

## Impact of total quality management practices on competitive advantage in Jordan's private higher education institutions



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### ABSTRACT

This study aims to determine whether both soft and hard total quality management (TQM) practices influence the creation of competitive advantage in private higher education institutions in Jordan. Primary data were collected through a questionnaire from a sample of 108 academics working in these institutions, using convenience sampling. Descriptive statistics, such as mean and standard deviation, were used to describe the sample. The study employed multiple linear regression analysis, which revealed that both soft and hard TQM practices have a significant positive impact on creating a competitive advantage. The study recommends further research on the role of soft and hard TQM practices, particularly in the business environments of developing countries in the Middle East, with a focus on the manufacturing industries.

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### 1. Introduction

Achieving a competitive advantage is a key goal for most businesses worldwide. Developing this advantage is crucial for both industrial and service organizations, as it often leads to increased sales, more customers, and higher profitability. However, competitive advantage does not arise without deliberate actions; it results from implementing suitable policies and strategies. One such strategy is adopting Total Quality Management (TQM), which can help create a competitive advantage. TQM practices are classified into two main types: soft (intangible) and hard (tangible) practices (Sciarelli et al., 2020). Using one or both types can support the development of a competitive edge. Today's intense global competition, particularly under economic globalization, makes this advantage even more necessary, as many companies aim to stand out from competitors. Higher education institutions, including universities, colleges, and other academic organizations, face similar pressures. They are now contending with intense international competition

and rapid technological changes, which pose significant challenges for their adaptation and growth. Similar to higher education institutions worldwide, Jordan's universities face challenges due to intense competition and rapid technological change, especially from universities in nearby Arab states. Competition among Arab universities is heightened by language preferences, as some students choose institutions where Arabic is the language of instruction. Additionally, proximity increases competition, as students from neighboring countries can easily attend universities across borders. Both public and private universities in Jordan must cover their costs and generate profits in a low-income country, a task that is challenging without a competitive advantage. This challenge defines the focus of the current study. Specifically, this study seeks to answer the question: Can the effective adoption of both soft and hard TQM practices help in building a competitive advantage? This research aims to provide a scientific answer to this question (Sciarelli et al., 2020).

This study is significant because it seeks to determine if adopting soft and hard TQM practices leads to a competitive advantage. With intense global competition among higher education institutions, focusing on TQM is essential to continually improving products and services. Such improvements can ultimately lead to a competitive

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edge, resulting in higher sales and better profitability.

Higher education institutions in Jordan offer teaching, research, and community development, but students have many choices both domestically and internationally. Thus, only institutions with a competitive advantage are likely to thrive, while those without will struggle to cover expenses and maintain student enrollment—crucial for profitability and survival.

The main purpose of this study is to examine whether the adoption of soft and hard TQM practices by Jordanian higher education institutions supports competitive advantage development. Additionally, the study aims to review existing literature on TQM, illustrating how appropriately applied TQM practices can foster competitive advantage. It also seeks to contribute to the literature by highlighting the benefits organizations gain from achieving a competitive advantage.

This research differs from previous studies in that it examines the combined role of soft and hard TQM practices in building competitive advantage, specifically for private higher education institutions in emerging economies. It relies on primary data from experienced academics in Jordanian higher education, providing valuable insights for achieving the study's objectives.

## 2. Literature review and prior research

### 2.1. TQM

There is no universal agreement on the definition of quality; it varies by author and industry (Al-Qudah, 2012). Generally, quality is seen by the public, especially clients, as the continuous improvement of goods or services. Quality forms the foundation of TQM, but TQM encompasses more, including production inputs, tools, management methods, and all factors influencing the final product or service quality.

TQM is a key topic in the business field. Okes and Westcott (2001) described TQM as a philosophy, while Robbins (1996) defined it as “a philosophy of achieving customer satisfaction through continuous improvement in all organization processes.” Additionally, Okes and Westcott (2001) viewed TQM as a management style focused on process improvement and addressing client needs, using qualitative and quantitative methods to analyze quality dimensions. Dihadjo and Ellitan (2021) described TQM as “a business management strategy aimed at improving organizational management, increasing competitiveness, and adding value to clients.” Based on these definitions, TQM can be defined as a comprehensive management approach for continuous improvement in goods and services.

TQM has evolved over time, starting with the development of Statistical Process Control (SPC) led by Walter Shewhart. In the 1940s, Japanese companies, facing poor product quality, adopted new approaches to TQM to improve their products'

reputation. This movement led to the establishment of TQM practices in 1949 by the Union of Japanese Scientists and Engineers (JUSE) following World War II, which then continued to develop (Saleh et al., 2018).

According to Cherrington (1995), TQM involves several elements, including customer focus, strategic planning, continuous improvement, and empowerment, while Tenner and Detoro (1992) identified three core principles: customer focus, continuous improvement, and integrated engagement. TQM aims to enhance organizational effectiveness, efficiency, and responsiveness to customers and stakeholders, leveraging employees' skills to achieve sustainable competitive advantage (Buchunde and Sangode, 2019).

TQM practices are often categorized into “soft” and “hard” practices. Soft TQM focuses on organizational principles such as leadership and employee empowerment, while hard TQM emphasizes quality improvement tools, methods, and techniques, like quality analysis and supplier relations. Soft practices include customer focus, education and training, top management leadership, and supplier relationships, while hard practices include continuous improvement, SPC, process management, quality tools and techniques, and product design (Saleh et al., 2018; Ali et al., 2022). Generally, soft TQM practices are intangible, while hard TQM practices are tangible and measurable, relating directly to production methods (Fauzi, 2021).

TQM philosophy provides substantial economic benefits to organizations that adopt it. When effectively implemented, TQM can enhance firms' competitiveness and add measurable value:

1. Business organizations that adopt and implement TQM gain a better understanding of their customers. This approach involves conducting surveys to determine customer preferences, including product content, form, color, size, weight, price, and other specifications.
2. Customers of TQM-oriented firms experience higher satisfaction with products. This satisfaction results from the firm's efforts to survey customer needs and desires before production, allowing product design to align with customer expectations.
3. Internal communication improves within organizations implementing TQM, as successful adoption of TQM requires greater interaction and coordination among departments and employees.
4. Problem-solving processes are enhanced in firms using TQM. This improvement stems from TQM's emphasis on collaboration, coordination, and the exchange of ideas to address issues effectively.
5. Employee commitment and loyalty increase in TQM-driven organizations. Employees across all levels feel more engaged as they participate in discussions, processes, and activities that support TQM implementation.

6. Organizations practicing TQM build stronger relationships with suppliers. Since production requires reliable access to raw materials, semi-finished products, or parts, maintaining trust and good relations with suppliers ensures a consistent supply chain.
7. TQM involves a strong technical and professional aspect, focusing on skilled employees and efficient processes. This emphasis on expertise reduces waste and minimizes errors in production, contributing to the effectiveness of TQM.

## 2.2. Competitive advantage

Competitive advantage is a key goal for most businesses, with firms striving to gain an edge over competitors. Organizations, regardless of size, can develop, acquire, or possess a competitive advantage. Developing an internal competitive advantage—through management practices, employee training, raw materials, and in-house techniques—is generally more sustainable and cost-effective than acquisition, as it integrates across various organizational aspects and lowers the risk of failure.

Achieving a competitive advantage leads to higher profitability, greater sales, and increased customer loyalty. A firm can hold a competitive advantage when it has distinct features that allow it to surpass competitors and become more competitive. According to Porter (1991), competitive advantage is "productivity growth reflected in either lower costs or differentiated products that command premium prices." Essentially, competitive advantage involves offering superior value through lower prices or higher-priced products that justify their cost with added benefits.

Kyurova (2018) defined competitive advantage as unique product characteristics that add client value and provide the firm with greater benefits than its competitors. Practically, a firm holds a competitive advantage if it offers something distinctly beneficial to customers. This may arise from high-quality raw materials, cost-efficient purchasing, employee training and expertise, or advanced production techniques, all contributing to improved product quality and value. Management practices, leadership, and resource allocation are also important sources of competitive advantage.

Two economic models for understanding competitive advantage exist in the literature (Fauzi, 2021). The first is the market-based model, which focuses on cost differentiation. It assumes that consumers prefer lower-cost options and are less willing to pay for higher-priced products without perceived value. The second model, the resource-based view, emphasizes the internal resources of the firm. This model suggests that unique resources that enhance operational effectiveness position the firm advantageously in the market, enabling superior returns. In the resource-based model, a sustainable competitive advantage relies on competitors' inability to replicate the firm's unique resources.

According to the literature, several dimensions and determinants define competitive advantage, with two common dimensions identified by El-Kassar and Singh (2019).

1. Flexibility: Flexibility refers to a firm's ability to adapt to changes in the market and external environment. In higher education, flexibility is crucial in scheduling lectures, developing programs, updating study plans, offering new courses, adapting student enrollment methods, and providing varied payment options.

2. Responsiveness: Responsiveness is a firm's ability to quickly address market changes, which can foster competitive advantage. Labor market shifts create new product and service demands. For example, if a higher education institution can promptly launch a new major in response to job market needs, it demonstrates responsiveness and gains a competitive edge.

### 2.2.1. Determinants of competitive advantage

1. Quality: Quality is essential to customer loyalty and sales. High-quality products or services add value for customers, making them a major driver of competitive advantage. For instance, Sachitra (2017) found that quality positively impacts competitive advantage by creating added value, and Bratić (2011) identified it as a key factor in industry competitiveness. Firms must prioritize quality to retain current customers and attract new ones.
2. Price: Lower prices attract customers. Product price depends on production costs, which firms can reduce through cost-effective raw materials, efficient production methods, or economies of scale. As Porter (1998) noted, a combination of lower costs and product differentiation can help firms achieve a competitive advantage.
3. Delivery: Timely delivery of products in the desired quantity can enhance competitive advantage. Awwad et al. (2013) found that timely delivery has a significant positive effect on competitive advantage, reinforcing the importance of reliable service.
4. Time to Market: Introducing new products that meet customer needs strengthens a firm's competitive position. By quickly responding to customer demand, firms can maintain or improve their market position. Bratić (2011) highlighted time to market as an important indicator of competitive advantage.

### 2.2.2. Principles of TQM

1. Customer Focus: This principle prioritizes customers, aiming to provide high-quality products quickly, in convenient locations, and to address any customer issues efficiently.
2. Leadership: Effective leadership motivates and empowers employees, involving them in decision-

making and valuing their input, which fosters a positive work environment.

3. Staff Participation: Employees should be encouraged to participate in meetings and discussions, with their skills and experience valued and respected.
4. Process Approach: Focusing on processes rather than results helps reduce errors. Instead of correcting mistakes, the emphasis is on preventing them.
5. Continuous Improvement: Improvement should be ongoing, not occasional. A commitment to continuous improvement helps maintain high standards in work processes.
6. Management's Commitment to Improvement: Organizational leadership should adopt a proactive approach to improvement.
7. Mutually Beneficial Supplier Relationships: Firms should cultivate trustworthy, respectful, and strong relationships with suppliers to ensure a reliable supply chain.
8. Facts-Based Decision Making: Decisions should be grounded in reliable data rather than assumptions or isolated incidents, ensuring more effective outcomes.

### 2.3. TQM and competitive advantage

TQM is essential for business organizations aiming to strengthen their competitive position. Implementing TQM provides multiple benefits, including reduced production costs and increased profitability. TQM also enables more efficient use and allocation of resources, leading to improved product quality. High-quality products attract new customers while retaining existing ones, ultimately increasing sales volume and profitability.

Competition among businesses, especially within the same industry, has intensified. While intense competition is challenging, its impact can be minimized by building a competitive advantage. TQM is a key strategy for achieving this advantage, as it directly influences a firm's ability to compete and sustain its market position. Thus, adopting TQM serves as an important indicator of competitiveness, supporting both the development and maintenance of a competitive edge.

### 2.4. Prior research

Research on the role of soft and hard TQM in creating competitive advantages for business organizations and higher education institutions is limited, though some studies have explored related topics.

Yusuf (2023) conducted a meta-analysis on TQM's impact on higher education quality across countries, finding that TQM significantly enhances educational quality. Bahia et al. (2023) examined TQM in academic organizations amid globalization challenges, concluding that TQM adoption promotes customer satisfaction. Salikon and Saadon (2023) reviewed TQM's impact on Malaysian manufacturing

performance, showing a positive relationship between TQM techniques and competitive performance.

Lepistö et al. (2023) focused on soft TQM's impact on sustainability in Finnish SMEs, finding that business management and human resource practices influence environmental and societal sustainability. Eltaraiqi and Azam (2022) identified five essential TQM elements in Libyan higher education, enhancing institutional performance. Ali et al. (2022) explored TQM's role in Industry 4.0 readiness, revealing that both soft and hard TQM practices support readiness, with hard TQM mediating between soft TQM and Industry 4.0.

Alkhaldi and Abdallah (2022) studied TQM's effect on quality performance and customer satisfaction, finding a strong positive impact of soft TQM on quality and patient satisfaction, though hard TQM had limited influence on satisfaction. Lehyani et al. (2022) investigated TQM and knowledge management in Tunisian SMEs, revealing that knowledge application and acquisition, alongside continuous improvement, are the most applied TQM practices.

Filippi et al. (2024) examined the interplay between soft and hard TQM, identifying four elements that contribute to sustainable quality success. Elhawi (2022) found a positive relationship between TQM and competitive advantage, highlighting the influence of executive ability on continuous improvement. Aluko et al. (2022) emphasized TQM's role in organizational survival by creating a competitive advantage, noting that TQM supports adaptability to changing customer preferences.

Al Khasabah et al. (2022) studied quality's mediating effect on TQM and competitive advantage, finding that TQM positively impacts competitive advantage. AlShamsi et al. (2022) identified leadership as the primary factor in UAE aviation's TQM practices. Alghofeli (2022) explored quality management's impact on performance, concluding that innovation mediates the relationship between TQM and performance. Al-Ababneh (2022) linked TQM practices to cost recovery and service innovation, with service innovation mediating TQM's impact on service recovery.

Erkan and Unal (2022) emphasized TQM's importance in healthcare, noting its role in patient satisfaction and customer loyalty. Kulenović et al. (2022) examined TQM's impact on financial performance, identifying innovation as a mediator. Alawamleh et al. (2022) developed a TQM model for operational performance, finding that TQM practices enhance organizational efficiency and effectiveness. Sánchez-Alegría et al. (2022) showed that quality performance indicators help prevent bankruptcy in organizations.

Dihardjo and Ellitan (2021) reviewed TQM as a strategy for customer satisfaction, suggesting it supports comprehensive business improvements. Ali and Johl (2022) examined TQM's link to Industry 4.0, identifying critical TQM dimensions for quality

enhancement. Fernández et al. (2022) reviewed quality management's impact on innovation and performance, confirming positive relationships among these factors.

Fauzi (2021) found that TQM positively influences employee creativity, performance, and competitive advantage, with benefits like reduced costs. El-Kassar and Singh (2019) identified price, quality, delivery, and time to market as significant determinants of competitive advantage in Saudi Arabia. Othman et al. (2020) highlighted TQM's importance in gaining a competitive advantage in Iraq's banking industry. Ahmed and Idris (2020) demonstrated that soft TQM enhances job satisfaction.

Permana et al. (2021) confirmed TQM's continued effectiveness in meeting high-quality, low-cost, fast-delivery demands in complex environments. Sciarelli et al. (2020) explored TQM's role in innovation and performance in Italian higher education, finding that TQM enhances organizational performance and innovation. Buchunde and Sangode (2019) showed that TQM helps small businesses achieve competitive advantage through customer satisfaction and employee involvement.

Obeidat et al. (2018) examined the relationship between human resources, TQM, and competitive advantage in Jordan's telecommunications sector, revealing significant relationships between human resource management, TQM, and competitive advantage.

### 3. Hypotheses development

Based on the consideration of the literature review and the related prior research, two hypotheses were developed. The hypotheses are developed to enable achieving the objectives of the study. These two hypotheses are shown below, in null form, as follows:

**Ho1:** There is no significant impact of the soft practices of TQM on the competitive advantage created by private higher education institutions in Jordan.

**Ho2:** Hard practices of TQM have no significant impact on the competitive advantage creation of private higher education institutions in Jordan.

### 4. Research methodology

The study's population includes various private, non-governmental higher education institutions in Jordan, such as universities, colleges, and academies. These institutions offer programs beyond the general secondary certificate, including diplomas, bachelor's, master's, and Ph.D. degrees. A sampling method that combines purposive and convenience sampling was used to select 140 academic faculty members from different private universities and higher education institutions in Jordan, representing a range of institutions, fields, and academic disciplines. Faculty members were given one week to complete the questionnaire. By the end of the week, 112 responses were received. A reminder was sent to non-respondents, yielding four additional responses within three days. Thus, 116 responses were collected in total. However, eight responses were excluded due to inconsistent answers, suggesting a lack of focus. Therefore, 108 valid responses were included in the data analysis.

Based on an extensive literature review, a self-administered questionnaire was developed to include the study's variables. The questionnaire was reviewed by five experienced faculty members specializing in teaching quality, who provided valuable feedback incorporated into the final version. A pilot study confirmed the questionnaire's clarity and applicability for the target sample.

The questionnaire opens with a cover letter explaining the study's purpose, expressing gratitude for participants' time and effort, and ensuring that responses would be used exclusively for research purposes. The questionnaire comprises four sections. The first section covers demographic and personal information, such as age, experience, academic field, and institution title. The second section measures competitive advantage, the study's sole dependent variable, with 12 items (items 1 to 12), as outlined in Table 1.

**Table 1:** The items used in competitive advantage measurement

Section 1: Soft TQM practices (customer focus)	
1.	The higher education institution I work with provides high-quality educational services to students
2.	My institution responds swiftly to labor market demands by launching programs that meet market needs
3.	I feel that my institution is flexible, allowing policies, programs, regulations, and work plans to be adjusted smoothly within a reasonable timeframe
4.	I believe my private institution offers educational services at lower fees compared to other private institutions in Jordan
5.	My institution delivers its services at a lower cost than competitors within the region
6.	My institution is considered a pioneer by offering services from locations closest to its students
7.	My institution provides most courses online, depending on the nature of the course
8.	My institution delivers its services on time without delay
9.	Every student enrolled at my institution can register and pay fees online
10.	My institution considers student needs when determining which courses to offer
11.	My institution schedules multiple sessions to accommodate the needs of enrolled students
12.	When I interact with graduates, current students, and their families, I frequently hear positive feedback about the quality of education provided by my institution

The third section of the questionnaire is dedicated to measuring soft TQM practices and is divided into three subsections. The first subsection

assesses customer focus, covering items 13 to 21. The second subsection measures training and education, specifically items 22 to 27. The third

subsection evaluates leadership, with items 28 to 38 designated for this purpose. Table 2 presents the items used to measure soft TQM practices.

**Table 2: The items used in measuring soft TQM practices**

Section 3: Soft TQM practices (customer focus)	
13.	My private higher education institution is customer-oriented
14.	My institution prioritizes the needs, wants, and preferences of its students
15.	The institution where I work uses various methods to collect feedback from current students
16.	In terms of policy, I feel that students and customers are given priority
17.	Student and customer satisfaction is considered in many decisions made by my institution
18.	Student complaints are received promptly and addressed within a short period at my institution
19.	The management at my institution proactively maintains contact with students, rather than waiting for them to approach
20.	My institution values and considers student feedback and recommendations
21.	Students and customers can provide feedback in multiple formats, including oral, written, online, or face-to-face
Section 3: Soft TQM practices (training and education)	
22.	Administrative staff have access to in-house training programs at my institution
23.	Most administrative staff have either developed or are currently enhancing their qualifications
24.	Academic faculty are periodically invited to participate in training programs held within or outside the institution
25.	Candidates with high qualifications are prioritized for academic or administrative roles at my institution
26.	Most faculty members hold Ph.D., with some master's degree holders pursuing a Ph.D
27.	Training programs are planned at the beginning of each academic year at my institution
Section 3: Soft TQM practices (leadership)	
28.	University leaders reward staff members for high performance
29.	Leadership listens to staff members and strives to resolve their issues
30.	Leaders at my institution show appreciation for both academic and administrative staff
31.	Equality and objectivity are core values in the leadership at my institution
32.	University leadership seeks to support staff in various aspects of their work

The fourth section of the questionnaire is designed to measure hard TQM practices and is divided into four subsections, each focused on a specific hard TQM variable. The first subsection includes 8 items (items 33–40) to assess continuous improvement as an independent variable. The second subsection, consisting of 7 items (items 41–

47), evaluates process management as an independent variable. The third subsection has 10 items (items 48–57) to test quality techniques. The fourth and final subsection contains 5 items focused on product design. Table 3 lists the items used to measure hard TQM practices.

**Table 3: The items used in measuring hard TQM practices**

Section 4: Hard TQM practices (Continuous improvement)	
33.	I perceive that my institution periodically reviews and adjusts policies for optimal outcomes
34.	The private higher education institution I work with seeks to streamline procedures required for task completion
35.	Time allocated for various tasks at my institution undergoes regular improvements
36.	Working conditions are continuously enhanced at the private higher education institution I am part of
37.	The educational process is consistently refined and assessed to address any gaps at my institution
38.	Periodic assessments for improvement are a standard practice at my private higher education institution
39.	Campus facilities and the internal environment at my institution are subject to ongoing improvement
40.	In my opinion, work methods, policies, procedures, programs, plans, and techniques at my institution are all continually improved
Section 4: Hard TQM practices (process management)	
41.	The educational process is carefully monitored at my institution
42.	Courses offered each semester are scheduled well in advance at my institution
43.	The registration process is smooth, allowing students to register for upcoming semester courses online when available
44.	Enrolling new students is efficient and straightforward when required documents are in place
45.	Fee payments can be made in cash, online, or via payment cards at my institution
46.	Transportation to and from my institution is convenient, minimizing waiting times for students and staff
47.	Wireless internet and learning resources are readily available in classrooms, offices, corridors, and other areas, facilitating easy communication across the campus
Section 4: Hard TQM practices (quality techniques)	
48.	An open office policy is followed by academic and administrative staff at my institution
49.	Wireless internet is accessible in various locations, including classrooms and faculty offices
50.	My institution subscribes to several international databases
51.	All classrooms are equipped with projectors, computers, whiteboards, and other necessary tools
52.	Courses for each semester are posted and accessible on the institution's website
53.	Information needed by students and customers is readily available on my institution's website
54.	My institution implements advanced quality standards in education
55.	The library is fully digitalized, with an extensive collection of books and journals, ensuring easy access for users
56.	Course syllabi, materials, and assignments are distributed to students at the beginning of each semester
57.	All educational programs undergo annual accreditation at my institution
Section 4: Hard TQM practices (product design)	
58.	My institution assesses labor market demands for specific fields before introducing new majors
59.	The introduction of new majors is based on government standards and undergoes review and approval by relevant authorities
60.	Course content is carefully developed through expert discussions at my institution
61.	Study plans are designed by experienced faculty members in relevant fields
62.	Teaching schedules offer students a range of options to select suitable courses and timings

Since academic staff at private universities in Jordan engage in the teaching process and have knowledge of both soft and hard TQM aspects, they are considered capable of providing accurate and

relevant responses to the questionnaire items. Therefore, current academic staff members teaching in private universities were chosen as the units of analysis.

Descriptive statistics were used to describe the sample, including the mean as the main measure of central tendency and the standard deviation as the primary measure of variability. Additionally, minimum and maximum values were reported for each questionnaire item. Data reliability was assessed using Cronbach's alpha, which indicated an internal consistency of 0.93—a high and acceptable level. The multiple linear regression method was applied to test both hypotheses at a 0.95 confidence level, setting the significance level at 0.05 (1 - 0.95). The decision to accept or reject the null hypothesis was based on comparing the computed and predetermined significance levels. If the computed significance level was greater than 0.05, the null hypothesis was accepted; if it was less than 0.05, the null hypothesis was rejected.

## 5. Results and discussions

### 5.1. Sample description

Section 1 of the questionnaire measures the dependent variable, competitive advantage, using items 1–12. The highest mean in this section is for item 10 (mean = 4.7037, SD = 0.64503), which states, “Student needs for course offerings are considered at my private higher education institution.” The lowest mean is for item 2 (mean = 3.8318, SD = 1.04146), which states, “My institution quickly responds to labor market needs by opening new programs accordingly.” For customer focus as an independent variable, items 13–21 assess this dimension. Descriptive statistics show that all items except two have means above 4. The highest mean is for item 20 (mean = 4.3148, SD = 0.63611), which states, “Student recommendations are given due attention by the institution I work with.” The lowest mean is for item 21 (mean = 3.6111, SD = 0.79524), which states, “Students can share feedback orally, in writing, online, or face-to-face.”

Items 22–27 address training and education as a soft TQM variable. Only item 22 has a mean above 4 (mean = 4.2037, SD = 0.74582), stating, “Administrative staff have access to internal training programs.” Items 23 and 26 have the lowest means (mean = 3.3889, SD = 1.03068 for both). Item 23 states, “Most administrative staff are undergoing professional development,” and item 26 states, “Most faculty members have a Ph.D., while some master’s holders are pursuing a Ph.D.”

For leadership, measured by items 28–32, two items have means above 4. Item 30 has the highest mean (mean = 4.3852, SD = 0.82379), stating, “Leaders at my institution appreciate the academic and administrative staff.” The lowest mean is for item 32 (mean = 3.3599, SD = 1.03068), which states, “University leadership supports staff in various aspects of their work.” The continuous improvement variable, measured by items 33–40, shows item 36 with the highest mean (mean = 4.6111, SD = 0.48977), stating, “Work conditions are continuously improved at my institution.” The lowest mean is for

item 34 (mean = 3.5370, SD = 1.271), which states, “My institution attempts to simplify procedures for task completion.”

For process management (items 41–47), item 44 has the highest mean (mean = 4.4074, SD = 0.79763), which states, “The enrollment process is smooth when documents are provided.” Item 43 has the lowest mean (mean = 3.092, SD = 0.70429), which states, “The registration process for enrolled students is easy, with online course registration available.”

The quality techniques variable, measured by items 48–57, shows item 51 with the highest mean (mean = 4.3889, SD = 0.48977), stating, “Courses are posted on the website each semester.” Items 48 and 49 share the lowest mean (mean = 3.6111), with item 48 stating, “Wireless access is available in various locations,” and item 49 stating, “The institution subscribes to multiple international databases.”

For product design, items 58–62 measure this variable. Item 61 has the highest mean (mean = 4.3981, SD = 0.4918), stating, “Class schedules provide students with various options.” The lowest mean is for item 62 (mean = 3.9907, SD = 1.00926), which states, “Study plans are developed by experienced faculty members.”

### 5.2. Data internal consistency or reliability

A reliability test was conducted to assess whether the data provided by respondents was reliable and suitable for analysis. Cronbach's alpha, a measure of internal consistency, was calculated using SPSS for the current study's data, yielding a reliability coefficient of 0.73. A reliability coefficient of 0.7 or higher indicates that the data is internally consistent. However, it is important to note that a high Cronbach's alpha does not necessarily imply that the measure is unidimensional. Table 4 presents the Cronbach's alpha coefficients for each variable measured individually.

**Table 4:** Cronbach's Alpha coefficients

Variables	Items used	Cronbach's alpha
Competitive advantage	1-12	0.833
Customer focus	13-21	0.556
Training and Education	22-27	0.761
Continuous improvement	28-35	0.554
Process management	36-43	0.648
Quality techniques	44-52	0.465
Product design	53-57	0.54
Entire items	1-57	0.73

### 5.3. Hypotheses testing

This section presents the tests that run for both hypotheses that the study takes into consideration. It was mentioned before that the multiple linear regression method is used to test both hypotheses.

#### 5.3.1. Testing the first hypothesis

Three types of soft TQM practices are considered in this study: customer focus, training and education,

and leadership. Other types of soft TQM practices are more suitable for manufacturing rather than service enterprises, such as private higher education institutions, which are the focus of this study. Items 1–12 measure competitive advantage as the study's single dependent variable, while items 13–21, 22–27, and 63–68 measure customer focus, training and education, and leadership, respectively.

The first main hypothesis was formulated to test whether soft TQM practices influence the creation or development of a competitive advantage. The null hypothesis is as follows:

**Ho1.** There is no significant impact of soft TQM practices on the competitive advantage of higher education institutions in Jordan.

Table 5 presents the relevant statistical coefficients for the first hypothesis. The correlation coefficient ( $R$ ) is 0.396, and the coefficient of determination ( $R^2$ ) is 0.157, indicating that soft TQM practices (customer focus, training and education, and leadership) account for 15.7% of the variation in competitive advantage. The computed F-value is 6.394, and the significance level (Sig.) is 0.001.

**Table 5:** Coefficients of the first main hypothesis

Model	Sum of squares	Degree of freedom	Mean square	F	Sigma	B-value	T-value	Sigma
Regression	8.842	3	2.827	6.394	0.001			
Residual	45.545	103	0.442					
Total	54.027	106						
Customer focus						-0.615	-0.314	0.754
Training and education						-0.314	-0.615	0.54
Leadership						0.511	3.448	0.001

The results of testing the first main hypothesis show that private higher education institutions in Jordan can achieve a competitive advantage by adopting and implementing soft TQM practices. Many of these institutions focus on customer satisfaction by addressing student needs and resolving their issues, leading to an increase in student enrollment. Some private institutions have also lowered tuition fees and enhanced educational services. These improvements stem from adopting flexible, modern leadership styles, prioritizing training for both administrative and academic staff, and placing high importance on student needs. For instance, Jadara University saw a significant increase in enrollment, from approximately 4,500 students in 2020 to around 9,000 in 2024. This growth can be attributed to the university's strong performance in meeting various international standards for teaching quality and research excellence.

### 5.3.2. Testing the second hypothesis

The study considers four types of hard TQM practices: continuous improvement, process management, quality techniques, and product design. These are measured using items 28–35, 36–43, 44–52, and 53–57, respectively.

The second main hypothesis tests whether hard TQM practices influence the creation or development

of a competitive advantage. The null hypothesis is stated as follows:

Comparing the computed F-value with its tabulated counterpart (3.087) and the computed significance with the predetermined level (0.05), it is evident that the computed F-value exceeds the tabulated value, and the computed significance level is below the predetermined threshold. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, indicating that soft TQM practices have a significant positive effect on competitive advantage.

This finding suggests that soft TQM practices contribute to creating a competitive advantage in Jordan's private higher education institutions. Specifically, customer focus, education and training, and leadership—types of soft TQM practices—are connected to human resources and employee performance. For instance, training and education enhance employee skills, increase quality, and support competitive advantage. Furthermore, focusing on customer satisfaction fosters loyalty, and strong leadership motivates employees, leading to better performance. While these practices are intangible and indirectly related to the product, they positively impact quality and help build a competitive advantage.

of a competitive advantage. The null hypothesis is stated as follows:

**Ho2:** There is no significant impact of hard TQM practices on the competitive advantage of higher education institutions in Jordan.

Table 6 presents the statistical coefficients for this hypothesis. The correlation coefficient ( $R$ ) is 0.328, and the coefficient of determination ( $R^2$ ) is 0.108, indicating that hard TQM practices (continuous improvement, process management, quality techniques, and product design) explain 10.7% of the variation in competitive advantage.

The computed F-value is 3.072, and the significance level (Sig.) is 0.02. Comparing the computed F-value with the tabulated value of 2.463 and the computed significance with the predetermined level of 0.05, the computed F-value exceeds the tabulated value, and the significance level is below the threshold. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted. This result indicates that hard TQM practices have a significant positive impact on competitive advantage.

The finding of a significant positive impact of hard TQM practices on the creation of competitive advantage aligns with logical expectations and supports most prior research in this area. Among the



hard TQM practices considered—continuous improvement, process management, and quality tools and techniques—it is clear that consistent improvement and efficient management processes contribute to enhanced quality, increasing the likelihood of gaining a competitive edge. Moreover, employing advanced tools and techniques positively influences product quality. Additionally, product or service design must prioritize customer or student perspectives to ensure their needs and preferences

are fully addressed. The impact of hard TQM on competitive advantage is evident in the example of Jadara University, which has become one of the most popular universities for students in Jordan. This reputation stems from the university's continuous development of study plans and educational tools, commitment to quality techniques, adoption of modern process management, and implementation of a highly developed program design aligned with labor market demands.

**Table 6:** Coefficients of the second main hypothesis

Model	Sum of squares	Degree of freedom	Mean square	F	Sigma	B-value	T-value	Sigma
Regression	5.810	4	1.452	3.072	0.020			
Residual	48.218	102	0.473					
Total	54.027	106						
Continuous improvement						-0.217	-1.155	0.251
Project management						-0.524	-2.709	0.008
Quality techniques						-0.191	-1.050	0.296
Product design						0.203	1.452	0.149

## 6. Findings and conclusions

The study aims to determine whether soft and hard TQM practices contribute to creating a competitive advantage for private higher education institutions in Jordan. Data were collected through a self-administered questionnaire distributed to a convenient sample of academics working in these institutions. Using multiple linear regression for hypothesis testing, the results indicate that both soft (intangible) and hard (tangible) TQM practices positively impact competitive advantage, with soft TQM practices demonstrating a stronger positive effect than hard TQM practices.

The findings of this study align with previous research, including studies by Obeidat et al. (2018), Buchunde and Sangode (2019), Al-Qudah (2012), and El-Kassar and Singh (2019). Future research is recommended to further explore the impact and role of TQM practices in creating competitive advantage, with a particular focus on different manufacturing industries in the Middle East.

### Compliance with ethical standards

#### Ethical considerations

All participants provided informed consent, and their responses were kept confidential and anonymous. Data was used solely for research purposes.

#### Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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