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## **Do TQM practices improve organisational success? A case study of electronics industry in the UAE**

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**Abstract:** Total quality management (TQM) is an inescapable strategic and business development tool, and there is a widespread consensus that implementation of total quality management plays a vital role in achieving the success of the organisations. This study investigates the relationship between the practices of total quality management and the organisational success with reference to the electronic industry in the United Arab Emirates with a sample of 50 firms in 2016–17. The literature on the TQM widely supports the success of TQM practices in making their organisation successful. The results of this exercises arrived through regression, co-relation, etc., the methods are also in consonance with the studies in the field, proving TQM to be a pure business/organisation success tool more so in the electronics in the UAE, open to global competition, calling for a culture of quality and commitment to TQM by the management.

**Keywords:** quality; total quality management; TQM; organisational success; electronics industry; economics; business research; UAE; culture.

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## **1 Introduction**

Due to globalisation, the competition of organisations have gone beyond the national borders and companies have to compete internationally. This race has forced the companies to adopt quality practices to satisfy the customers through quality and services at attractive prices. Companies are looking at quality for competitive advantage and increased sales and market shares. Total quality management (TQM) is the strategy which tries to achieve the objectives of a company, which is not limited to a single person or a single function of a business, but the entire company and all of its functions (Nawelwa et al., 2015). Therefore, TQM has become a collaborative and integrated strategy for the organisations including quality managers, engineers, and product designers as a responsible person for quality introduction and quality improvement in the company. These are also responsible for evaluating the quality of the firm and whether quality standards are being met or not (Yadav, 2015). The theory behind TQM is that quality (Q) pays, as anyone wants not just good but quality ones.

TQM is an approach which considers the different parts of the organisation as one unit, the USP of which is quality and excellence. The TQM philosophy approach is a focus on everything in the organisation. Business planning and the actions of the higher management try to introduce a culture of 'Q' in the company to enforce quality in all its operations. This is done through incorporating and developing an appropriate organisational culture which supports all the activities of an organisation. To integrate TQM as a philosophy in the company, all the workers should realise that customer satisfaction is the best success tool for the company along with their jobs. Customer satisfaction is not limited to the marketing department only, but it is now focused on every operation of the company. The TQM is the commitment of the company and its management and workers and person in the organisation to quality in its operations, Schniederjans and Schniederjans (2015). The TQM tool firstly analyses the customer groups and then changes the entire company operations to fulfil the needs of these customers. Flexibility is the vital key to any organisation, and this flexibility supports the adoption of TQM practices. TQM is a dynamic concept which changes according to the market needs.

TQM provides an essential mechanism for the development of a company's products with appreciable quality, which improves the market performance of the company. As quality has become the basis for competition, the companies having better quality are found to be having better performance in the market and therefore, they have higher organisational success (Jaca and Psomas, 2015). Although quality is vital in all organisations, the electronics industry needs it more than other areas as international firms with high-quality products demanding less price are available in the market. The electronics industry has been quite insulated from the global downturn as compared to other sectors (Amponsah and Ahmed, 2017a). The electronics market had a chequered evolution in the UAE, as the international electronics industry has a stream of new

products. However, the United Arab Emirates is noted for taking up opportunities and challenges in every line of industry, more so, in ultra-modern industrial lines like electronics with the best of all management practices like the TQM.

The story of the economic development of the UAE, not yet 50 years old, is best described as a story of the transformation of a desert economy into digital one in the 47 years of its founding in 1971 (Ahmed, 2018). The UAE's accent in every industrial line is on excellence and efficiency.

### *1.1 The study*

Hence, this study is regarding whether TQM practices lead to organisational success with references to the electronics industry in the United Arab Emirates.

## **2 Literature review**

First, TQM is defined as a holistic management philosophy that focuses on continuously improving and sustaining quality products/services and processes by top management, commitment and involving employees in order to meet the expectations and needs of customers (Jaca and Psomas, 2015). Firstly, TQM is said to involve soft or social practices like management of human resource, teamwork, and employee empowerment and involvement and hard or technical practices like structured processes and workflow management. Secondly, both technological and social TQM issues and methods have to be addressed totally, considering a systematic approach. Thirdly, through the top management best practices enhanced organisational best performance could be achieved (Herzallah et al., 2014).

According to Sohail and Hoong (2013) and Musran (2013), successful implementation of TQM could lead to an enhanced organisational performance in both financial and non-financial respects in the case of TQM implementing firms. Anton (2014) has studied organisational performance concerning corporate effectiveness, marketing, business performance, employee and customer satisfaction. While, Jaca and Psomas (2015) extend the scope of TQM advantages, to improve operational cost, productivity, growth and efficiency, profits and market share, and innovation. Herzallah et al. (2014) had taken cognisance of TQM vis-à-vis organisational, financial, operation and HR performance. Thus, quality management should extend to every organisational aspect.

As per Yadav (2015) the practices of TQM such as product design, cross-functional process management, customer involvement, and supplier quality management do significantly enhance an organisation's financial effectiveness, while, (Amponsah and Ahmed, 2017b; Wiengarten et al., 2013) view that TQM practices have a significant impact on organisational efficiency concerning productivity, cost, quality, lead time, and supplier performance. Gutiérrez et al., (2010) think that through reducing the time an enterprise could improve its performance, while Lee et al. (2006) claim that, through practicing TQM, organisations could increase their organisational flexibility which is also the view of Bou-Llusar et al. (2009).

Deming (1986) presented TQM dimensions as a continuous organisational improvement, employee empowerment, and the creation of a new organisational culture.

The TQM practices are associated with management principles and concepts and related to human aspects. They include many methods such as management commitment, customer focus, supplier relations management Eng and Yusof (2003), and some practices refer to quality techniques and tools, production and technical aspects, and some other methods such as quality data and reporting, product/service design, and process management (Duh et al., 2012).

On the success of TQM practices, Nawelwa et al. (2015), Schniederjans and Schniederjans (2015), Yadav (2015) and Jaca and Psomas (2015) have examined six TQM practices for high organisational performance.

- Top management commitment is the direct participation by the highest-level executives in specific and critically important quality management practices.
- Continuous quality improvement: in employees working in teams, having open access to management and corrective action program striving for constant improvement.
- Product innovation: it's the technological innovation of the firm in developing novel products for consumers.
- Benchmarking: is the process of measuring an organisation's internal processes then identifying, understanding, and adapting outstanding practices from other organisations considered to be best-in-practice.
- Employee involvement is a process for empowering members of an organisation to make decisions and to solve problems appropriate to their levels in the organisation.
- Quality focus: it is when the organisation adapts to the philosophy of quality at all times, and stress and committed to it.
- And three dimensions adopted for organisational success (Anton, 2014; Musran, 2013; Sohail and Hoong, 2013) are the following – organisations, customer, and employee.
- Organisation's profit is a financial benefit or gain appears in the financial statement and could be realised through some activities.
- Customer satisfaction: the satisfied customers, the number of complaints, handling of claims, and delighted customers.
- Employee morals: is employee satisfaction concerning morale, pressure and stress, and development and growth opportunities and possibilities.

And, TQM is seeking the best in respect of all the above facts or parameters.

### **3 Rationale of study**

#### *3.1 The case of the UAE*

With quality as the corporates' article of faith, as a personal business strategy it would be interesting, and informative to enquire into the problem concerning the 'new' and up-to-date Arab State of the United Arab Emirates (UAE) which has carved itself as a

marketplace in the business world. Quality and excellence are well known to be the organisational and business principles of the UAE.

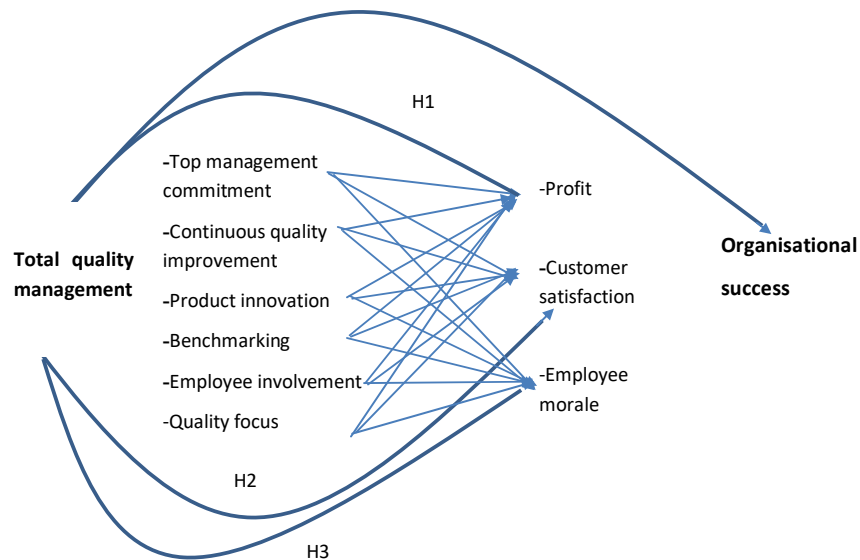
The United Arab Emirates is the best case to test the TQM and organisational performance and success in the Arab world, which is forging ahead in enlightened business practices as the means of global business success. The study is concerning the technologically dynamic, competitive and globally disposed of electronic industry, the products of which move fast.

There is a good case for this study. In the first place, the United Arab Emirates is a fast-developing state, and well-diversified economy, the accent of which the electronics industry is a prominent part. Second, the accent of the UAE is on excellence in every line of industrial and business activity. Third, the electronic industry, which is very fast paced and highly competitive, be a byword for quality. As such, the electronic industry is a fit case for the application of TQM in the UAE and is a good TQM case.

### 3.2 Objectives

- 1 to explain TQM as a means of organisational success with a literature review
- 2 to explore TQM practices
- 3 to pinpoint organisational shareholders or top management
- 4 to establish the relationship statistically between the TQM practices and business success with references to the electronics industry in the UAE.

**Figure 1** Study model (see online version for colours)



The study model of linkages is depicted in Figure 1, and as per the model, organisational success is the outcome of TQM made up of six factors. The result of which is the significant satisfaction of the three organisational stakeholders, namely company, customers, and employees.

### 3.3 Hypotheses of the study

Main and sub-hypothesis:

- HO1 TQM practices have no statistically significant effects on organisation's profit at level ( $\alpha \leq 0.05$ ).
- First sub-hypothesis: TQM (top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus) have no statistical effects on organisation's profit at level ( $\alpha \leq 0.05$ ).
- HO2 TQM practices have no statistical effects on customer satisfaction at level ( $\alpha \leq 0.05$ ).
- Second sub-hypothesis: TQM practices dimensions (top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus) have no statistical effects on customer satisfaction at level ( $\alpha \leq 0.05$ ).
- HO3 TQM practices have no statistical effects on employee morale at level ( $\alpha \leq 0.05$ ).
- Third sub-hypothesis: TQM practices dimensions (top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus) have no statistical effects on employee's morale at level ( $\alpha \leq 0.05$ ).

## 4 Study methodology and design

It is a sample study of the problem of TQM contributing to optimum organisational success of maximum satisfaction all the business stakeholders with reference to the importance electronic industry in the state of UAE, with a sample of 50 electronic firms out of a total of 2,721 organisations in the Emirates, from which data on TQM practices was collected with the help of a questionnaire.

The questionnaire consisted of two parts, the first part was designed to measure the dimensions of total quality practices, and the second part was intended to measure the organisational success.

### 4.1 Descriptive analysis

Table 1 gives the results of the statistical exercises of mean and standard deviation of the variables or factors in organisation success with significant levels and factor ranking.

The results illustrated in Table 1 show the description of the respondents' perception towards the TQM practices and organisational success, which indicate that all means of research variables and dimensions of the practices of the TQM and organisational success are all above the median value (2.33) of the test criteria with (2.33) out of (5.00) degrees indicating that respondents' perception toward study dimensions' importance were positive in general.

Table 1 explains the significant levels of study dimensions, where the arithmetic means range between (2.74–2.98) compared with the totally arithmetic mean amount of (2.80). It is observed that the highest mean for the dimension ‘top management commitment’, ‘organisation’s profit’, ‘continuous quality improvement’ with the arithmetic mean (2.98) (2.86), (2.84), and standard deviation (1.04), (0.93), and (0.93) respectively. The lowest arithmetic means were for the dimensions ‘employee involvement’, ‘benchmarking’, ‘customer satisfaction’ with arithmetic means (2.74), standard deviations (0.97), (1.03) and (0.85) respectively.

**Table 1** Descriptive analysis for TQM practices and organisational success

<i>Variables and dimensions of study</i>			<i>M</i>	<i>Std.</i>	<i>Sig. rank</i>	<i>Sig. level</i>
Independent variable	Total quality management	Top management commitment	2.98	1.03982	1	High
		Continuous quality improvement	2.84	0.93372	3	High
		Product innovation	2.76	0.93808	6	High
		Benchmarking	2.74	1.02639	7	High
		Employee involvement	2.74	0.96489	7	High
		Quality focus	2.80	0.90351	5	High
Dependent variable	Organisational success	Organisation’s profit	2.86	0.92604	2	High
		Customer satisfaction	2.74	0.85261	7	High
		Employee morale	2.82	0.94091	4	High

Thus, TQM practices (6) are well in place in the fast-paced and highly competitive electronic industry of the United Arab Emirates, wherein, national and international/tourist shoppers are intent on quality products, and the government of UAE and its enlightened and involved leadership and want their nation goods to be associated with top quality.

#### 4.2 Correlation analysis

Table 2 shows the stats of correlation between TQM practices and organisational success dimensions. However, the TQM is a proxy variable, which is measured through multiple dimensions. The analysis shows that there is a definite relationship between TQM practices and organisational success dimensions, with the correlation coefficient values above the significant level ( $\alpha \leq 0.05$ ). The strongest correlation relationship is between top management commitment, and product innovation were the coefficient of correlation is (.69), followed by the relationship between product innovation and employee involvement (.67), then the relationship between benchmarking and organisation’s profit (.65) then the relationship between benchmarking and continuous quality improvement (.61), which means the correlation coefficient is positive and strong.

**Table 2** Correlation between total quality practices and organisation success dimensions

	Top management commitment	Continuous quality improvement	Product innovation	Benchmarking	Employee involvement	Quality focus	Organisation's profit	Customer satisfaction	Employee morale
Top management commitment	1								
Continuous quality improvement	.312	1							
Product innovation	.685	.351	1						
Benchmarking	.343	.614	.376	1					
Employee involvement	.544	.497	.674	.454	1				
Quality focus	.569	.424	.443	.537	.281	1			
Organisation's profit	.506	.493	.477	.649	.552	.390	1		
Customer satisfaction	.316	.306	.533	.408	.363	.574	.289	1	
Employee morale	.413	.454	.459	.389	.509	.352	.439	.449	1

Note: All (r) values above are significant at level ( $\alpha \leq 0.05$ ).



The analysis also shows that the relationship between the top management commitment and organisation's profit, employees involvement, quality focus, were all positive and strong, with R value equal (54%, 57%, and 51%) respectively, on the other hand, the relationship between the customer satisfaction, product innovation, quality focus, are positive and strong, with R values equal (53%, and 57%) respectively, Moreover, the correlation relationship between quality focus and benchmarking was positive and strong as R equal (54%), Furthermore, the relationship between organisation's profit and employees involvement was positive and strong as R equal (55%). But, relationships are positive but weak like the relationship between employee's involvement and quality focus as R equal (28%), and the relationship between organisation's profit and customer satisfaction as R equal (29%).

The above results provide the premise to accept the relationship between dimensions of TQM and the organisational success.

### 4.3 Hypotheses testing

HO1 TQM practices (top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus) have no statistical effects on organisation's profit at level ( $\alpha \leq 0.05$ ).

**Table 3** Multiple regression to organisation's profit in total quality practices

	<i>r</i>	<i>r</i> <sup>2</sup>	<i>F</i>	<i>DF</i>	<i>Sig.</i> *	$\beta$	<i>t</i>	<i>Sig.</i> *	
Organisation's profit	.740	.548	8.684	6	.000	Top management commitment	0.512	2.682	.002
						Continuous quality improvement	0.305	5.452	.000
						Product innovation	0.189	3.508	.001
						Benchmarking	0.145	3.930	.000
						Employee involvement	0.141	3.575	.001
						Quality focus	0.342	6.357	.000
				143					
				149					

Note: \*level of significant ( $\alpha \leq 0.05$ )

Table 3 shows the R is (0.74) at the significant level ( $\alpha \leq 0.05$ ), whereas the R<sup>2</sup> is (0.548), which means that a (0.548) of organisation's profit changeability's results from the changeability in total quality practices. As  $\beta$  was (top management commitment = 0.512; continuous quality improvement = 0.305; product innovation = 0.189; benchmarking = 0.145, employee involvement = 0.141, and quality focus = 0.342) which mean the increase of values of  $\beta$  above in total quality practices dimensions concerned will increase one unit of organisation's profit, confirms significant impact F calculated was (8.684) and its significance at level ( $\alpha \leq 0.05$ ).

So, there is a substantial positive direct impact of TQM practices (top management commitment, continuous quality improvement, product innovation, benchmarking,

employee involvement, and quality focus) on organisation's profit at level ( $\alpha \leq 0.05$ ). In other words, quality investments have good financial returns.

HO2 TQM practices (top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus) have no statistical effects on customer satisfaction at level ( $\alpha \leq 0.05$ ).

**Table 4** Multiple regression to customer satisfaction in total quality practices

	<i>r</i>	<i>r</i> <sup>2</sup>	<i>F</i>	<i>DF</i>	<i>Sig.</i> *	$\beta$	<i>t</i>	<i>Sig.</i> *	
Customer satisfaction	.700	.491	6.900	6	.000	Top management commitment	0.421	7.325	.001
				143		Continuous quality improvement	0.343	8.521	.000
						Product innovation	0.586	9.855	.000
						Benchmarking	0.327	2.891	.005
						Employee involvement	0.410	5.565	.000
				149		Quality focus	0.442	6.017	.000

Note: \*level of significant ( $\alpha \leq 0.05$ ).

Table 4 shows the R is (0.7) at significant level ( $\alpha \leq 0.05$ ), whereas, the R<sup>2</sup> is (0.491), which means that (0.491) of customer satisfaction changeability's results from the changeability in total quality practices dimensions. As  $\beta$  are (top management commitment = 0.421; continuous quality improvement = 0.343; product innovation = 0.586; benchmarking = 0.327, employee involvement = 0.140, and quality focus = 0.442), which means the increase of values of  $\beta$  above in total quality practices concerned will increase one unit of organisation's profit, confirms significant impact F calculated was (6.9) and its significance at level ( $\alpha \leq 0.05$ ).

So, there is significant positive direct impact of TQM practices (top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus) on customer satisfaction at level ( $\alpha \leq 0.05$ ).

But it is significant, the customer satisfaction value is  $< 0.5$ , proving that customers are a hard lot to satisfy. Still, TQM has significant customer satisfaction divided or return to TQM.

The TQM theory economics or business appears to be to take care of quality which doesn't cost much but gives good returns.

HO3 TQM practices (top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus) have no statistical effects on employee morale at level ( $\alpha \leq 0.05$ ).

Table 5 shows the R is (0.59) at level ( $\alpha \leq 0.05$ ), whereas, the R<sup>2</sup> is (0.348), which means that (0.348) of employee morale changeability's results from the changeability in total quality practices dimensions. As  $\beta$  are (top management commitment = 0.624. continuous quality improvement = 0.521; product innovation = 0.345; benchmarking = 0.414, employee involvement = 0.613, and quality focus = 0.365) which means the increase of

values of  $\beta$  above in total quality practices dimensions concerned will increase one unit of organisation's profit, confirming a significant impact F calculated was (3.832) and its significance at level ( $\alpha \leq 0.05$ ).

**Table 5** Multiple regression to employee morale in total quality practices

	<i>r</i>	<i>r</i> <sup>2</sup>	<i>F</i>	<i>DF</i>	<i>Sig.*</i>	$\beta$	<i>t</i>	<i>Sig.*</i>	
Employee morale	.590	.348	3.832	6	.000	Top management commitment	0.624	8.561	.000
						Continuous quality improvement	0.521	7.215	.000
						Product innovation	0.345	4.805	.001
						Benchmarking	0.414	4.917	.000
						Employee involvement	0.613	5.368	.002
						Quality focus	0.365	8.175	.000

Note: \*level of significant ( $\alpha \leq 0.05$ ).

So, there is a significant positive direct impact of TQM practices (top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus) on employee morale at level ( $\alpha \leq 0.05$ ).

Significantly, employee morale is more difficult to tackle than consumer satisfaction, with a value of  $< 0.40$  but  $> 0$ . Thus, the lessons of this exercise are for TQM the need is QM = quality management, or management of good quality that is enlightened and all concerned.

#### 4.4 Results

The correlation and regression results confirm the validity of the study's model that there is a definite relationship between TQM practices and organisational success (TQM  $\rightarrow$  organisational success). The correlation and regression results show that all relationships between variables are positive and significant which means that when TQM practices result in increasing the organisational success. The analysis of the TQM practices implemented by the electronics industry in the UAE shows that the six TQM practices approach in this sector, more specifically, total quality practices of top management commitment, continuous quality improvement, product innovation, benchmarking, employee involvement, and quality focus, are the main factors that the sampling unit companies take into account for TQM policies for their organisations all-around success in terms of profit and consumer and employee satisfaction. This well explains the UAE's good industrial performance and its plan to attract US\$70 billion industrial investments by 2025, and increase the industrial GDP share from 16% in 2016 to 25% by 2025 (Al Shamsi, 2017), in which the advanced and dynamic electronic industry of global competition and continuous innovations TQM practices and has a great rate to play. It is the top management commitment to TQM and organisational success which emerges at the top of this study.

The results are matching with the findings of the studies by Nawelwa et al. (2015) Schniederjans and Schniederjans (2015), Yadav (2015), Jaca and Psomas (2015), Anton (2014), Musran (2013) and Sohail and Hoong (2013), which highlighted the impact of TQM practices on the organisational performance, and explained that organisational success can be significantly increased through the best-in-practice or the right implementation and selection of the factors of TQM that have been examined in this study.

## **5 Conclusions**

The results of it are based on the quantitative analysis, the data for which was collected through a questionnaire from 50 electronics firms in quite randomly. The statistical methods applied are mean, SD, correlations and regression, to establish the relationships between TQM and performance and success variables, and also hypotheses testing, all of which prove the success of TQM practices in the high demand fast-moving and highly competitive electronic industry in the dynamic business setting of the UAE.

So, the essential factors for the top management role for TQM are incorporating TQM program in goals and policies of the company, and showing the commitment of the company's leadership to the activities of TQM. The current research is helpful for the policymakers to improve the performance of the organisation in the electronics industry of the UAE, wherein, according to this study, the success principle or factor is TQM.

The procedure of identifying goals for the quality improvement and dividing it to the authority remains continued in all the levels of an organisation. In this role, human resource management brings many opportunities for establishing communication between the top management and other workers.

Human resource department should affirm to all the employees the senior management commitment to the quality of operations and it should provide the required training to employees for bringing in quality operations in the company. Through a customer-oriented approach, the human resource department can provide a quality focused overview of the organisation to the customers concerning the whole organisation.

The UAE's industry in general and electronic industry in particular needs to be known for high-quality management which may be reflected in high quality industrial and electronic items and quality services for further excelling of the UAE economy in general and its industrial sector in particular by the 'golden' year of founding of the Emirates in 2021 (Ahmed, 2015).

The modest but significant contribution of study to the literature and facts and policy on TQM is that TQM is imperative in the highly competitive electronics industry and elsewhere too in the fast-paced UAE economy, for business success. That, TQM is a good pathway for the successful business, especially in the highly competitive and active demand sectors/businesses like electronics.

### *5.1 Recommendation for future research*

There is a lot of scope for further research on the problem in the United Arab Emirates, with reference to different products and services and different businesses and with reference to the seven emirates of the UAE, over a period of time and different points of

time. TQM, for example, can be extended to national and human resource and environmental management.

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