

# Making the Link between HRM and Sustainable Development: A Case for University Sector in KSA

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## Abstract

*This paper discusses the relationship between human resource management (HRM) and sustainable development as well as examines how HRM strategies can serve as an opportunity for university sector in KSA to achieve sustainable development across all its dimensions including economic, social, technical and environmental. To achieve these objectives, a theoretical framework was developed for examining HRM and sustainable development. A set of hypotheses was extracted from theoretical framework. To validate hypotheses, primary data were collected through a questionnaire that administered with 40 specialists and experts as well as 15 deans of faculties of business administration in Saudi universities. Then data were then analysed using SPSS. The Results showed that there was a strong link between HRM and sustainable development. Also, HRM strategies had a large effect on sustainable development dimensions (economic, social, technical and environmental). The researcher recommends that priority should be given to investment in human capabilities and skills through the adoption of appropriate HRM strategies that improve HR performance and enable universities to achieve long-term sustainable development.*

**Keywords:** HRM Strategies, Sustainable Development, University Sector.

## Introduction

In the current global scenario, where economic globalization trends are intensifying and technological advancements are accelerating, attention has shifted to developing Human Resource Management (HRM) and its capacity for innovation and creativity in modern technology. This is because HRM is crucial for absorbing scientific innovations and adapting to new changes, thereby contributing to a nation's ability to integrate into the global economy (Saifulina, 2017). The success of any organization is primarily attributed to its human resources (Ricardo de Souza Freitas et al., 2011). Consequently, HRM is a cornerstone for achieving comprehensive development and sustainability, given its pivotal role in refining skills, mobilizing capacities, and developing human competencies in scientific, professional, and technical aspects. These competencies are essential for meeting development and labour market requirements (Josephsen, 2017).

The traditional drivers of national wealth, namely raw materials and machinery, have been supplanted by human capital as the paramount factor. The development of a workforce possessing advanced scientific, technical, and cognitive skills has become indispensable for countries seeking to maintain a competitive edge in the global economy (Wissemann et al., 2022). The paradigm for Human Resource Management (HRM) has undergone a significant transformation, evolving from a primary focus on staff policy implementation and system administration to a more strategic approach that prioritizes inclusive and sustainable development (Hronova & Spacek, 2021). A deeper understanding of the internal and external environment enables HRM to successfully and strategically align its strategies with changes and challenges.

Creating sustainable development is one of the primary challenges that HRM departments must address within the framework of an organization's overall objectives (Tabatabaei et al., 2017). Saudi Arabia aims to continue developing HRM, placing it at the forefront of successive development plans. This will involve upgrading HRM skills and developing capabilities through education, training, and vocational rehabilitation. This paper focuses on HRM and the concept of sustainable development, particularly in the university sector in KSA, to develop a coherent understanding of the relationship between HRM and sustainable development.

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### *Problem Statement*

Recent events in Arab countries, including Saudi Arabia, have underscored the critical challenges posed by youth unemployment and delayed sustainable development (Alshuwaikhat & Mohammed, 2017). A key issue is that human performance in developing countries has failed to yield results that reflect planning, operational, and development performance (Budhwar et al., 2018). Effective human development is crucial for overcoming crises in developing economies, as its role extends beyond economic development to encompass overall sustainable development, requiring specialized human resources (Korauš et al., 2017).

Developing countries have historically faced structural decline, backwardness, and delay in economic, social, and institutional performance, resulting in widespread weakness that affects not only the university sector but most aspects of life, significantly impacting sustainable development (Husain & Khalil, 2013). A major challenge for HRM strategies in universities is integrating the three dimensions of sustainable development (economic, social, and environmental) and coordinating sustainable development goals while resolving potential conflicts (Albareda-Tiana et al., 2018). Sustainable development aims to achieve balanced, quantitative changes across sectors, enhancing creativity, productive efficiency, and citizens' positive participation (Alshuwaikhat & Mohammed, 2017). Moreover, the dearth of technical expertise and capabilities and the problem of brain drain or skill migration from developing countries, has significantly impeded development initiatives and exacerbated the knowledge disparity between developed and developing countries in not being able to utilize optimally the human. (Oliinyk, Bilan, Mishchuk, Akimov & Vasa, 2021).

### *Aim and Objectives*

The purpose of this paper is to clarify the relationship between HRM and sustainable development in the university sector in KSA. From this main objective, the following sub objectives can be derived:

- To explore the impact of HRM strategies on sustainable economic development in the university sector in KSA.
- To explore the impact of HRM strategies on sustainable social development in the university sector in KSA.
- To explore the impact of HRM strategies on sustainable environmental development in the university sector in KSA.
- To explore the impact of HRM strategies on sustainable technical development in the university sector in KSA.

### *The University Sector in KSA*

The Kingdom of Saudi Arabia has witnessed significant qualitative and quantitative advancements in higher education, garnering international attention. The Ministry of Higher Education has implemented radical reforms, aiming to restructure universities in line with the trends of the Saudi and international labour markets. This effort is facilitated through various programs encompassing several key axes, including acceptance and absorption, alignment, quality, funding, scientific research, scholarship, and strategic planning (Aldiab et al., 2017). According to the Saudi higher education statistics (2017), the Kingdom is home to over 39 universities, with 30 being public institutions. King Saud University, established in 1957, was the first university in Saudi Arabia. Notably, nine Saudi universities ranked among the best globally and in the Arab region in the QS World University Rankings for 2014-2015. Saudi universities offer a diverse range of disciplines and programs for both males and females, with a total of 3,519 available programs. Of these, 1,690 programs (47.5%) are available to females, while 1,849 programs (52.5%) are available to males.

The strategic distribution of public universities across all regions of the Kingdom demonstrates a commitment to making educational opportunities more accessible and aligned with students' aspirations, while also promoting localized development and enabling students to excel in productivity and knowledge. Ultimately, this effort supports the translation of one of the most important axes of successive development plans, namely, achieving and promoting human development (Allui & Sahni, 2016).

## Literature Review

### *HRM Strategies*

Recently, organizations have been shifting towards developing a comprehensive human resource (HR) strategy that encompasses goals, policies, and primary directions adopted by management in HR areas. This strategy reflects fundamental choices and alternatives aligned with the organization's overall strategy (Saifulina, 2017). Human Resource Management (HRM) strategies involve designing and implementing harmonized HR practices and policies that support human capital, including expertise, skills, knowledge, and creativity. These strategies also consider internal and external environmental factors, prompting organizations to adopt new cultural and structural models adaptable to global competition in a flexible market (Sherafatia & Mohammadi, 2014). Human resource planning is a crucial HRM strategy based on analyzing an organization's HR needs and responding to them consistently with its mission, goals, and strategies. This planning process yields various benefits, including identifying surplus and capacity, skills gaps, and areas for business expansion or reduction. It also facilitates the distribution and allocation of HR to organizational activities, controls costs, and enhances the organization's ability to meet competitive challenges and respond effectively to changes (Noe et al., 2017). Many organizations recognize that effective human capital is the foundation of competitive strategies. The possession of creative, adaptable, and highly skilled human resources can confer a sustainable competitive advantage, empowering organizations to devise and execute innovative strategies that facilitate agile responses to environmental shifts (Piwowar-Sulej, 2021). As HR represents both the goal and instrument of the development process, individuals are the cornerstone of efforts to progress in a rapidly changing world (Martínez-García et al., 2018). In general, HRM strategies aim to achieve two fundamental principles: efficiency and justice. Efficiency is measured by maximizing return on investment, achieving high productivity, and evaluating employees' performance and commitment to organizational objectives (Renwick et al., 2013). Justice, on the other hand, involves addressing procedures and elements to ensure fair treatment of employees, granting those rights, and providing equitable opportunities (Batarliené et al., 2017).

### *Sustainable Development*

Sustainable development is a process aimed at leveraging all potentials and capacities across economic, social, and political fields to serve local development (Soliman, 2018). The pursuit of sustainable development necessitates a holistic and integrative approach, wherein economic, political, social, and administrative factors are scrutinized and analyzed in a comprehensive and complementary manner (Rendtorff, 2019).

According to Bombiak & Marciniuk-Kluska (2018), there are a set of goals that sustainable development seeks to achieve. Among these goals are:

- Contributing effectively to the formulation and creation of pluralism in strategies, plans, and developmental goals of a dynamic and predictive nature.
- Analysing the reality of societies in an objective and realistic manner in various areas of psychological, social and economic life by identifying negative and positive aspects and explaining how to intervene effectively.

- Adopting coordination between different sectors of society and determine the cost and value of financial resources to achieve these objectives and their priority and necessity for other issues and actions.
- Creating dynamism in various mental, intellectual and behavioural aspects in order to achieve those policies and development strategies in society.
- Achieving a partnership between all sectors and activating training processes to improve the performance of individuals and achieve their professional satisfaction and other processes, making the whole society in line with comprehensive and global changes.

The sustainable development process encompasses multiple dimensions, as it is grounded in a set of interconnected societal systems. Each component of these systems is influenced by changes affecting other parts, highlighting their interdependence. According to Strezov et al. (2017), sustainable development is based mainly on three main dimensions, namely economic, social, and environmental.

#### *Economic Dimension*

The economic dimension of sustainable development aims to achieve a high level of human well-being by increasing access to essential goods and services. However, this goal is challenging due to the limited resources available to many countries, regardless of their level of development. The economic dimension also focuses on providing key production elements, including regulation, scientific knowledge, and capital, to stimulate growth rates in various production areas, increase per capita income, and foster a dynamic relationship between inputs and outputs (Barbier & Burgess, 2017).

From this perspective, Human Resource Management (HRM) plays a crucial role in ensuring the effective utilization of human resources. This begins with the need to apply objective and fair selection criteria to recruit available human resources. In other words, HRM must strike a balance between the qualities and skills of candidates and the demands of available job positions. Achieving this balance enables organizations to optimize the use of raw materials according to existing competencies, leading to marketable outputs and results. This, in turn, guarantees a beneficial cash and financial liquidity process for both employees and organizations, ultimately contributing to the success of the economy on a large and continuous scale (Korauš et al., 2017).

#### *Social Dimension*

The social dimension encompasses the overall processes, patterns, and human relations that connect individuals within societies. Effective investment in this dimension relies on rational policies and the level of maturity and awareness among individuals in society. A community comprises diverse individuals influenced by various social processes that affect its entity and stability. However, these constructive social processes are sometimes disrupted by negative social phenomena (such as crime, drug abuse, and money laundering), necessitating rapid intervention by civil society organizations and associations to restore social processes to a positive trajectory (Eizenberg & Jabareen, 2017). Addressing these challenges requires not only financial and material resources but also efficient human resources capable of managing crises and critical situations. At this level, Human Resource Management (HRM) plays a crucial role in providing prepared, trained, and specialized human resources to identify negative social realities and propose effective, low-cost strategies to mitigate social influences and shocks (Stankevičiūtė & Savanevičienė 2018).

#### *Environmental Dimension*

The environmental dimension focuses on preserving the ecological and climatic environment, including forests, livestock, and fisheries, which sustain life. It also addresses environmental and climatic changes that threaten human safety, such as pollution, drought, and global warming. A pure environment is essential for peaceful living, free from health effects (Selim et al., 2018). However, the environment is often exposed to

destructive acts, including deforestation, pollution, and destruction of green areas. Therefore, highly efficient human resources with a strong sense of responsibility and professional conscience are necessary to intervene and mitigate environmental challenges. Universities play a vital role in achieving this goal by raising awareness, maturity, and responsibility among community members to preserve the environment, based on the principle that every living organism has the right to live in a clean and healthy environment (Almada & Borges, 2018).

In recent years, Information and Communication Technology (ICT) has played a leading role in promoting sustainable development by enhancing research and development activities, stimulating economic growth, generating employment opportunities, and contributing to poverty reduction (Imaz & Sheinbaum, 2017). Therefore, in addition to the three dimensions mentioned above, the technical dimension plays an irreplaceable role in sustainable development. Human Resource Management (HRM) must transform into a cleaner and more effective technology, moving society towards an age that uses minimal energy and resources. The optimal objective is to produce minimal gases and components while using criteria that reduce waste flow (Howard-Grenville et al., 2017).

The importance of sustainable development lies in the interrelationships between the economic, social, and environmental dimensions (Soliman, 2018). Sustainable social development aims to ensure the application of laws and formulate strategies for conserving the ecosystem, including afforestation and programs against desertification, erosion, locusts, and drought (Eizenberg & Jabareen, 2017). Sustainable environmental development focuses on protecting natural processes and preserving natural resources (Selim et al., 2018). Sustainable economic development involves developing economic structures and efficiently managing natural and social resources (Barbier & Burgess, 2017). From the researcher's perspective, although the three dimensions of sustainable development seem theoretically coherent, they are not always aligned in practice. Therefore, HRM should seek to reconcile the economic, social, and environmental dimensions.

### **The Link between HRM and Sustainable Development**

Sustainable development is a deliberate, purposeful, complex, long-term, comprehensive, and integrated process encompassing economic, social, political, cultural, and environmental dimensions (Jerome, 2013). The adoption of sustainable development by universities extends beyond theoretical agreements; it involves daily practices and effective processes that yield tangible results in their activities and environmental and social impacts. Moreover, Albareda-Tiana et al. (2019) noted that implementing sustainable development programs enhances productivity and increases an institution's attractiveness to investors, leading to new job opportunities and alleviating unemployment. When sustainable development policies and practices are widely disseminated throughout an organization, they foster a culture of trust, boosting staff motivation and leading to optimal results in terms of effectiveness and innovation (Crespo et al., 2017).

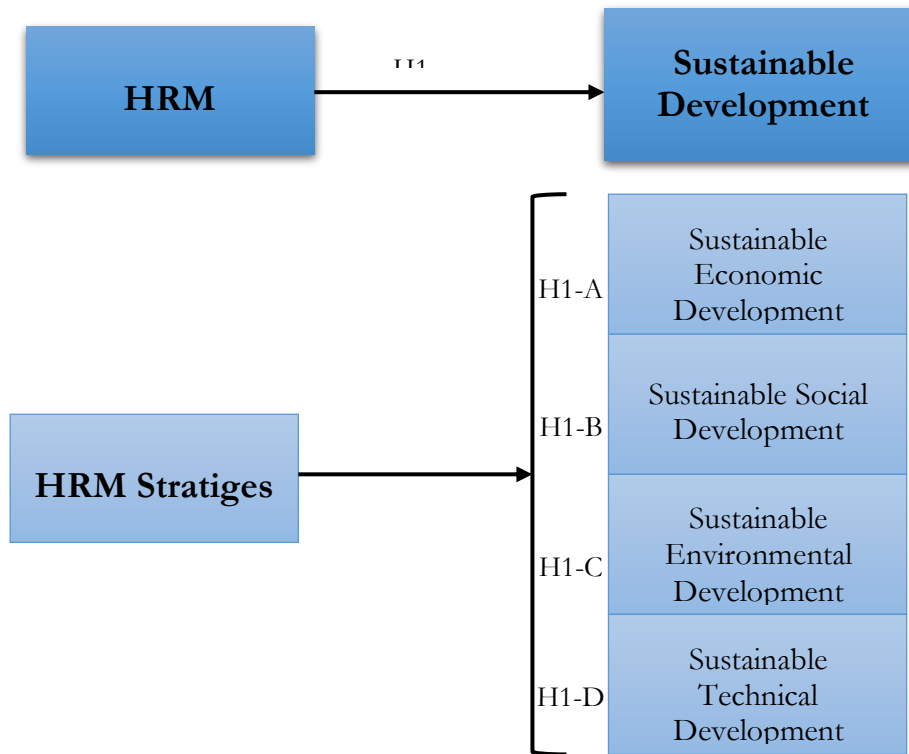
Although examining successful human resource development experiences in other countries can provide valuable insights, it may not offer a direct blueprint for Saudi Arabia due to geographical, social, cultural, and intellectual differences (Alshuwaikhat & Mohammed, 2017). However, certain programs and mechanisms can be adapted, such as diversifying and renewing human resource development means, promoting social diversity and education, and reducing disparities between male and female opportunities. Bombiak & Cuong (2024) emphasized the need to harmonize manpower development with market economy demands through education, training, and investment programs. Furthermore, Dienh (2024) emphasized the imperative of synchronizing human resource development with the demands of a market-driven economy, underscoring the crucial role of education, training, and investment programs in achieving this alignment.

### **Conceptual Framework**

A novel conceptual framework was proposed to elucidate the relationship between Human Resource Management (HRM) and sustainable development in the university sector in the Kingdom of Saudi Arabia (KSA). This framework integrates HRM strategies with sustainable development dimensions,

encompassing economic, social, environmental, and technical aspects. The primary purpose of this framework is to address research questions and achieve research objectives.

The conceptual framework comprises independent variables (HRM strategies) and a dependent variable (sustainable development dimensions). Figure 1 illustrates the study's conceptual framework.



**Figure 1: A Proposed Conceptual Framework.**

According to the above conceptual framework, the following hypothesis were extracted:

**The First Main Hypotheses (H1): There is a strong link between HRM strategies and sustainable development in the university sector in KSA.**

From this main hypothesis the following sub- hypothesis are raised:

*H1-A: there is a significant impact of HRM strategies on sustainable economic development in the university sector in KSA.*

*H1-B: there is a significant impact of HRM strategies on sustainable social development in the university sector in KSA.*

*H1-C: there is a significant impact of HRM strategies on sustainable environmental development in the university sector in KSA.*

*H1-D: there is a significant impact of HRM strategies on sustainable technical development in the university sector in KSA.*

## Research Methodology and Procedures

To address the research questions, a quantitative approach was employed using a specifically designed questionnaire to collect preliminary data from the sample. The rationale for adopting a solely quantitative method approach in this research was to achieve the study's objectives and gather opinions from specialists, experts, and deans of faculties in Saudi universities regarding the research subject. The quantitative research approach was chosen because it provides a foundation for establishing generalizability, offers statistical power, and enables replication of the results (Creswell & Poth, 2017). Initially, the research instrument was designed and prepared through a review of literature on Human Resource Management (HRM) and sustainable development, including its dimensions. The questionnaire comprised two sections:

Section one: it includes the demographic characteristics of the sample, as age and years of experience were chosen.

- Section two: it consists of five sub-sections including HRM strategies, sustainable economic development, sustainable social development, sustainable environmental development, and sustainable technical development, by dividing 6 paragraphs per dimension. A 5 point Likert scale was used to measure the survey questions.

The research sample comprised 40 specialists and experts in human resources and sustainable development, as well as 15 deans of faculties of business administration in Saudi universities. A total of 55 questionnaires were completed online through the Survey Monkey website. Following a review of the questionnaires, three were excluded due to incomplete responses. Ultimately, 52 questionnaires were analyzed, yielding a response rate of 94.55%.

### *Data Analysis*

As mentioned above, SPSS used to analyse data extracted from the questionnaire, the results were as follows:

### *Validity and Reliability*

To ensure the accuracy of the questionnaire, its validity and reliability were assessed and tested. In this research, content validity was established through a review process, where the questionnaire was vetted by several academic instructors and professors to evaluate its content before distributing the final version. To confirm reliability, Cronbach's alpha was calculated to ensure the stability of the measuring instrument. A high correlation between validity and reliability is expected. Table 1 presents the Cronbach's alpha values for the questionnaire dimensions.

**Table 1: Cronbach's Alpha for The Questionnaire**

Scale	Item number	Cronbach's Alpha (%)
<b>HRM Strategies</b>	6	0.958
<b>Sustainable Economic Development</b>	6	0.964
<b>Sustainable Social Development</b>	6	0.959
<b>Sustainable Environmental Development</b>	6	0.943
<b>Sustainable Technical Development</b>	6	0.972

<b>Entire Questionnaire</b>	<b>30</b>	<b>0.989</b>
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Table 1 reveals that the Cronbach's alpha coefficient for the entire questionnaire was 0.989, indicating a high level of internal consistency. Among the sub-dimensions, sustainable technical development had the highest Cronbach's alpha coefficient, at 0.972. In contrast, sustainable environmental development had the lowest Cronbach's alpha coefficient, at 0.943. These results suggest that the questionnaire items demonstrated high consistency and correlation.

### Respondents' Profile

Table 2 presents the demographic characteristics of the respondents (N = 52). The sample consisted of 61.5% (n = 32) males and 38.5% (n = 20) females, indicating a relatively balanced distribution between genders and contributing to a diverse range of viewpoints. This diversity is likely to enhance the research outcomes.

Regarding years of work experience, the respondents were categorized as follows: 5.8% (n = 3) had 1-5 years, 30.8% (n = 16) had 6-10 years, 23.1% (n = 12) had 11-15 years, and 40.3% (n = 21) had more than 15 years. Notably, the majority of respondents were experienced professionals, which is expected to increase the validity and accuracy of the results, ultimately reflecting the high quality of the research.

**Table 2: Demographic Characteristics of Respondents (N=52)**

Variable	N (%)
<b>Gender</b>	
Male	32 (61.5%)
Female	20 (38.5%)
<b>Years of Working Experience</b>	
1-5	3 (5.8%)
6-10	16 (30.8%)
11-15	12 (23.1%)
>15	21 (40.3%)

### Descriptive Analysis

This section presents a descriptive analysis of the responses and perceptions of specialists, experts, and deans of faculties regarding each research dimension, including its corresponding statements. Specifically, the analysis will cover HRM strategies and the four dimensions of sustainable development: economic, social, environmental, and technical.

### HRM Strategies

**Table 3: HRM Strategies**

Statement	Mean	SD
1. HRM strategies include the preparation and development of training and rehabilitation programs using scientific training methods.	3.62	1.255
2. HRM strategies encourage staff to participate fully in the planning and implementation of their strategy through appropriate decision-making structures.	3.62	1.207
3. HRM strategies offer full income growth opportunities.	3.56	1.259
4. HRM strategies make appropriate use of human capabilities.	3.75	1.064

5. HRM strategies offer an opportunity to fully express the ability to innovate.	3.32	1.292
6. HRM strategies are in line with modern and evolving trends, which are expected to spread globally in the foreseeable future.	3.31	1.307
<b>Total Mean and Standard Deviation</b>	<b>3.53</b>	<b>1.122</b>

Table 3 presents the mean and standard deviation values for HRM strategies, ranging from 3.31 to 3.75. The total mean was 3.53, with a standard deviation of 1.122, indicating a favourable response. Notably, statement 4, "HRM strategies make appropriate use of human capabilities," received the highest mean, whereas statement 6, "HRM strategies are in line with modern and evolving trends expected to spread globally in the foreseeable future," received the lowest mean.

The researcher believes that prioritizing human resources, a crucial pillar of university leadership, is essential for achieving sustainable development. This can be accomplished by increasing attention to human resources strategies, pursuing excellence in vocational education and training, and higher education, and building human capability. Improving the quality of lifelong learning and ensuring training aligns with labour market demands are also vital. Furthermore, HRM strategies should integrate social and environmental responsibility into decision-making, introducing policies to reduce poverty and unemployment, monitoring environmental impact, establishing security systems, detecting hazards, and incorporating technology and training programs. These efforts will positively impact university performance, contributing to the achievement of sustainable development.

### *Sustainable Economic Development*

**Table 4: Sustainable Economic Development Dimension**

Statement	Mean	SD
1. HRM strategies in Saudi universities contribute to improving the quality of life and changing the structure of production.	3.46	1.212
2. HRM strategies in Saudi universities seek to reduce unemployment in Saudi society.	3.40	1.287
3. HRM strategies in Saudi universities contribute to increasing growth rates in real national income.	3.21	1.391
4. HRM strategies in Saudi universities suggest ways to improve the quality of goods and services provided to citizens.	3.46	1.379
5. HRM strategies in Saudi universities aim at human well-being in order to build a better society that eliminates human suffering.	3.52	1.306
6. HRM strategies in Saudi universities contribute to the adoption of development programs based on self-reliance and self-sufficiency.	3.58	1.226
<b>Total Mean and Standard Deviation</b>	<b>3.44</b>	<b>1.199</b>

Table 4 presents the mean and standard deviation values for the sustainable economic development dimension, ranging from 3.21 to 3.58. The total mean was 3.44, with a standard deviation of 1.199, indicating a favourable response. Notably, statement 6, "HRM strategies in Saudi universities contribute to the adoption of development programs based on self-reliance and self-sufficiency," received the highest mean, whereas statement 3, "HRM strategies in Saudi universities contribute to increasing growth rates in real national income," received the lowest mean.

The researcher emphasizes the importance of strengthening political and economic governance and management at national and local levels. In this context, Saudi Arabia requires economic development, rather than merely economic growth, as it necessitates not only increased production but also transformation of existing economic and social structures. Consequently, sustainable economic development relies on equitable income distribution, poverty alleviation, and improvement in the quality of goods and services provided to individuals.

### *Sustainable Social Development*

**Table 5: Sustainable Social Development Dimension**

Statement	Mean	SD
1. HRM strategies in Saudi universities help reduce poverty.	3.58	1.242
2. HRM strategies in Saudi universities seek to achieve equality and equity between women and men.	3.75	1.153
3. HRM strategies in Saudi universities seek to promote social integration, which is based on the promotion and protection of all human rights.	3.44	1.290
4. HRM strategies in Saudi universities seek to enable everyone to have equal access to education and primary health care.	3.46	1.275
5. HRM strategies in Saudi universities seek to support full employment as one of the basic policy objectives.	3.08	1.453
6. HRM strategies in Saudi universities contribute to popular participation, activating the role of women, and the full use of human resources.	3.23	1.231
<b>Total Mean and Standard Deviation</b>	<b>3.42</b>	<b>1.162</b>

Table 5 presents the mean and standard deviation values for the sustainable social development dimension, ranging from 3.08 to 3.75. The total mean was 3.42, with a standard deviation of 1.162, indicating a favourable response. Notably, statement 2, "HRM strategies in Saudi universities seek to achieve equality and equity between women and men," received the highest mean, whereas statement 5, "HRM strategies in Saudi universities seek to support full employment as one of the basic policy objectives," received the lowest mean.

The researcher stresses the importance of promoting gender equality and empowering women through sustainable progress in women's participation in development. Additionally, ensuring universal and equitable access to quality, community-based healthcare is crucial. Moreover, peace and security are essential instruments for social stability and growth, and efforts to preserve them must be supported.

### *Sustainable Environmental Development*

**Table 6: Sustainable Environmental Development Dimension**

Statement	Mean	SD
1. HRM strategies in Saudi universities work to preserve many different natural species.	3.29	1.348
2. HRM strategies in Saudi universities seek to educate the community about natural disasters.	3.23	1.337
3. HRM strategies in Saudi universities work to reduce all sorts of waste.	3.12	1.353
4. HRM strategies in Saudi universities promote the concept of renewable resources.	3.58	1.177

5. HRM strategies in Saudi universities seek to educate the community about climate change problems and solutions.	3.19	1.314
6. HRM strategies in Saudi universities seek to educate the community about the importance of reducing water consumption.	2.79	1.333
<b>Total Mean and Standard Deviation</b>	<b>3.20</b>	<b>1.158</b>

Table 6 presents the mean and standard deviation values for the sustainable environmental development dimension, ranging from 2.79 to 3.58. The total mean was 3.20, with a standard deviation of 1.158, indicating a favourable response. Notably, statement 4, "HRM strategies in Saudi universities promote the concept of renewable resources," received the highest mean, whereas statement 6, "HRM strategies in Saudi universities seek to educate the community about the importance of reducing water consumption," received the lowest mean.

It is evident that human well-being is closely tied to environmental health. Therefore, the researcher emphasizes the importance of enhancing Saudi Arabia's resilience to natural disasters by investing in disaster prevention and management mechanisms, as well as climate change adaptation initiatives and proactive capacities.

### ***Sustainable Technical Development***

**Table 7: Sustainable Technical Development Dimension**

<b>Statement</b>	<b>Mean</b>	<b>SD</b>
1. HRM strategies in Saudi universities focus on the role of information technology in development processes.	3.23	1.381
2. HRM strategies in Saudi universities aim at narrowing the gap between knowledge and its implementation in the process of solving a particular problem.	3.09	1.311
3. HRM strategies in Saudi universities encourage technical innovation as a modern approach to achieve sustainable development.	3.23	1.366
4. HRM strategies in Saudi universities play a vital role in developing technical practices that ensure efficient and safe ICT operations and management.	3.25	1.399
5. HRM strategies in Saudi universities contribute to establishing the necessary physical infrastructure, enhancing cyber security, and developing digital skills.	3.17	1.410
6. HRM strategies in Saudi universities contribute to finding alternative energy sources for fuels such as solar and wind.	3.40	1.347
<b>Total Mean and Standard Deviation</b>	<b>3.23</b>	<b>1.283</b>

Table 7 presents the mean and standard deviation values for the sustainable technical development dimension, ranging from 3.09 to 3.40. The total mean was 3.23, with a standard deviation of 1.283, indicating a favourable response. Notably, statement 6, "HRM strategies in Saudi universities contribute to finding alternative energy sources for fuels such as solar and wind," received the highest mean, whereas statement 2, "HRM strategies in Saudi universities aim at narrowing the gap between knowledge and its implementation in the process of solving a particular problem," received the lowest mean.

The researcher highlights the importance of developing technological capabilities and facilitating the transfer and adaptation of technology, including statistical information, to align with Saudi Arabia's

development needs. To achieve this, universities in Saudi Arabia must stay abreast of global scientific and technical advancements, particularly in providing the necessary requirements for sustainable development.

## Testing Research Hypotheses

To test research hypotheses, regression analysis was used to explore the effect of HRM strategies on sustainable development dimensions, including economic, social, environmental, and technical.

**The First Main Hypotheses (H1): There is a strong link between HRM strategies and sustainable development in the university sector in KSA.**

This hypothesis is tested by verifying the sub hypotheses, as follows:

*H1-A: there is a significant impact of HRM strategies on sustainable economic development in the university sector in KSA.*

**Table 8: Results of the Regression Analysis – The Impact of HRM Strategies on Sustainable Economic Development**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.033	1	65.033	391.656	.000 <sup>b</sup>
	Residual	8.302	50	.166		
	Total	73.335	51			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.942 <sup>a</sup>	.887	.885	.40749

Table 8 reveals a significant impact of HRM strategies on sustainable economic development in the university sector in KSA. The regression analysis indicates a significant effect model, leading to the acceptance of the first sub-hypothesis (H1-A). The calculated F-value (391.656) exceeds the F-statistic value (4.0012) at a significance level of 0.00 and 51 degrees of freedom.

The coefficient of determination (R<sup>2</sup>) is 0.887, indicating a good fit. This suggests that HRM strategies explain 88.7% of sustainable economic development, with approximately 11.3% of changes attributed to uncontrollable random variables.

These findings are consistent with previous research by Siagian, Fajar & Alify (2023); Korauš et al. (2017). The researcher emphasizes that HRM strategies should focus on structural economic transformation, ensuring sustainable and inclusive growth, human development, decent employment promotion, and reducing gender inequality.

Furthermore, human resource management strategies must foster favourable conditions for economic diversification, improve the business climate, promote private sector development, and ensure improved wealth distribution and reinvestment.

*H1-B: there is a significant impact of HRM strategies on sustainable social development in the university sector in KSA.*

**Table 9: Results of the Regression Analysis – The Impact of HRM Strategies on Sustainable Social Development**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.757	1	53.757	177.328	.000 <sup>b</sup>
	Residual	15.157	50	.303		
	Total	68.915	51			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.883 <sup>a</sup>	.780	.776	.55059

Table 9 indicates a significant impact of HRM strategies on sustainable social development in the university sector in KSA. The regression analysis reveals a significant effect model, leading to the acceptance of the second sub-hypothesis (H1-B). The calculated F-value (177.328) surpasses the F-statistic value (4.0012) at a significance level of 0.00 and 51 degrees of freedom.

The coefficient of determination (R<sup>2</sup>) is 0.780, indicating a good fit. This suggests that HRM strategies explain 78.0% of sustainable social development, with approximately 22.0% of changes attributed to uncontrollable random variables.

These findings are consistent with previous research by Eizenberg & Jabareen (2017); Stankevičiūtė & Savanevičienė (2018). The researcher emphasizes that HRM strategies should prioritize sustainable social development, environmental protection, and intergenerational growth, while promoting democracy and human rights.

Furthermore, HRM strategies must incorporate environmental quality indicators (air, water, sanitation) and energy consumption into their welfare concept. They should also strengthen anti-poverty strategies, prioritize equity and social integration, and assess progress in service availability and affordability.

*H1-C: there is a significant impact of HRM strategies on sustainable environmental development in the university sector in KSA.*

**Table 10: Results of the Regression Analysis – The Impact of HRM Strategies on Sustainable Environmental Development**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.234	1	51.234	149.304	.000 <sup>b</sup>
	Residual	17.157	50	.343		
	Total	68.391	51			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.866 <sup>a</sup>	.749	.744	.58579

Table 10 indicates a significant impact of HRM strategies on sustainable environmental development in the university sector in KSA. The regression analysis reveals a significant effect model, leading to the acceptance of the third sub-hypothesis (H1-C). The calculated F-value (149.304) surpasses the F-statistic value (4.0012) at a significance level of 0.00 and 51 degrees of freedom.

The coefficient of determination ( $R^2$ ) is 0.749, indicating a good fit. This suggests that HRM strategies explain 74.9% of sustainable environmental development, with approximately 25.1% of changes attributed to uncontrollable random variables.

These findings are consistent with previous research by Sinkovics et al. (2022); Almada & Borges (2018). The researcher emphasizes that HRM strategies should leverage environmental policies to replace production elements (capital, labour, natural resources, and environmental facilities) and mitigate their scarcity.

Furthermore, HRM strategies must educate society about the concept of a green economy and green development, incorporating environmental considerations into product and consumer culture. Environmental standards should be a crucial condition for market entry, preventing the entry of products that disregard environmental dimensions, whether locally or internationally, such as goods produced through exploitative resource use or those that disrupt environmental balance.

*H1-D: there is a significant impact of HRM strategies on sustainable technical development in the university sector in KSA.*

**Table 11: Results of the Regression Analysis – The Impact of HRM Strategies on Sustainable Technical Development.**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	57.711	1	57.711	109.754	.000 <sup>b</sup>
	Residual	26.291	50	.526		
	Total	84.002	51			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.829 <sup>a</sup>	.687	.681	.72513

Table 11 reveals a significant impact of HRM strategies on sustainable technical development in the university sector in KSA. The regression analysis indicates a significant effect model, leading to the acceptance of the fourth sub-hypothesis (H1-D). The calculated F-value (109.754) exceeds the F-statistic value (4.0012) at a significance level of 0.00 and 51 degrees of freedom.

The coefficient of determination ( $R^2$ ) is 0.687, indicating a good fit. This suggests that HRM strategies explain 68.7% of sustainable technical development, with approximately 31.3% of changes attributed to uncontrollable random variables.

These findings are consistent with previous research by Howard-Grenville et al. (2017); Imaz & Sheinbaum (2017). The researcher emphasizes that HRM strategies should accelerate the adoption of improved technologies and establish legal provisions for imposing and applying sanctions.

To achieve this goal, constructive technological cooperation is necessary, illustrating the interplay between economic, human, environmental, and technological dimensions. Technological cooperation, through the development or adaptation of cleaner and more efficient technologies, will enhance economic productivity, reduce resource depletion, and minimize pollution, thereby preventing environmental degradation.

Substantial investments in education, training, and human development are also crucial for the success of these efforts. Moreover, the adoption of modern technology will contribute to the conservation of water and energy in agricultural, industrial, and domestic sectors.

## Conclusion

This study aimed to investigate the relationship between Human Resource Management (HRM) and sustainable development in the university sector in KSA. A descriptive approach was employed, utilizing a questionnaire distributed to the research sample. The results revealed a strong link between HRM and sustainable development, with HRM strategies significantly impacting all dimensions of sustainable development, including economic, social, environmental, and technical.

This research has some limitations, which may provide opportunities for future studies. Firstly, this study focused solely on the university sector in KSA; future research could explore other sectors. Additionally, this study employed a quantitative approach to answer research questions and test hypotheses; future research may consider using qualitative approaches or case studies.

The researcher recommends that Saudi universities widely disseminate practical policies and applications of sustainable development, as this can foster a trusting atmosphere, motivating employees and leading to improved efficiency and innovation. Furthermore, investing in human capabilities and skills through effective HRM strategies is crucial for enhancing HR performance and achieving long-term sustainable development in universities.

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