and highly educated individuals than among employees in general (Shanafelt *et al.,* 2015). It also leads to severe damage to companies and employees alike due to instability and increased turnover at work (Yee *et al.,* 2022; Fitriantini *et la.*, 2019; Alam & Asim, 2019). These problems are compounded by downsizing policies in large companies and the expansion of automation, robotics, and artificial intelligence programs that threaten massive layoffs of employees. All these problems that spread in the work environment in different sectors require a new treatment of the relationship between employees and their companies. This treatment can be represented by human sustainability as an effective path to re-humanizing the work environment and building long-term relationships of trust between the company and its employees.

It is striking that the function of individuals in companies has evolved into human resources management, human capital management, and talent management. However, the concept of human

sustainability has not been introduced as a major trend in improving and sustaining human resources in these companies. It is clear that interest in human sustainability is still limited, and previous studies are very rare. Spreitzer *et al.*'s study (2012) emphasized that human sustainability is about thriving individuals who grow, develop, and are energized as an alternative to stagnation or feeling stressed and depleted at work. This achievement is achieved through two elements: vitality (feeling active and energetic at work) and learning at work (growth through new knowledge and skills). While Massaro *et al.*'s study (2020) defined human sustainability as preserving and improving the quality of human life and developing human capital. The companies that give great attention to the types of capital: natural, biological, social, technological, financial, cultural (Slaus & Jacobs, 2011), should give more attention to human capital as one of the important sources in creating value, and sustaining the capabilities of their employees for the longest possible period in the company.

This paper aims to raise interest in the possibility of adopting human sustainability as a fourth dimension of sustainability, making this sustainability a rational option for addressing work problems, improving employees' capabilities and experiences, and using it for the longest period of time at work. It also seeks to develop a practical model of human sustainability with its four components (effective learning, sustainable innovation, functional sustainability, and sustainable teamwork) that can be applied in different sectors. The current study attempted to apply this model to Jordanian industrial companies and determine the importance and impact of its four components on the company's competitiveness as a competitive ability and performance. The current study also sought to investigate the effect of employee participation on the relationship between human sustainability and company competitiveness.

II. SUSTAINABILITY CHALLENGES

Sustainability in its three dimensions represents a rational choice for companies to achieve a balance between their economic, social, and environmental responsibilities. With these responsibilities, sustainability comes to represent what is good for companies in relation to stakeholders (economic responsibility), society (social responsibility), and the environment and its natural resources (environmental responsibility). However, the sustainability of the company faces some challenges that can be identified in the following:

- Conflicting dimensions: Companies that operate on the basis of economic responsibility in maximizing profit are well aware that sustainability requires them to balance between their economic responsibilities (higher profit), social (care for the health and well-being of society), and environmental (protection of the environment and its resources for the future). These dimensions seem conflicting in the gap between the company's commercial interests on the one hand, and the social and environmental interests on the other. Therefore, some studies have talked about this contradictory trinity and the dark side of sustainability (Pelster & Schaltegge, 2011; Drummond & Marsden, 2005). Sustainability is associated with some negative impacts on competitiveness (Lopis-Torres *et al*., 2022). According to Warren-Myers, (2022), sustainability imposes additional

expenses, which weakens the competitive advantage of companies. The company, which has developed extensive experience in using the principle of exchange in order to maximize profit, faces with sustainability the problem of bearing additional burdens and expenses for the benefit of society and the environment, which weakens the chances of maintaining its high profits.

- **New dimensions:** Many studies also confirmed that the three dimensions of sustainability (economic, social, and environmental) are no longer sufficient. These dimensions need to be developed by adding other important dimensions such as cultural, political, organizational, digital, ethical, governance, and human sustainability (Teichmann & Wittmann, 2023; Sreepriya *et al.*, 2023; De Oliveira *et al*., 2022; Wut *et al*., 2021; Lähtinen & Myllyviita, 2015; Spreitzer *et al.* 2012, Bradley, 2007).

- **Sustainability is not an easy choice:** Our long experience with sustainability confirmed that it is a synonym for good (Vogt & Weber, 2019), but this experience also revealed that this is not enough. The environmental and social problems are still exacerbated despite the great efforts since the report of the Club of Rome "The limits of growth" 1972, the Earth Summit in Rio de Janeiro 1992, Rio Plus 20 in 2012, the Paris Agreement on Climate Change (COP 21) 2015 until the last report of the Club of Rome "Limits and beyond" 2022. Therefore, sustainability a balanced and important concept for all remains in need of long-term commitments and stricter measures in order to commit societies and companies to their responsibilities to keep the planet viable and sustainable.

- **Weak and strong sustainability:** the replacement of natural capital with physical capital (weak sustainability) versus the originality of irreplaceable natural capital (strong non-sustainability) (Neumayer, 2013; Hediger, 1999; Getzner, 1999). In this context, we can also talk about weak human sustainability as a trend to replace human capital (employees) with automated capital (automation, robotics, and artificial intelligence software), while strong human sustainability emphasizes the non-replacement of humans in work, living intelligence, and the diversity of human life forms as well.

III. Human Sustainability

Sustainability is the combination of three dimensions: economic (profit), social (community well-being), and environmental (protection of nature and its resources). It may seem that these three dimensions need to consider the human dimension in work, just as a business represents a challenge to society when the goal is to maximize profits regardless of social responsibility and the challenges of pollution and depletion of natural resources. Profit maximization may work to the detriment of employees (i.e. against the human dimension in business). In the past with luddites (machine-breaking workers), the use of machines led to layoffs of employees, but modern forms of luddites can also challenge employees in both dimensions: the negative and the unsustainable positive. Robotics can be considered the biggest threat to employee jobs because it is expected that in 47% of jobs, robots will replace employees (Frey & Osborne, 2017). The Luddites were the

product of 19th century macho phobia, it is automation, robotics, and computation phobia that is most dangerous and challenging for the survival of employees in their work (Cheng & Chan, 2008) and hence for human sustainability as well. Work sites still suffer from many problems such as giving priority to task requirements over humanizing work, rapid work turnover, employee alienation, hostile relations at work, and forms of discrimination among employees (Fergusona *et al.*, 2019; Fitriantin *et al*., 2019; Gandy *et al*., 2018; Richer *et al*., 2002). These problems have a negative impact on human sustainability which is becoming coupled with the challenges of automation, robotics, and computing that teach against job stability and human sustainability. Human sustainability requires a review of these forms in favor of performance and the long-term impact on employees. Accordingly, human sustainability in companies represents a new vision of human resource management for human investment through the four components. That the management of human resources may work to meet the pressures of the market to downsizing, layoffs, replacing old employees with machines or new employees in order to save resources. While human sustainability does not agree with these practices. Therefore, human sustainability requires a new policy in companies in order to use the four components as factors to improve efficiency and maximize its outcome in achieving the company's goals.

Depending on the resource-based view, a company is considered a collection of resources under one managerial framework (Becerra, 2009, p18). People are the most important of these resources within the company that can be relied upon to achieve its objectives. Human sustainability seeks to use human resources as a rich source of sustainable competitive advantage in the long term. Human sustainability as a new dimension of sustainability is still new, so it raises many questions. Is human sustainability a green capital that is environmentally friendly in decisions and practices (Agyabeng-Mensah & Tang, 2021; Bag & Gupta, 2020), or does it refer to the longer period of time in order to benefit from competencies of Human Resources (Ciziuniene *et al.*, 2016)? It is certainly a longer duration of time to benefit from the most valuable capital which is the human capital. The core and dynamic capabilities of the company as the systems and actions (Wiek *et al.*, 2011; Al-Omoush, 2021) include organizational and human capabilities, experiences, skills, and positive attitudes towards the environment that can appear in environmentally friendly and socially responsible companies. These capabilities represent the essence of human sustainability. Therefore, human sustainability refers to the longer duration of life and work. However, in this study we consider this perception to be the narrow and least important part of the representation of human sustainability. In the interpretation of human sustainability, it is necessary to distinguish between "temporary sustainability" which represents a limited period of time associated with the improvement of human conditions in life and work, and "continuous sustainability". Continuous sustainability can be expressed as the ability to influence in the long term beyond the temporal dimension in life (the age of the individual) and work (the employee's useful life). The term human sustainability may seem at first glance as a paradox that cannot be accepted because the human lifespan in life and work is limited and not sustainable. While sustainability assumes the ability to survive and continue in the long term. However, human sustainability can be associated with extending life by improving the quality of life and occupational health and safety conditions in the

work environment. This temporal dimension represents only one aspect of human sustainability that is related to a period of time (the period of employee stays in the company) and cannot represent overall human sustainability, bearing in mind that the retirement age will be a mandatory legal end to this temporary human sustainability. We know that in many cases the sustainable human effect can last much longer than this time period. On the other hand, the concept of human sustainability seems ambiguous because it can overlap with many concepts such as green human capital, green human resource management practices, organizational and human competencies, and the longer time period for benefiting from human capabilities and their positive effect on work and life. Human sustainability as green capital includes the abilities, skills, and expertise of employees that are used for the effective implementation of green practices (Agyabeng-Mensah & Tang, 2021; Bag & Gupta. 2020). Human sustainability also interferes with the practices of human resource management. Some studies sought to include environmental demands in green human resource management practices such as job description, selection and appointment, training, compensation, and performance evaluation (Acquah *et al.,* 2020; Yong *et al.,* 2020; Jabbour & Jabbour, 2016). Human sustainability was also associated in some studies with organizational and human competencies. These competencies gained importance through the resource-based vision theory (Wernerfelt, 1984). In early studies (Freiling, 2004; Priem & Butler, 2001; Fahy, 2000) the importance of these human competencies in the strategy and management of sustainability was emphasized. Although sustainability can represent additional costs that limit the company's competitiveness, human competencies can create appropriate compensation in enhancing its competitive advantage.

Human sustainability in this study refers to two main dimensions, a. Temporary sustainability: It means the continuation of employees for the longest period of their career in the company. This dimension is related to the company's policy based on preserving employees through a healthy, safe and motivating work environment. b. Comprehensive sustainability: This concept still needs great efforts to be developed in the sustainability literature (Moore *et al.,* 2017). It refers to the continuation of the effect of the employees' contribution (as a self-imprint of the individual or a creative work team) in achieving the company's goals in its survival and growth during their careers, with the continuation of this effect even after they leave the company. This broad and deep dimension of human sustainability can be achieved through the four components in this study: effective learning, green innovation, functional sustainability, and sustainable teamwork. The focus of this study on the bright and positive dimensions of human sustainability does not completely exclude the dark and negative dimensions that can appear in this field. The double-edged swords of human sustainability reveal that society, labor law, and inhuman relations at work can work to the advantage of negative human sustainability by keeping passive, incompetent, redundant, low-skilled individuals out of business. Therefore, human sustainability based on positive and sustainable effect is necessary to overcome the dark dimension in this sustainability.

IV. Human sustainability components

Human sustainability in our current study refers to the bundle of characteristics and capabilities that create a long-term positive effect that sometimes exceeds a human lifetime at work. This effect can be sustainable at the individual level (as in the innovative individual) to turn into a positive effective effect that contributes to the survival and growth of the company for a long time. In this study, human sustainability is represented in four components:

- Effective learning: The concept of "learning organizations" emerged with the seminal work of Peter Senge (2006) in the early 1990s, in which learning becomes a source of improving one's ability in a shorter time by using the capabilities and experience of others from whom we learn. Effective learning both within the company (as in learning teams) and externally from suppliers, customers, and competitors is an important source of a company's competitiveness. For this, the survival of the fittest in a competitive market is the survival of the most effective learning company (Marquardt, 2011). Working for learning companies can provide great opportunities to learn from our experiences and those of others. Learning from those who fight us means from our ages and abilities, while learning from others means adding a portion of their ages and abilities to ours. When learning is available from others inside or outside the company, our repetition of their previous struggles indicates the greatest waste in learning because it is like reinventing the wheel. Effective learning in human sustainability is a kind of intelligent use of the ages and abilities of others in order to pick up where they left off without having to repeat their experiences from the beginning. In the model of Lombardo & Eichinger (1996), this rule can be an indicator of the importance of intensive learning among qualified individuals in a way that serves human sustainability by acquiring knowledge and experience in the first learning cycle (adaptive learning) and then being generative and innovative in the second cycle (Generative Learning) (Li, 2016; Senge, 2006). This effective way we can see it in: The IBM Way (Rodgers and Shook, 1986), the Toyota way (Liker, 2004), the Apple way (Cruikshank, 2006), and the GE way (Magee, 2009). Despite the importance of this learning on the job, the evidence for this rule is weak (Clardy, 2018), intensive learning among individuals qualified according to this rule can serve human sustainability through learning in the first learning cycle to be productive and innovative in the second cycle. There are many challenges facing the learning process, for example, the rapid change in the business environment reveals that not all companies are actively involved in organizational learning (Steiner, 1998), hierarchical relationships hinder learning and focus knowledge at the top, learning is a function of trust, so the lack of trust limits learning among employees (Coopey *et al.*, 2015; Coopey, 1998). In the recent period, the shift to distance and online learning has increased, in which face-to-face interaction is missing with the growing sense of isolation and disconnectedness from a learning community (Bird *et al.*, 2022; Cazan & Indreica, 2014).

- Sustainable innovation: It can be said that innovation is required at all times and places. It strongly represents human sustainability. Innovation is the ability to introduce new products, services, and business model that distinguishes a company from its competitors in the market

(Chesbrough, 2010). With innovation, companies can be distinguished and outperform their competitors for the longest time. Innovation can achieve human sustainability in an effective way that doubles the human ability to have a sustainable impact for periods that may exceed the productive life and the maximum human life span. In some cases, it is the unique innovation as in Coca-Cola, Oreo, and Blue Jeans that keeps the company, its name or the name of its innovative founder as part of a never-ending and unforgettable history. It is human sustainability driven by innovation. In 1886, John Stith Pemberton invents "The Secret Formula" of Coca-Cola in Atlanta. More than a century later, this secret formula is still associated with his name (coca-cola.co.uk). The Coca-Cola vault in Atlanta, which is still visited by thousands annually, demonstrates the sustained impact of Pemberton's innovation in creating a sustainable competitive advantage and being the leader in the soft drink industry with sales of $38.7 billion and net income of $9.8 billion compared to PepsiCo's $25.3 billion and 7. 6 billion dollars respectively (www.investopedia.com). In the context of human sustainability, it is expected that Coca-Cola will maintain its competitive advantage for many more decades due to Pemberton's secret formula.

There are many challenges facing sustainable innovation such as organizational routines that operate with minimal staff capabilities, lack of motivation for innovation, and conservative organizational culture. Established organizational routines enable better understanding and execution of tasks (Feldman *et al*., 2016), but they are undesirable and tedious work (Hamermesh, 2005). Over time, routine becomes a powerful source of resistance to change that can come with sustained innovation. Accordingly, organizational routines are more like genes (Nelson & Winter, 1982) while innovation is more like mutations that must overcome routine obstacles.

- **Functional sustainability:** In all companies, human resources can be the longest-lived, most flexible and most effective in achieving the company's goals compared to other resources (Úbeda-García & Claver-Cortés, 2017). Therefore, the protection of human resources requires the company to develop its knowledge and skills, and then efficiently use these knowledge and skills for the longest possible period. Functional sustainability achieves a sustainable work environment that guarantees the safety and security of employees from any risks or threats due to the dirty, unhealthy and polluted operations in the company. Functional sustainability represents the company's policy to maintain its employees in the job and career path for as long as possible through a healthy, safe, and motivating work environment with lower levels of anxiety, stress, and work pressures. In times of crisis and exceptional risks, safety instructions and culture become an important part of job sustainability. With the Covid-19 pandemic, many instructions and strict measures have been taken in order to protect employees and develop a culture of safety and a healthy environment in companies (Chih-Hsuan *et al*., 2023). Functional sustainability can be associated with lifetime employment, at least for distinguished employees who represent a source of sustainable competitive advantage. In this case, it can be said that human sustainability is one of the necessary requirements for company sustainability. Functional sustainability faces difficulties and challenges that hinder its role in improving human sustainability, such as functional specialization that transforms organizational units into functional tribes (Drucker, 2011), work

turnover (Shu *et al.,* 2023; Shaw, 2011), hostile relationships between manager and employees, and negativity at work (Fergusona *et al.,* 2012).

- Sustainable teamwork: In 1993, an analysis of 131 studies revealed that team work contributes to improving financial performance in companies, and in 2011, another analysis covering 61 studies showed that developing work teams in companies contributes to increasing organizational effectiveness (West, 2012, p19). We know well that work teams are not the same in their capabilities, the diversity of their members, and therefore their results. The success of the work team leads to the stability of the team, which in turn leads to the stability of its members in the company (Chen *et al.,* 2009). The disharmony and conflict among team members can lead to a weakening of the team's role in problem-solving (Salvato, 2009). Therefore, the failure of the team can lead to the instability of the team and then the instability of its members. Team effectiveness in a complex and large task is an important indicator of the importance of this team. Over time, this team will be relied upon to solve complex problems and face major challenges. Such teams are characterized by human sustainability, whose impact can remain long even after the departure or retirement of some or all of its members. In a long time, the effective team is certainly different from the discordant teams whose capabilities are drained in interrelationships by conflicting goals, mistrust, and even diversity of cultural backgrounds (Leifels & Bowen, 2021).

- Corporate competitiveness: In global competitiveness, Jordan ranked at the 70_{th} out of 140 countries. This ranking indicates that Jordan is still less competitive than the six Arab Gulf countries, whose ranking was as follows: the United Arab Emirates 25th, Qatar 29th, Saudi Arabia 36th, Bahrain 45th, Kuwait 46th and Oman 53^{rd} (World Economic Forum, 2019). Competitiveness is a major driver of national, regional, and international business environments. Many studies on competitiveness provide ample evidence of companies' interest in competitive capabilities and competitive performance to meet the challenges of competing companies in various fields. These studies emphasized many determinants of corporate competitiveness. The Global Competitiveness Index clearly shows that countries vary in their ranking according to the four criteria of competitiveness (economic efficiency, governance efficiency, business efficiency, and infrastructure) (IMD, 2022), just as companies in each country differ in their ability and competitive performance (Olyanga *et al*., 2022; Chang, 2023; Iddris *et al.,* 2023), such as national competitiveness (Dutta, 2007, porter, 1990), export competitiveness, innovation, patent protection (Fetscherin & Pillania, 2012; Padilla-Lozano & Collazzo, 2022), risk management (Chang, 2023), transformational leadership, customer satisfaction, competitive advantage (Wright *et al.,* 2002; Li *et al.,* 2018). At the company level (micro level), competitiveness can be viewed from two basic determinants: competitive ability and competitive performance in the market.

-Competitive ability: The company is determined by its core capabilities that create its competitive advantage (Prahalad & Hamel, 1990). According to the resource-based vision, it represents a mix of resources that keep the company competitive in the market (Becerra, 2009; Ferreira & Fernandes, 2017). This ability is represented in resources, drivers, capabilities to

achieve a sustainable competitive advantage (Chikan *et al*., 2022). It also represents a set of dynamic capabilities as systems and processes used by the company in creating a value-creation strategy in response to a changing environment (Eisenhardt & Martin, 2000; Winter, 2000).

- Competitive performance: The company's market performance is determined by two types of measures: financial and non-financial (Tikasari & Surjandari, 2020). Financial measures are represented in profit and profitability, sales, market value per share, and earnings per share, while non-financial measures are represented in the age of the company, size of the company, introduction of new products and processes, employee satisfaction, customer satisfaction, and others. In today's business environment, competitiveness is the company's ability to achieve a competitive advantage (such as minimum cost or excellence) in the market, which is reflected in its ability to survive and grow in the market. Competitiveness is an important indicator of superior business performance (Wilden *et al*, 2019), the market performance of the company through the creation of products and services that contribute to increasing its revenues and profitability (Racela, 2014), and to achieving the company's strategy to satisfy the needs of its customers (Lin *et al.* 2020) in comparison with competing companies. The company's competitiveness is a complex and multifaceted concept because it is linked to its competitiveness within the company and its competitive performance outside the company. In this study, this competitiveness depends on its ability to create competitive advantage (Porter, 2004), productivity (Laureti & Viviani, 2011), and profitability (Bhawsar & Chattopadhyay, 2015). Accordingly, the causal relationships between the components of human sustainability (predictor variables) and the two determinants of company competitiveness (predicted variables) are as follows:

H1: The components of human sustainability (effective learning, sustainable innovation, functional sustainability, and sustainable teamwork) positively affect the competitive ability of Jordanian industrial companies.
H2: The components of human sustainability positively affect the competitive performance of Jordanian industrial companies.

V. EMPLOYEE PARTICIPATION

The participation and involvement of the employees is a positive characteristic associated with the psychological and functional state that encourages the improvement of the employees' contribution to achieving the company's goals (Gunasekara & Zheng, 2019). Competition creates severe pressure on the company and increases tension in the internal environment of the company as well as in its relationship with the external environment. In traditional environments, these tensions may reinforce a tendency towards authoritarian leadership and hierarchical relationships that do not allow employee participation. On the other hand, Competition may force the company to encourage democratic relations at work, increase employee participation and empower them to act as responsible individuals in their various positions (Del Val & Lloyd, 2003). The participation of employees is one of the indicators of workplace democracy and a healthy work environment. This participation is considered one of the motivating factors in the work (Koch *et al.,* 2019).

Empowering employees through this participation leads to better working relationships and better job stability. The employee participation as an indicator of workplace democracy is the healthy framework of organizational life as values, relationships, and work methods. This participation is also an important embodiment of this democracy, along with other embodiments such as healthy culture, flexible and horizontal relationships, and self-managed work teams (Elloy, 2005). The company's policy-oriented towards human sustainability can contribute to improving employee participation in the company's decisions and practices. At the same time, the participation of employees and the democracy of workplaces can play a positive role in the stability of employees and increase the capabilities and competitive performance of the company. Accordingly, the current study attempted to explore the effect of mediating employee participation on the relationship between human sustainability and company competitiveness by testing the following mediation hypothesis:

H3: The employee participation has a significant mediating effect on the relationship between human sustainability and the company's competitiveness.

The study model in figure 1 shows the causal relationships (direct effect) between the components of human sustainability and the two determents of the company's competitiveness, and the relationships between them mediated by employee participation (indirect effect).

VI. METHOD

Measures: The questionnaire was developed in order to represent and measure the study's three variables: human sustainability components as predictive variables, the two main determinants of the company's competitiveness as predicted variables, and employee participation as a mediating variable. With regard to the components of human sustainability, effective learning was measured by seven items (questionnaire phrases) (EL1-EL7), sustainable innovation by six items (SI1-SI6), functional sustainability by seven items (FS1-FS7), Sustainable teamwork by six items (TW1-TW6). With regard to the competitiveness of the company, the competitive ability and performance were measured by each of them with six items as follows (CA1-CA6) and (CP1-CP6) respectively. Finally, employee participation as a mediating variable was measured by six items (MV1-MV6).

Sample: The study sample consisted of 12 industrial companies. The large companies were represented by seven companies with more than 500 employees (Jordin; Sydney garment factory; Maani Ventures; Munir Sukhtian Trading Group; ARK Garment Manufacturing; International Building Systems Factor, and Defaf Al-nahrayn) Three medium companies with the number of employees between 100-499 (Home – JAMCO Plastic Factory; Coca Cola Bottling of Jordan Co.; Arab Company for White Cement Industry), and two small companies with less than 100 employees (National denim & Garment mills; Alban Ader Factory). The distribution of questionnaires was proportional to the size of the companies. The total number of distributed questionnaires was (450) and the number of retrieved questionnaires was 405 (90 **%).** The number

of questionnaires retrieved and valid for statistical analysis from large companies was (286); medium companies (76), and small companies (45).

The characteristics of the respondents show that the male respondents were 271 (67 %) and females 134 (33 %). The distribution of the respondents according to their age groups showed that the age group (30-39) was the largest with the number of respondents 145 (36 %), followed by the age group less than 30 years 143 (35 %), while in the group 39-49 the number of respondents was 79 (20%), the group 50-59 included 36 respondents (9 %), and the age group over 50 years 38 (9 %). According to education level, the number of respondents holding a bachelor's degree was 188 (46 %), secondary school 125 (31 %), master's degree 30 (7 %), and PhD 1 (.2 %). By job title, the study sample included 273 employees (67 %), 76 managers (19 %), and 56 engineers and technicians (14). According to years of experience, the number of employees with less than five years was 125 (31 %), those with 5-10 years were 134 (33 %), and more than ten years were 145 (36 %).

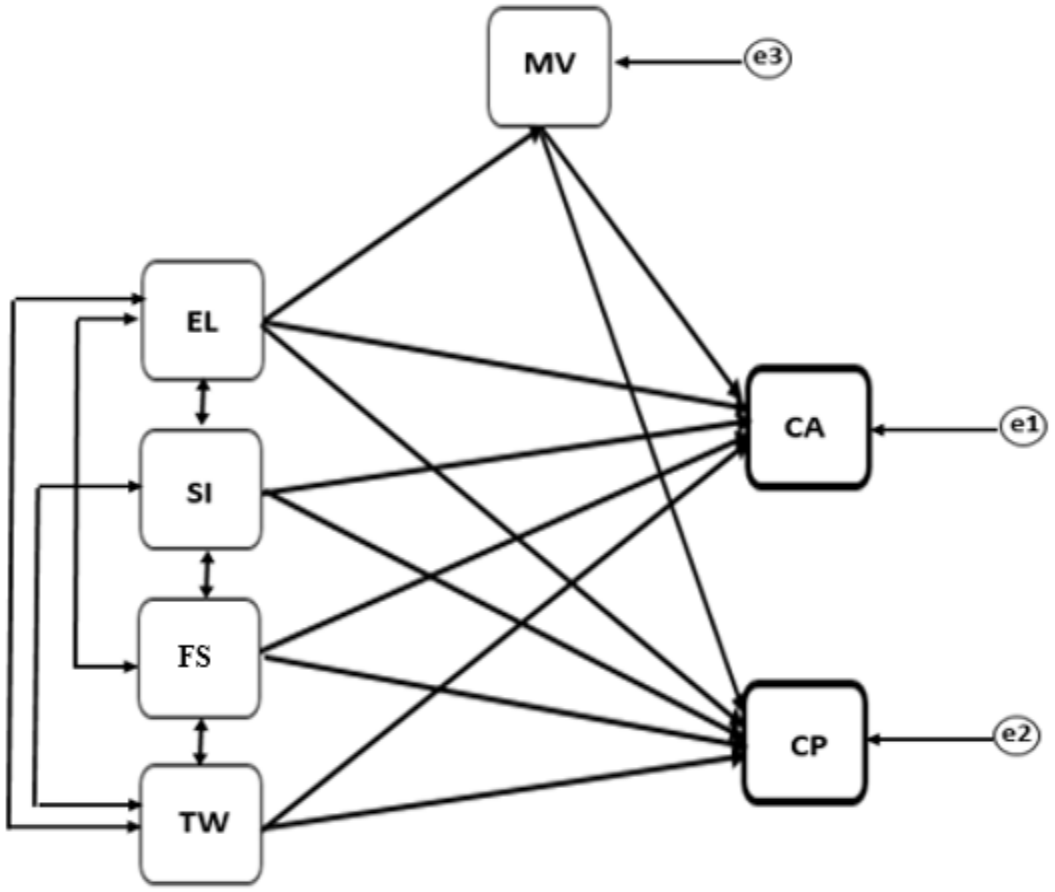

Figure 1: The proposed study model

Structural equation modeling

Structural equation modeling (SEM) and IBM AMOS graphics version 26.0 were used to test direct and indirect (mediating) effects. SEM has several important characteristics in the statistical analysis of relationships between variables (Collier, 2020): it tests relationships between observed and latent variables in a simultaneous manner, it examines interrelationships between variables through a combination of regression and factor analysis, and finally, it tests intermediate variables that are independent in relationships and dependent in relationships others in the same study model. While the IBM Amos program provides a graphical interface for drawing the structural equation model and testing through the model fit indices and hypotheses testing. SEM tests two main models: the measurement model and the structural model. In the measurement model, the appropriateness and validity of the structural model that is used to test the structural relationships between the variables of the study are evaluated. SEM helps to determine the adequate or inadequate goodness-of-fit of the hypothetical model by evaluating the set of fit indices (Byrne, 2016, p90). In this study, the sample size (405) is relatively large. Therefore, it affects the appropriateness and statistical power of multiple regression in testing hypotheses. Also, this size can increase the value of the coefficient of determination (R^2) in order to achieve the significance of the study model (Hair, 2019, p278-279). The study method is the only approach in the analysis of multiple regression and to test the mediation of the causal relationships between the variables of the study.

Model fit indices

In the measurement, model, model fit indices were used to evaluate the model and the quality of the data. In these indices, there are recommended values or cut-off points that distinguish between goodness- and badness-of-fit indices (West *et al*., 2023, p189). The results of the set of model fit indices indicate that the chi-square (χ^2) was larger than 5, and CMIN/DF (minimum discrepancy function/ degree of freedom) as a value of χ^2 divided by degree of freedom, refers to goodness of fit indices at a significance level (p-value <.05). Some of the other model fit indices were acceptable, as the results confirmed that Goodness of fit (GIF) was .936; Normed fit index (NFI) .922, Root mean square residua (MRM) .011 (close to zero); and Incremental fit index (IFI) .931. Validity and reliability tests were carried out through construct validity, convergent validity, and composite reliability. The results of these tests are shown in Table 1. The results emphasized that the factor analysis loadings were greater than 30 for all items of the questionnaire. In construct validity, factorial analysis loadings were used Factorial analysis loadings of the questionnaire items for each variable represent the correlations between these items. The values of these loadings when they are greater than .30 indicate a good representation of the variable, and when greater than .40 indicate that these items are considered stable in the representation of the variable (Guadagnoli & Velicer, 1988). In the convergent validity test, the average variance extracted (AVE) was calculated (Hair, *et al*., 2019, p792; Wong, 2013). In Table 1, all AVE values were greater than the recommended cut-off point .5. These results indicate that the indicators (the questionnaire items of each variable) account for more than 50% of the variance.

Table 1: Validity and composite reliability tests

Constructs	Items	Factor loadings	AVE	CR
Effective learning: EL	EL1	.609	.603	.913
	EL2	.792		
	EL3	.715		
	EL4	.845		
	EL5	.829		
	EL6	.788		
	EL7	.831		
Sustainable innovation: SI	SI1	.797	.701	.916
	SI2	.842		
	SI3	.760		
	SI4	.799		
	SI5	.864		
	SI6	.754		
Functional sustainability: FS	FS1	.766	.666	.933
	FS2	.849		
	FS3	.881		
	FS4	.794		
	FS5	.789		
	FS6	.787		
	FS7	.842		
Sustainable teamwork	TW1	.816	.645	.919
	TW2	.837		
	TW3	.812		
	TW4	.769		
	TW5	.818		
	Tw6	.799		
Competitive ability: CA	CA1	.843	.725	.940
	CA2	.851		
	CA3	.834		
	CA4	.844		
	CA5	.879		
	CA6	.856		
Competitive performance: CP	CP1	.827	.763	.944
	CP2	.848		
	CP3	.949		
	CP4	.883		
	CP5	.887		
	CP6	.742		
Employee participation: MV	MV1	.729	.755	.933.
	MV2	.892		
	MV3	.905		
	MV4	.892		
	MV5	.803		
	MV6	.789		
* Factor: Factor analysis loading, AVE: Average variance extracted, CR: Composite reliability.				

Structural model

In the structural model, path analysis was used to test the study hypotheses as causal relationships between the study variables. Figure 2 shows the results of the path analysis of these relationships between variables.

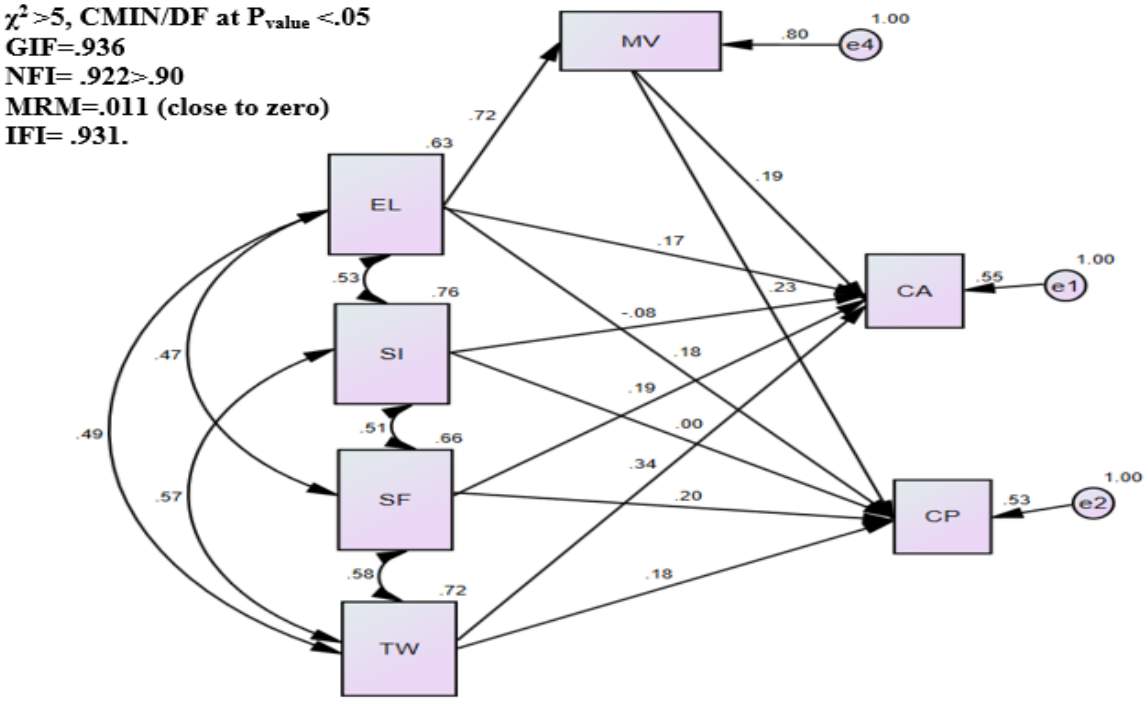

Figure 2: The results

The results of hypothesis testing as shown in figure 2 and table 2 confirmed that three components of human sustainability (effective learning, functional sustainability, and sustainable teamwork) had a positive effect on the company's competitiveness in its two main determinants (competitive ability and performance) at the level of significance (P_{value}<.05). In table 2, the estimate values ranged between 0.17- 0.34 for the competitiveness of the company, while these estimates were between 0.17- 0.19 for competitive performance. These results confirm that competitive performance is less than competitive capabilities. Sustainable innovation is the only dimension that did not have a significant effect on the company's competitiveness in its two determinants. The interpretation of this result may relate to the fact that employees who are more involved in execution tasks do not have the time and perhaps the incentive to innovate. The structured interviews that were approved by some of the human resources managers in the companies in the study sample (the answers were provided in writing by the managers who agreed to the interview), confirmed that there is a problem of lack of incentives that is reflected in the transfer of employees to other companies. There is no doubt that sustainable innovation may be the most important factor in achieving human sustainability as an effect and for a longer period in the company.

Table 2: Effect of human sustainability components on company's competitiveness

Hypotheses	Variables	Estimate	SE	CR	P-value	result
• **Human sustainability components >>> competitive ability**						
H_1	EL >>> CA	.170	.064	2.675	.007	Yes
	SI >>> CA	-.076	.056	-1.353	.176	No
	FS >>> CA	.191	.065	2.918	.004	Yes
	TW >>> CA	.340	.068	5.008	.000	Yes
• **Human sustainability components >>> competitive performance**						
H_2	EL >>> CP	.177	.061	2.887	.004	Yes
	SI >>> CP	.004	.054	.065	.948	No
	FS >>> CP	.199	.063	3.159	.002	Yes
	TW >>> CP	.179	.066	2.736	.006	Yes

The participation of employees contributes to improving their job satisfaction (Zink, 2008), and then improving their performance (Jang *et al*., 2023; Galeazzo *et al*., 2021). Therefore, this participation can play a positive role in the relationship between human sustainability and company competitiveness. According to Baron and Kenny (1986), there are three steps for testing the mediating effect of employee participation: Table 3 illustrates these three steps.

In the first step, there was a significant positive effect (estimate was 65%) of human sustainability (HS) on the company's competitiveness (CC), in the second step, there was also a significant positive effect (estimate: .81) of human sustainability on employee engagement (MV). While in the third step, there was a significant positive effect of human sustainability on company competitiveness mediated by employee participation. The results confirmed that mediating employee participation led to an increase in the effect of human sustainability on the company's competitiveness from (.65) to (.69) (see Figure 3).

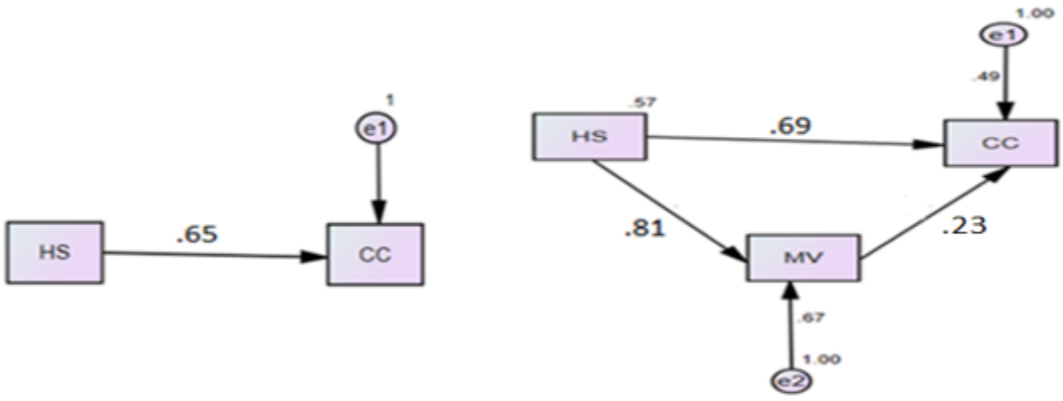

Figure 3: The mediating effect

Table 3 shows these results indicating that employee participation as a mediating variable influences the causal relationship between human sustainability and company's competitiveness. The explanation for this effect is that inhumane sustainability requires employee engagement in order to improve job satisfaction and increase their stability in the company for a longer period.

Table 3: Three steps of mediating variable test

Steps	Variables	Estimate	SE	P-value	Result
- Human sustainability (HS) >>employee participation (MV)>> company's competitiveness (CC)					
One	HS >>> CC	.64	.07	.000	Yes
Two	HS >>> MV	.68	.06	.000	
Three	HS and MV >>> CC	.69	.07	.010	

VII. DISCUSSION

Sustainability means that the environment continues to be suitable for business as usual without interruption, diminishment, or deterioration (Conard, 2013). Human sustainability means that employees continue to work for the longest period without turnover, downtime, disability, or deterioration in their capabilities and influence in achieving the company's goals. Human sustainability is still a new topic and lacks previous field studies that seek to verify its impact on business results in various sectors. Spreitzer *et al.*'s study (2012) focused on human sustainability in order to develop and improve employees' capabilities in order to thrive at work. Meanwhile, Massaro et al.'s study (2020) emphasized improving the quality of working life through human sustainability. While the current study was distinguished by its focus on human sustainability as a fourth dimension of sustainability. It also sought to demonstrate its impact on the company's competitiveness as one of the strategic performance criteria in the competitive business environment.

In many cases, sustainability and business success is still seen as a trade-off (as in the two person, zero sum game) rather than a positive sum (as in the win-win situation) (Weber, 2017) particularly in the competitive environment. Several studies have confirmed the trade-off case. Sustainability is an essential choice for companies to fulfill their social and environmental responsibilities, but this choice is not without strategic risks (Cavaleri & Shabana, 2018), additional costs that could represent a burden on the company's competitiveness (Warren-Myers, 2022), and serious obstacles if employees are less involved in the process Improvement of the company's competitiveness (Khan *et al*., 2018). These risks and obstacles also apply to human sustainability, which represents a rational choice in order to make effective use of human resources for the longest period and for the best sustainable effect. However, the challenges of the competitive environment may make human sustainability face risks and problems because the company needs to attract new qualifications from outside or incur additional costs in order to rehabilitate its employees to respond to these challenges.

Despite these challenges and problems associated with additional costs, many studies have confirmed the positive impact of social and environmental sustainability. Social sustainability

contributes to the financial success of the company (Schonborn *et al*. 2019), improving the quality of life (Abdul-Rashid *et al*., 2017), supply chain performance in long term (Croom *et al*. 2018) and contributing to urban renewal in society (Chan & Lee, 2008). However, many corporate social sustainability programs have been ineffective (Cavaleri & Shabana, 2018). As in social sustainability, we find that environmental sustainability contributes to improving the environmental performance of the company (Khattak, 2023) increasing customer satisfaction (Arafat *et al.,* 2012). Environmental sustainability aims to reduce the negative environmental impacts of the company's business and practices. Therefore, environmental sustainability is the basis for moving towards greening the company in order to contribute to addressing the most pressing environmental challenges such as climate change. The five principles of environmental sustainability (pollution reduction, recycling, renewable resources, green innovation, and ethical sustainability) represent effective drivers for improving environmental performance in environmentally friendly companies (Najm *et al*., 2023).

The results in the current study confirmed that three components of human sustainability (effective learning, functional sustainability and sustainable teamwork) had a positive effect at the level of significance ($p_{value}<.05$) on both determinants of the company's competitiveness (competitive ability and competitive performance). These results are consistent with the results of many studies, which confirmed that these three components positively affect organizational performance, which in turn is reflected positively on competitive performance in different sectors. According to Bourne *et al*., (2013), many companies depend on teams to improve organizational performance. Learning through work, long-term learning and the accumulation of experiences and lessons learned contribute to improving the skills of employees and then their performance by reducing costs and improving quality (Soderstrom & Bjork, 2015; Ruigrok & Wagner, 2003). These experiences and improved performance are bound to reflect positively on the company's competitiveness. In these results, the other component of human sustainability (sustainable innovation) did not have a significant effect on competitiveness and competitiveness. The explanation for this result can be attributed to the fact that this study was conducted in industrial companies and the employees are blue-collar workers with low education level and they work in routine jobs. In these companies, human sustainability is unlikely to have a noticeable impact on employees' ability to Innovation.

These results can be justified by the components of human sustainability such as effective learning, functional sustainability and sustainable work teams that contribute to improving employee satisfaction, which reflects positively on their performance in achieving the goals of their companies, including their ability and competitive performance. These results also showed that the other component (sustainable innovation) did not have a significant effect on competitiveness in both respects (competitive ability and performance). The last result shows that the industrial companies in Jordan are still not involved in sustainable innovative projects. This result is consistent with Bar's study (2015), which emphasized that industrial equipment companies did not work on sustainable green innovation. Also, the hurdle of "it pays to be green" can hinder the tendency of industrial companies to innovate green or sustainable (Ghisetti & Rennings, 2014).

This result also weakens human sustainability in Jordanian industrial companies because sustainable innovation represents one of its components. Finally, sustainable innovation is required in order to protect the environment and reduce the negative effects of business on exacerbating environmental problems. It is also required as an essential component of human sustainability whose impact can remain in the company for a long time beyond the functional and professional life of the innovative employee.

VIII. CONCLUSIONS

This study contributes to the proposal of human sustainability as a fourth dimension of sustainability in addition to the economic, social and environmental dimensions. It also identified four components of human sustainability: effective learning, sustainable innovation, functional sustainability, and the teamwork. The results of this study emphasized that three components of human sustainability play a positive role in competitiveness and competitive performance in industrial companies, while sustainable innovation had no significant impact on the competitiveness of companies. For this, industrial companies need attention to encouraging workers' initiatives to promote the culture of continuous improvement and innovation

Theoretical implications

Previous studies focused on the three dimensions of sustainability: economic, social, and environmental. While this study sought to expand the concept of sustainability and provide a theoretical contribution by proposing a model of sustainability that includes a fourth dimension, which is human sustainability with its four components. The exacerbation of problems and challenges facing the human dimension in a competitive business environment due to downsizing policies, work tensions, increased work turnover, and technological unemployment require expanding the concept of sustainability to include human sustainability to protect and develop employees in the long term. Therefore, human sustainability still needs to be rooted as a concept, the relationships between the four dimensions of sustainability and the representative components proposed in this study.

Practical implications

The results of this study confirmed that there is a positive effect of three components of human sustainability (effective learning, functional sustainability, and the teamwork) on the company's competitiveness (competitive ability and performance), while sustainable innovation had no significant effect. This study was conducted in industrial companies where pre-determined work procedures prevail, which reduces the opportunities for continuous improvement and innovation. Industrial companies need to enhance human sustainability practices, as well as hold employee initiatives, enhance the culture of continuous improvement, and support the projects and tasks of the research and development function.

IX. LIMITATIONS AND FUTURE RESEARCH

This study was conducted on industrial companies, so its results could be more applicable to this sector. Therefore, there is a need to study companies in the service sector (such as hospitals or banks) in a way that allows comparing the importance and impact of human sustainability components in different sectors. This study aimed to make human sustainability a fourth dimension of sustainability. This goal requires more future studies based on the completion of the four dimensions in order to develop a more comprehensive concept of sustainability. Therefore, future studies are needed to enhance the concept of human sustainability and its impact on various performance standards in other sectors such as the services sector.

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