

## Hotel and Manager Characteristics and Technology Orientation Strategy

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### Abstract

*Management and hotel characteristics can strongly influence the decision to support technology orientation strategy in luxury hotels. In the rapidly changing hotel business environment, a strong technology orientation holds the key to the strategic direction that will lead to sustained competitive advantage. Nonetheless, studies relating technology orientation strategy and manager and hotel characteristics in the hotel industry in Eastern Africa are scarce. Based on Resource Based View, and a sample of 247 senior hotel managers, this paper provides an analysis of hotel and manager characteristics and their relationship with technology orientation in the luxury hotel industry in Kenya. The paper uses empirical data and shows that age of hotel ( $\rho=0.14$ ;  $p<0.05$ ) and size of hotel ( $\rho=0.22$ ;  $p<0.05$ ) had a positive correlation with technology orientation in luxury hotels at the 5% level of significance. On the other hand, age of senior managers ( $\rho=-0.13$ ;  $p<0.05$ ) had a negative correlation with technology orientation, while level of education among senior managers ( $\rho=0.14$ ;  $p<0.05$ ) had a positive correlation with technology orientation in luxury hotels. Implications of the findings for hotel management practice and research are provided in the paper.*

**Key Words:** Luxury hotels, technology orientation, hotel characteristics, manager characteristics

### Introduction

Globally, technology orientation presents great opportunities of differentiation and sustained competitive advantage in the rapidly-changing luxury hotel environment. New technology has radically affected the prevailing competitive business environment in the service industry (Davis et al., 2015). The pace of technological change is so high that many hotel establishments are struggling to keep abreast (Kruja et al., 2019; Lee & Singh, 2016). Amatulli et al. (2022) argue that hotels will have to merge their traditional individuality with the latest technological innovations in order to survive.

According to Kruja et al. (2019), most service aspects of hotels are increasingly technology oriented, necessitating adaptation and application of modern technologies by hotel managers. Advances in technology in the hospitality industry include internet, websites, online bookings, mobile applications, social media, check-in and check-out processes, virtual or augmented reality, enhanced security systems, robotics, chatbots, self-service kiosks, and the

management of in-room entertainment (Touni & Magdy, 2020; Giousmpasoglou & Hua, 2020). The improvements in technology in the hotel setup can decrease workload of employees and lower the labour costs while improving quality of operations, productivity, revenue from rooms, profitability, employee training, research and development, and overall delight experiences (Sun et al. 2018; Ivanov et al. 2017). In spite of the technological advances, the association of hotel characteristics (age and size) and manager characteristics (gender, age, education and tenure) with technology orientation in luxury hotels has not been adequately covered by previous studies in Eastern Africa. Consequently, this paper analyses the relationship between hotel and manager characteristics with technology orientation in luxury hotels in Kenya.

### **Statement of the Problem**

Luxury hotels, classified as four and five-star hotels, compete at the global level and face many internal and external challenges, leading to low performance, frequent change of ownership and various closures. At the same time, luxury hotels face an ever-increasing demand for technological innovations from their guests (Nain 2018). While some hotels are innovating rapidly with robotics and voice control technology already adopted in some four and five-star hotels globally, technological demand that includes simplified online booking, demand for digital connection, monitoring digital channels and social media reputation management is a constraint in the hotel industry. A number of studies have found that firm characteristics such as age and size may influence the relationship between technology orientation and performance (Pérez-Rodríguez & Acosta-González, 2023; Aissa & Goaied, 2016). Similarly, several studies have found that manager characteristics may have a relationship with technology orientation (Naicker & Van der Merwe, 2018; Ozturk & Hancer, 2014). There is however, insufficient data on the relationship between hotel and manager characteristics on the one hand and technology orientation on the other, particularly in Kenya. The aim of this paper is to analyse the hotel and demographic characteristics of managers and their relationship with technology orientation in luxury hotels in Kenya.

This paper addresses the correlation between hotel and manager characteristics on the one hand, with technology orientation, in luxury hotels in Kenya. The overall research from which the paper is drawn tested the influence of strategic orientation on sustained competitive advantage in four and five-star hotels in Kenya and found that technology orientation played a significant role in sustained competitive advantage.

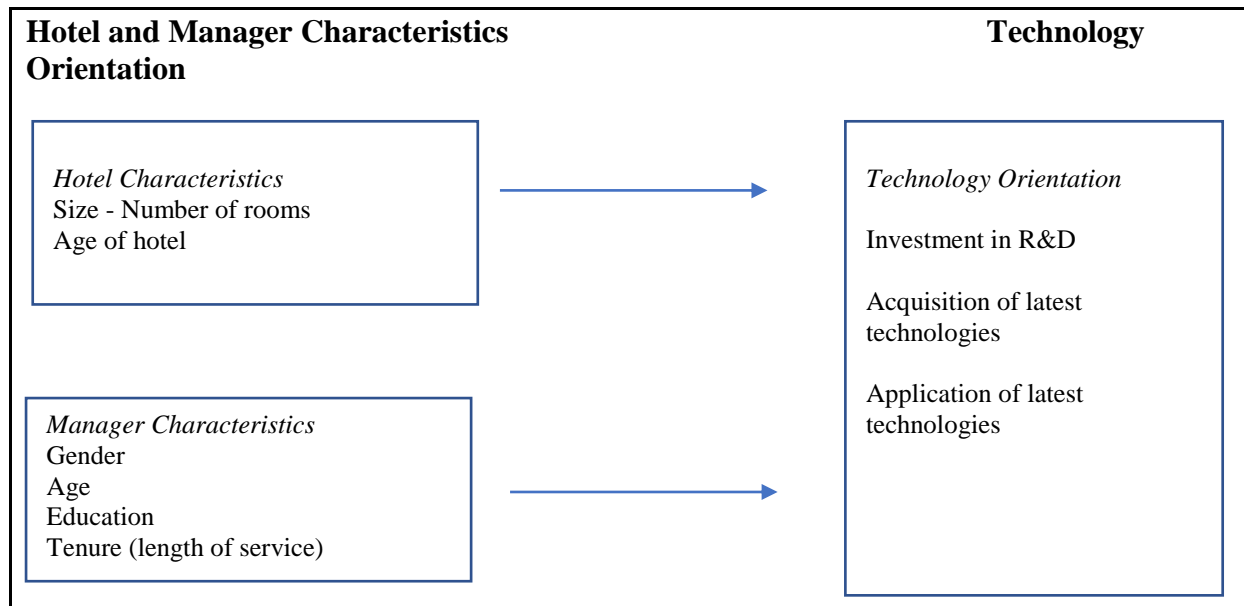
### **Literature Review**

#### ***Theoretical foundation***

This paper is based on the resource-based view (RBV) which explains the relationship between internal resources and capabilities of a firm, with sustained competitive advantage, in highly competitive business settings. RBV is credited to Wernerfelt (1984) and Barney (1991), among other scholars, and leans on two key suppositions; heterogeneity and immobility of resources. In addition, Barney (1991) proposed that resources ought to be valuable; rare; inimitable and non-substitutable so as to become factors of sustained competitive advantage. The theory suggests that firms possess both tangible and intangible assets that can be organized strategically for efficiency and effectiveness (Barney, 1991). Technology orientation is a key intangible resource and dynamic capability that can lead to sustained competitive advantage.

## Conceptualization

This correlation study investigates the relationship between hotel and manager characteristics and technology orientation in luxury hotels in Kenya. Figure 1 illustrates the conceptual framework as hypothesized in the analysis of this paper, based on literature.



**Figure 1: Conceptual Framework**

The manager characteristics addressed in this study include age of senior managers measured by years alive; gender being male or female; level of education categorized as possessing secondary, diploma, graduate or post graduate education; and management tenure which refers to length of service in the current hotel. The hotel characteristics in this study include hotel age and hotel size. Hotel age was measured as the number of years since the hotel was first established while size of hotel was measured by number of rooms in the hotel.

Technology orientation is often assessed by considering the relative levels of investment in research and development, acquisition of new technologies and application of the latest technologies (Yang et al., 2012; Mu & Di Benedetto, 2011; Gatignon & Xuereb, 1997; Zhou et al., 2005). The authors considered the level of investment in research and development as comprising of substantial investments in research and development activities, ability to accurately predict future technological trends, and monitoring technological changes and development. Acquisition of new technologies included upgrading technology standards, state of the art technology, improving technical skills of employees and having a consistent budget for new technologies. Application of latest technologies comprised of a powerful and competitive technology strategy, skill in applying new technologies in solving problems, strong capabilities in integrating external and internal technological resources, and using state of the art technology.

## Empirical Review

**Age of hotels:** A number of studies have found that a firm's age is an important factor that influences performance. Pervan et al. (2017) found a statistically significant negative influence of age on firm performance in the Croatian food industry. The study found that technology, supply channels, and human capital, among other factors, become overcome with rigidity and inertia due to accumulated routines and organizational structure. Anderson and Eshima (2013) found that older firms are not able to capture the value from entrepreneurial

strategies when compared to their younger counterparts among Japanese SMEs. The authors attributed this finding to established organizational contexts such as prevailing processes, norms and routines. In contrast, Assaf and Cvelbar (2011) suggested that the performance of hotels increases with age, and, that hotels improve in experience, reputation, organizational resources and brand. These resources could influence operational, strategic and innovation decisions.

*Size of hotels:* Pérez-Rodríguez and Acosta-González (2023) analysed time series data for hotels in Canary Islands and found that large hotels are more efficient than small ones, but that the technology gap narrows over time. Barros (2005) time series study of hotels in Spain revealed that economies of scale are important in determining technical efficiency in hotels. Other researchers have found a positive relation between size of hotel and performance (Kim et al., 2013; Claver-Cortes et al., 2007; Barros & Mascarenhas, 2005). A few studies have found a negative relationship between size of hotel and profitability (Aissa & Goaied, 2016; Parte-Esteban & Alberca-Oliver, 2015). This is attributed to scale diseconomies, large outlays that are not utilized in the low season; inefficiency of the management in transforming inputs into outputs, and general complexity of the management in large companies.

*Gender:* Globally, the hotel industry employs more women (55%) than men (Marinakou, 2014; Cave & Kilic, 2010). However, several hotel industry studies have found more men than women in managerial positions (Patwardhan et al., 2016; Russen et al., 2021). In addition, some studies have found a low to non-existent presence of women in core hotel administrative positions such as information technology and innovation, strategic management, and business development, with housekeeping, sales and marketing having most women managers (González-Serrano et al., 2018; Marinakou, 2014). A study by Figueroa-Domecq et al. (2020) found a direct relationship between the level of technology in tourism companies and the lower participation of women in leadership positions.

*Age of Managers:* Age of managers is discussed as the length of time a manager has been alive. Naicker and Van Der Merwe (2018) found that it was easier for younger people (20-40 years) to adopt mobile technology than it was for older people (over 40 years) in the insurance industry in South Africa. A study by Chuang, Nakatani and Zhou (2009) found that younger people were more likely to adopt technology in SMEs than older people, and associated this to the desire to grow their careers. Ma, Zhang, Yin and Wang (2019) argue that people in different age categories have different experiences and that younger managers are more innovative, creative and enthusiastic while older managers prefer to maintain the status quo. Similarly, Kusuma et al. (2020) argue that younger managers understanding of ICT is likely to be superior and more current than that of older managers, thus enhancing their adoption level, while older managers are more likely to be risk averse in regard to new technology.

*Tenure of Managers:* Various studies have found contradictory results in regard to tenure of managers. Ozturk and Hancer (2014) studied adoption of Radio Frequency Identification technologies in hotels in the US and found a negative association between management tenure and adoption of technology. Similarly, Sharma and Rai (2003) found that managers with shorter job tenure were more likely to support adoption of information technology in various US organizations. In contrast, Guzzo et al. (2022) found strong evidence that higher levels of firm-specific experience is positively related to work unit performance. Hui et al., (2009) found that employee engagement (which was found to be positively related with performance) increases with length of service for up to 10 years, in the hotel industry, after which engagement begins to decline.

*Education Level:* According to studies, hiring skilled hotel managers with higher degrees is conducive to efficiency since hospitality is an increasingly complex field that requires highly skilled people (Aissa & Goaied, 2016; Olsen et al., 2008). Li and Liu (2018) found a direct and indirect influence of intellectual capital, itself related to progressing employee education, on competitive advantage in the hotel industry in China. In particular, the authors found that intellectual capital positively influences problem identification which positively relates to competitive advantage. Queiró (2016) found that firms that employ more educated managers experience higher growth than other comparable firms, with evidence that the increase is pushed by education, among private sector firms in Portugal. The authors argued that adopting new technologies by the educated managers would lead to spill over effects on the technology of other firms. In contrast, a study of educational levels among hotel workers in Codoba, Spain found that educational level does not influence job satisfaction and even has an inverse effect on organizational commitment (González et al., 2016).

## **Methodology**

This study adopted the positivism research philosophy and data was collected in 2022. The study was cross-sectional and used descriptive correlation design. Senior managers from four and five-star hotels in Kenya were interviewed and multi-stage stratified sampling technique was used to choose the respondents. The sample size comprised of 283 senior hotel managers that were drawn from 80 operational luxury hotels in Kenya, and 247 (87%) questionnaires were completed adequately. The survey questions relating to this paper covered technology orientation and sustained competitive advantage, with data obtained using a five-point Likert scale. Data on manager and hotel characteristics was obtained from the respondents using categorical variables. SPSS was used for data analysis and sought the association between hotel and manager characteristics with technology orientation.

## **Results**

### ***Test of Association between Hotel Characteristics and Technology Orientation***

The study applied Spearman Rank Correlation analysis to assess the association (strength and direction) between hotel characteristics (number of rooms and age of hotel) and technology orientation. The study used the mean of the various measures of technology orientation (investment in R&D, acquisition of newest technology and application of latest technology) as the measure for technology orientation in the correlation analysis. Table 1 presents the findings of the correlation analysis between hotel characteristics and technology orientation.

**Table 1: Association between Hotel Characteristics and Technology Orientation**

|  |                           |                 | Number<br>of rooms | Age of<br>hotel | Technology<br>orientation |
|--|---------------------------|-----------------|--------------------|-----------------|---------------------------|
| <b>Spearman<br/>'s rho</b>                                   | Number of<br>rooms        | Correlation     | 1.000              |                 |                           |
|  |                           | Coefficient     |                    |                 |                           |
|  |                           | Sig. (2-tailed) | .                  |                 |                           |
|  | Age of<br>hotel           | N               | 247                |                 |                           |
|  |                           | Correlation     | .548**             | 1.000           |                           |
|  |                           | Coefficient     |                    |                 |                           |
|  |                           | Sig. (2-tailed) | .000               | .               |                           |
|  | Technology<br>orientation | N               | 247                | 247             |                           |
|  |                           | Correlation     | .219*              | .135*           | 1.000                     |
|  |                           | Coefficient     |                    |                 |                           |
|  |                           | Sig. (2-tailed) | .022               | .034            | .                         |
|  |                           | N               | 247                | 247             | 247                       |
| **. Correlation is significant at the 0.01 level (2-tailed). |                           |                 |                    |                 |                           |
| *. Correlation is significant at the 0.05 level (2-tailed).  |                           |                 |                    |                 |                           |

The results of the analysis showed that 54% of the hotels had less than 100 rooms while 46% had more than 100 rooms. The study results summarized in Table 1 show that there was a positive and significant association between number of rooms in the hotel and technology orientation ( $\rho = 0.219$ ,  $p = 0.022$ ). These findings imply that managers in hotels that have more rooms are more likely to support investment in research and development, as well as acquisition and application of the latest technology than the hotels that have fewer rooms.

Some 27% of the hotels were operational for less than five years, 47% had been operational for 5-15 years while 27% had been in operation for more than 15 years. The analysis shows that there was a marginally positive correlation between the age of hotels and technology orientation ( $\rho = 0.135$ ,  $p = 0.034$ ). These results show that hotels which have operated for many years were likely to invest in research and development, and to acquire and utilize cutting-edge technology than hotels which had operated for fewer years. The results also show a strong positive association between size and age of hotel.

#### ***Test of Association between Manager Characteristics and Technology Orientation***

The study used the Spearman Rank Correlation analysis to determine the association between manager characteristics (gender, age, education, tenure) and the level of technology orientation. The findings of the correlation analysis are provided in Table 2.

**Table 2: Association between Manager Characteristics and Technology Orientation**

|                       |                        |                         | Gender | Age    | Tenure | Education | Technology Orientation |
|-----------------------|------------------------|-------------------------|--------|--------|--------|-----------|------------------------|
| <b>Spearman's rho</b> | Gender                 | Correlation Coefficient | 1.000  |        |        |           |                        |
|                       |                        | Sig. (2-tailed)         | .      |        |        |           |                        |
|                       |                        | N                       | 247    |        |        |           |                        |
|                       | Age                    | Correlation Coefficient | .012   | 1.000  |        |           |                        |
|                       |                        | Sig. (2-tailed)         | .854   | .      |        |           |                        |
|                       |                        | N                       | 247    | 247    |        |           |                        |
|                       | Tenure                 | Correlation Coefficient | .020   | .431** | 1.000  |           |                        |
|                       |                        | Sig. (2-tailed)         | .749   | .000   | .      |           |                        |
|                       |                        | N                       | 247    | 247    | 247    |           |                        |
|                       | Education              | Correlation Coefficient | -.041  | .092   | .103   | 1.000     |                        |
|                       |                        | Sig. (2-tailed)         | .520   | .150   | .108   | .         |                        |
|                       |                        | N                       | 247    | 247    | 247    | 247       |                        |
|                       | Technology Orientation | Correlation Coefficient | -.086  | -.127* | -.085  | .138*     | 1.000                  |
|                       |                        | Sig. (2-tailed)         | .177   | .046   | .183   | .032      | .                      |
|                       |                        | N                       | 247    | 247    | 247    | 247       | 247                    |

**\*\*.** Correlation is significant at the 0.01 level (2-tailed).  
**\*.** Correlation is significant at the 0.05 level (2-tailed).

The study respondents comprised 59% male managers and 41% female managers. The analysis showed a negative but insignificant association between gender of the managers and technology orientation in the hotels ( $\rho = -0.086$ ,  $p > 0.05$ ). Thus, female managers were as likely as male managers to support investment in research and development, acquisition of the newest technology and application of the latest technology.

Further, the results showed that 16% of the managers were less than 30 years of age, 50% were 31-50 years old, while 24% were older than 50 years. The study findings provided in Table 4.2 indicate that there was a negative association between the age of the hotel managers and technology orientation in the luxury hotels that were studied ( $\rho = -0.127$ ,  $p = 0.046$ ). These findings imply that younger managers in the hotels are more likely to support policies that invest in research and development, as well as acquisition and application of the latest technology than the older managers.

The results on tenure showed that 35% of the respondents had worked in their current hotels for up to five years, 51% had worked in their hotels for 6-10 years, 11% had been in the same hotels for 11-15 years while 4% had worked in their current hotels for more than 15 years. It is not surprising then that tenure and age have a high correlation. However, the study findings indicate no significant association between tenure of the managers (length of service in current hotel) and technology orientation ( $\rho = -0.085$ ,  $p = 0.183$ ). Thus, managers who had

worked in a hotel for 0-5 years were as likely to support the technology orientation policies as those in the 6-10 or even in the over 15-year categories.

In regard to level of education, 2% of the managers indicated secondary school as highest education attained, 21% had diploma, 68% had a degree while 9% had post-graduate degree. The findings show that there was a positive correlation between education of managers and technology orientation of the hotels ( $\rho = 0.138$ ,  $p = 0.032$ ). These results indicate that the higher the education qualifications, the higher the likelihood of supporting investment in research and development, acquisition of newest technologies, and utilization of cutting-edge technology.

## **Discussion of Results**

This study sought to find out the association between hotel and manager characteristics with technology orientation in hotels. The study established a positive relationship between size of hotel and technology orientation. This finding is consistent with other studies that have found a positive association between size of hotel establishment and technology orientation (Pérez-Rodríguez & Acosta-González, 2023; Mwai, 2016). According to Mwai (2016), large hospitality organizations have more resources to embrace the latest technologies as compared to smaller hotels, which would grant them global competitiveness and sustainability.

The study found a positive relationship between age of hotel and technology orientation. Intuitively, one would expect age of hotel to have a negative relation with technology orientation and performance. O'Neill, Dev and Yanagisawa (2013) found that age of hotel has a negative relationship with guest satisfaction, and invariably performance. Similarly, O'Neil and Mattila (2006) found that age of hotel has a negative relationship with profitability. This was attributed to use of increased maintenance costs and functional obsolescence when facilities are not updated, as well as poorer performance in regard to energy saving and waste management techniques. In this study, higher age of hotel is likely to result in higher investments in research and development, as well as in acquisition and application of the latest technologies.

In regard to manager characteristics, the study found no significant association between gender of the managers and technology orientation of the hotels. This result differs from various studies on the relationship between gender and technology orientation in the hospitality industry. The report on gender equality index 2020 focusing on digitalisation and the future of work reported that women and men differ in their levels of confidence in their capacity to acquire and utilize digital skills, and that women tend to be less informed than men about new technologies, contributing to their greater mistrust of technology (EIGE, 2023). The report also points out that only half of women have positive views about robots and artificial intelligence, as compared to men at 67%. Ozturk and Hancer (2014) found that male hotel customers were more likely to use Radio Frequency Identification (RFID) technology than women. Similarly, Goswami and Dutta (2015) reported that women were more anxious than men regarding use of IT, reducing their self-effectiveness and perceptions of IT. However, EIGE research on digitalisation and youth established that young women (16-24) had a higher likelihood of using technologies creatively for sharing online than their male counterparts of the same age (EIGE, 2019).

Results of the study found a significant though weak negative association between age of the senior hotel managers and technology orientation. This is expected given that intuition and



prevailing literature point at age as a risk factor to technology orientation. For instance, younger people were found to adopt technology more easily than older people in a study on mobile technology adoption (Naicker and Van der Merwe, 2018). In addition, Ferreira, Fernandes and Ferreira (2019) found that older managers correlated with lower turnover and argues that traits and backgrounds of managers are fundamental to understanding firm performance and competitiveness. However, in contrast to this study, Belanche et al. (2019) found no significant difference between age groups, indicating that age did not alter the influence of antecedents of intention to adopt robo-advisors.

Tenure of managers was found to have an insignificant association with technology orientation. This result differs with Li and Shao (2023) who found that tenure of top management teams had a negative influence on the digital orientation of firms. It also differs with Ozturk and Hancer (2014) who established that managers with shorter job tenure were more likely to adopt RFID technologies in hotels in the US. Moreover, Sharma and Rai (2003) also found a negative relation between job tenure and information technology adoption in US organizations. This result also differs from several other studies (Guzzo et al., 2022; Hui et al., 2009), and calls for further research on the association of managers' tenure and technology.

The level of education construct was found to have a positive association with technology orientation in luxury hotels in Kenya. This finding is consistent with the study by Ozturk and Hancer (2014) where customers who were well educated were likely to use RFID technology in hotels than customers with lower levels of education. The study by Aissa and Goaied (2016) associated higher levels of education to efficiency in the hospitality industry, and likewise Queiró (2016) found a positive association between levels of education among managers and growth of firms. In contrast, González, et al. (2016) found no effect of education level on job satisfaction.

## **Conclusions and Recommendations**

The objective of this paper was to show the correlation between hotel and manager characteristics and their relationship with technology orientation in Kenya's luxury hotels. The findings show that there is a positive association between hotel characteristics and technology adoption, expressed as investment in research and development, acquisition of newest technologies and application of the latest technologies. The study concludes that there is a positive association between size of hotel and technology orientation, as well as between age of hotel and technology orientation. These findings have implications on the focus and support for technology orientation as a key factor of sustained competitive advantage for the large and the small hotels, as well as old and new hotels. In particular, both smaller and more recent hotels need to put in place strong deliberate policies to acquire the newest technologies, apply the latest technologies and train managers in the latest technological developments. The large and older hotels should continue maintain their focus on technology orientation in order to sustain their competitive advantage.

The study results also suggest that the various manager characteristics are important considerations in addressing technology orientation in luxury hotels. Level of education of managers had a positive association with technology orientation in luxury hotels while age of managers was found to have a negative association with technology orientation. On the other hand, gender and tenure of managers were found to have an insignificant association with technology orientation. Appropriate training and exposure of pertinent technologies in the

hotel industry should thus be targeted to managers with lower levels of education as well as to older managers. Paying attention to demographic factors that correlate with technology orientation can help in improving manager perceptions of technology orientation in their facilities, as well as in supporting technology-oriented policies. Hotel establishments should address the individual challenges of managers in the creation of technocentric luxury hotels and work out how to effectively integrate technology acquisition and utilization. This study was limited to luxury hotels in Kenya. Further studies should be carried out to enhance the analysis in this paper and should cover different countries and industries.

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