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Contents

The Impact of Organisational Culture on Job Satisfaction in Dubai Government Organizations 5
Noora AlHajji

Exploring the Applicability of Artificial Intelligence in Transnational Higher Education 20
Mohamed El-Ansari

A case study of animal welfare and the UK's leading restaurant companies 34
Peter Jones & Daphne Comfort

Leveraging innovation input on enhancing smart service quality
Cases from Abu Dhabi Emirate 46
Mounir El Khatib, Maik Hammerschmidt & Maitha Al Junaibi

The Impact of Organisational Culture on Job Satisfaction in Dubai Government Organizations

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Abstract

This study has investigated the impact of organizational culture on job satisfaction in the public sector of the emirate of Dubai. Primary data collection was performed by a survey developed based on the Competing Value Framework and launched to the employees working at Dubai Government Departments. The findings of the study have indicated that the study's hypotheses are partially accepted, as a positive correlation between clan and adhocracy cultures and job satisfaction. Moreover, a negative correlation was concluded between market and hierarchy cultures with job satisfaction. Additional future research is essential to validate the findings.

Keywords: *Organizational Culture; Satisfaction; Job Satisfaction; Public Sector, Organizations.*

Introduction

Nowadays in order to cope with ambitious directions of the government, the public sector is under tremendous pressure. The public sector has to make the most of its human resources to achieve the objectives of the government through assessing and adopting the most favored culture which will have a positive impact on the employees' job satisfaction levels. Dubai Government has realized the importance of organizational culture and how it has many significant benefits on the overall organizational success, (Johnsons, and McIntye, 1998; Davis, 2004; Ankrah et al., 2005; San et al., 2009; Ozpehlivana and Acar, 2015; Raj'ati, and Shooshtri, 2016; Soomro, 2019).

Organizational culture is a key feature defining organizational behavior and how the organization operates (Kristof, 1996). It also covers the way human resource's function and runs businesses together (O'Reilly, 1991; Bigliardi et al., 2012). As indicated by Batugal (2019), organizational culture is the organizational glue that unifies human resources in working towards the shared and mutual targets of the organization. It also drives and motivates employees' hard work and creativity. Organizational culture can offer support in promoting employees' efforts, resolving challenges, and increasing the status of the organization. Assessing the organizational culture will provide managers with detailed insight information that can lead to major decisions and changes within the organizations to cope with any internal or external issues (Slack and Parent, 2006; Choi et al., 2008). According to Rad and Yarmohammadian, (2006) and Berry, (2016), if managers can learn about the internal environment and their employees' different requirements, desires, and competencies, they will be able to create an inspiring and promising environment that will result in higher employee satisfaction. Karyotakis and Moustakis (2016) have stressed the importance of designing and encouraging innovative and flexible cultures that will promote creativity, flexibility and freedom to

develop a knowledge-based culture and innovative resolutions of challenges and issues.

Statement of the problem

The literature has shown many studies have analyzed organizational culture and its relation to job satisfaction in Western cultures and the relationships between organizational culture and employees' behaviors in American and Western cultures (Spector, 1997; McKinnon et al., 2003; Gamber, 2008; Alexander; 2012; Fatima; 2012; Berry; 2016; and Whitehall, 2018). The Middle East and the Islamic countries have different challenges and characteristics and the results from the previous literature that have been conducted based on the organizational cultures in Western countries might not explain the context of organizational culture and how it impacts job satisfaction in the Middle East countries (Bellou, 2010; Radipere, 2014; Cho and Lee, 2018; Fadda, 2018). Realizing the importance of organizational culture, the UAE Federal Government and the Government of Dubai have been working to promote and encourage organizational cultures that will have positive impacts on job satisfaction. The UAE Government has issued a happiness guide to improve the existing culture within the organizations which was launched in 2016 by the UAE first happiness minister, (UAE, 2020). As well as, constantly monitoring and measuring the adopted human resources practices within the organizations, through Dubai Government Excellence Program "Happiness Work Culture" award that reward the government department that achieves the highest levels of job satisfaction (Dubai Government Excellence Program, 2020). Moreover, Hogan and Coote (2014) stated that most of the literature on organizational culture has covered the private sector, without much focus on public sector. Organizational culture varies between the public- and the private-sectors organizations, as the management styles and mindsets are quite different (Marschollek and Beck, 2012). Not only does the public sector runs operations and businesses differently (do Monte, 2017), but also the management styles differ (Mujtaba et al., 2011).

Correlation between Organizational Culture and Job Satisfaction

Many studies have been conducted to measure the correlation between Organizational Culture and Job Satisfaction that covered different regions through adopting the competing value framework. The competing value framework has been a very effective tool to assess organizational culture, and thousands of organizations and employers around the world have adopted it to study their current organizational culture as well as, it has been successfully adopted to diagnose and identify the current cultures adopted within the organizations and how its impact on job satisfaction by several researchers such as (Ferreira, 2014, Choi et al., 2008, Lund, 2003, Du Preez, 2003, Ritter and Anker, 2002).

The competing value framework consists of four cultures clan cultures concentrates on the internal environment and having flexibility, consideration of employees' needs, friendly relationships, and teamwork between the employees, their supervisors, and their colleagues (Cameron and Quinn, 2006; Braga et al., 2014; Fernandes et al., 2015; Carvalho et al., 2018). Second culture is market culture defines the values that concentrate on external and control focus. Market culture is impacted by the external environment and concentrates on achieving competitive advantages over other cultures with a focus on financial expenditures (Cameron and Quinn, 2006). Third culture is

adhocracy culture which defines the values that have an external focus and the bottom left quadrant concentrates on internal and control values. The adhocracy culture concentrates on the external environment, (Cameron and Quinn, 2006; Carvalho et al., 2018). The final culture is hierarchy culture concentrates on the internal environment, and it is a more formal and structured type of culture in which employees have to follow and adhere to the rules and a clearly defined system (Cameron and Quinn, 2006).

The study of Zavyalova and Kucherov (2010) that focused on thirteen organizations in the private sector in Russia has indicated that organizations that have market and hierarchy cultures showed lower job satisfaction, unlike organizations that have clan and adhocracy cultures, which reported higher levels of job satisfaction. Cultures that are more rational, such as hierarchical and market cultures, have lower job satisfaction (Cameron and Freeman, 1991; Quinn and Spreitzer, 1991; Zammuto and Krakower, 1991; Nystrom, 1993; Goodman, Zammuto, and Gifford, 2001; Lund, 2003; Zazzali et al., 2007; Zavyalova and Kucherov, 2010). According to Fatima (2016) who gathered 120 responses from the employees working at Islamabad, Pakistan, market and hierarchy cultures have negative correlations with job satisfaction unlike, clan and adhocracy cultures are positively correlated with job satisfaction. Choi et al. (2008) studied the correlation between organizational culture and job satisfaction in the Korean Professional Baseball League (KPBL) concluded that there is a relationship between clan culture and job satisfaction, which is similar to Lund's (2003) findings who focused on Marketing firms in United States, he found that when assessing the four culture types of CVF, clan culture had more flexibility than other cultural types (adhocracy, market, and hierarchy). Lund (2003) also confirmed that employees who work in clan and adhocracy cultures have higher levels of job satisfaction than employees who work in organizations that adopt market and hierarchy cultures. Chidambaranathan and Regha (2016) studied UAE higher education organizations have found that clan and adhocracy cultures are the dominant cultures with very few employees favoring market or hierarchy cultures. Instead, employees favored a family-oriented and friendly culture based on loyalty and commitment, with a less strict organization, that focuses on the improvement and development of the employees. The dominant cultures in the different emirates were clan and adhocracy, yet emirates such as Ras Al Khaimah and Ajman have low levels of market and hierarchy cultures, which indicates that they have a more flexible system with opportunities to be innovative (Chidambaranathan and Regha, 2016).

Accordingly, the following hypotheses have been proposed:

- H1: Clan culture has a positive relationship with job satisfaction.
- H2: Adhocracy culture has a positive relationship with job satisfaction.
- H3: Market culture has a negative relationship with job satisfaction.
- H4: Hierarchy culture has a negative relationship with job satisfaction.

Methodology

The current study has employed a primary data collection by adopting a quantitative research method adopted Competing Value Framework questions and job satisfaction questions, and launch survey to Dubai Government employees.

Sample Size

The needed sample size based on the number of Dubai Government employees of 91,000 was 383 responses to have a low lower margin of error 5% and high confidence level of 95% (Saunders et al., 2000; Liao, 2011). The data was collected by contacting the government departments and requesting their support to circulate the survey to their employees in which 538 responses were gathered.

Data Analysis

The hypotheses were tested and regression analysis was performed in order to prove the relationship between job satisfaction and four types of organizational culture. The adopted survey includes a scientific analysis of the hypotheses and relationship between the different variables, developed by using the CVF (Easterby-Smith et al., 2002). The descriptive analysis of the responses generated covered the different characteristics of the respondents such as age, gender, nationality, number of years worked at the current organization, position, and education (Table 2).

Multiple regression analysis was conducted to analyze the research hypotheses i.e., to analyze the relationship between different types of culture and different characteristics of job satisfaction.

Table 2: Descriptive Analysis

Characteristics	Frequency	Percentage (%)
Age Groups		
20 years or less	4	1%
21-30 Years	138	26%
31-40 Years	238	44%
41-50 Years	104	19%
Above 50 Years	54	10%
Gender		
Characteristics	Frequency	Percentage (%)
Female	221	41%
Male	317	59%
Nationality		
Characteristics	Frequency	Percentage (%)
UAE National	365	68%
Expatriate	173	32%
Experience		
Characteristics	Frequency	Percentage (%)
Less than 1 Years	19	4%
1 - 3 Years	56	10%
3 - 6 Years	98	18%
6 – 9 Years	112	21%

9 – 12 Years	79	15%
Above 12 Years	174	32%
Education		
Characteristics	Frequency	Percentage (%)
Below High School	20	4%
High School	98	18%
Diploma/ Associate	55	10%
Bachelor's degree	237	44%
Master's degree	105	20%
Doctorate or equivalent	23	4%
Job Position		
Characteristics	Frequency	Percentage (%)
Leaders	53	10%
Professional/ Technical	114	21%
Consultants/ Experts/ Specialists	84	16%
Supervisory	134	25%
Administrative	133	25%
Supporting Jobs	20	4%

Source: Survey conducted in 2020

The overall descriptive analysis can be summarized that among the respondents, although people of all age groups had participated in the study, a large proportion fell in the age group of 31 years to 40 years. Almost 59% of the respondents were men, while the remaining 41% were women. Most of the respondents were UAE nationals representing 68%, comparing (32%) expatriates. The organization was filled with experienced employees, as the majority of respondents had experience of over 6 years or so. Most of the respondents had completed a Bachelor's degree, while a few respondents also hold a Master's degree in the organization. Almost half of the employee respondents were either in a supervisory position or administrative position, while the remaining half have consisted of professionals/ technical staff and consultants, experts, or specialists. Leaders and people from other supporting jobs also participated in the survey.

Reliability Analysis

Reliability refers to the consistency of the responses which is conducted by testing the estimated average of all the correlation coefficients of the items using Cronbach's alpha. A Cronbach's alpha coefficient of 0.70 or higher indicates good internal consistency and a reliable scale (George, and Mallery, 2003).

Table 3: Reliability Analysis

Variables	Number of Items	Cronbach's Alpha
Organisational Culture		
Clan Culture	6	0.935
Adhocracy Culture	6	0.927
Hierarchy Culture	6	0.932
Market Culture	6	0.836
Job Satisfaction Spector's Criteria.		
Variables	Number of Items	Cronbach's Alpha
Pay	4	0.723
Promotion	4	0.765
Supervision	4	0.837
Fringe Benefits	4	0.740
Contingent Rewards	4	0.812
Operating Conditions	4	0.850
Co-workers	4	0.756
Nature of Work	4	0.793
Communication	4	0.865

Table 3 shows the reliability and internal consistent of the studied variables using Cronbach alpha in which all variables score is above 0.7 which is proving the high significance of scale.

Hypothesis Testing

Multiple regression analysis was conducted to analyze the research hypotheses i.e. to analyze the relationship between different types of culture and different characteristics of job satisfaction.

The results of multiple regression analyses were presented as follow

Impact of Culture Dimensions on Job Satisfaction Element – 'Pay'

The result indicated that the model is significant at $p < 0.05$ with an R^2 score of 0.381 and an adjusted R^2 score of 0.377. Further regression analysis using beta coefficient and t-test was further explored to examine the impact of each culture on 'pay'. The analysis showed that clan and adhocracy cultures have a strong positive relationship with pay at 1% level of significance, and market culture has a negative

relationship with pay at 1% level of significance. Lastly, the analysis showed that there is a positive relationship between hierarchy culture and pay.

Impact of Culture Dimensions on Job Satisfaction Element – ‘Promotion’

The result indicated that the model is significant at $p < 0.01$ with R^2 of 0.390 and adjusted R^2 of 0.386. Regression analysis using beta coefficients and t-test scores have shown positive relation between clan and adhocracy cultures and ‘promotion’. However, both market and hierarchy cultures are not statistically significant.

Impact of Culture Dimensions on Job Satisfaction Element – ‘Supervision’

The model was found to be statistically significant at $p < 0.01$ with an R^2 value of 0.359 and an adjusted R^2 value of 0.354. The results of regression analysis using beta coefficient and t-test analysis showed that clan culture has a statistically significant relationship with supervision. Unlike, market culture has a statistically significant negative relationship with supervision. Moreover, adhocracy and hierarchy cultures were not statistically significant.

Impact of Culture Dimensions on Job Satisfaction Element – ‘Fringe Benefits’

The results indicated that the model is overall significant at 1%, the value of R-squared is quite small (adjusted R^2 value = 0.236). This means that only a small proportion of variance in fringe benefits is explained by cultural dimensions, while a large proportion is still unexplained. The t-test statistic results also indicate that clan culture and market culture are significantly related with fringe benefits. In contrary, both adhocracy and hierarchy cultures are not statistically significant.

Impact of Culture Dimensions on Job Satisfaction Element – ‘Contingent Rewards’

The model is overall significant at $p < 0.01$ with the R-squared value of 0.386; adjusted R^2 value of 0.381. T-test statistic and beta values from the results of regression analysis indicate that both clan and adhocracy cultures have a strong positive relationship with contingent rewards. whereas market culture has a mediocre negative relationship with contingent rewards and there was no statistically significant with hierarchy culture.

Impact of Culture Dimensions on Job Satisfaction Element – ‘Operating Conditions’

The analysis concluded that the model is overall significant at $p < 0.05$ with the R-squared value of 0.024; adjusted R^2 value of 0.017. Again, the coefficient of determination (R^2) is very small, suggesting a very large amount of variation is still unexplained. Further regression analyses results specifying t-test statistic and beta values show that only market cultures have a significant negative impact on operating conditions. In contrary, clan, adhocracy and hierarchy cultures do not have a significant effect on contingent rewards.

Impact of Culture Dimensions on Job Satisfaction Element – ‘Coworkers’

From the analysis, it is found that the model is overall significant at $p < 0.01$ with the R-squared value of 0.436; adjusted R^2 value of 0.432. Looking at t-test statistic it can be determined that only clan and market cultures has a significant impact on coworkers in which a positive correlation was concluded between clan culture and coworkers. Unlike, market culture shows a negative relationship with coworkers. In contrary, adhocracy and hierarchy cultures do not have a significant effect on co-workers.

Impact of Cultural Dimensions on Job Satisfaction Element – ‘Nature of Work’

The results from the analysis showed that the model is overall significant at $p < 0.01$ with the R-squared value of 0.419; adjusted R^2 value of 0.412. Results of regression analysis showing beta coefficients and t-test for each culture indicated that clan culture has a statistically strong and positive relationship with nature of work. Adhocracy culture has a mediocre significant and positive relationship with nature of work. On the other hand, hierarchy culture has a weak negative relationship with nature of work. However, market culture does not any significance correlation with nature of work.

Impact of Cultural Dimensions on Job Satisfaction Element – ‘Communication’

The results from the analysis showed that the model is overall significant at $p < 0.01$ with the R-squared value of 0.333; adjusted R^2 value of 0.328. Further analysis showed that only clan culture has a significant positive impact on communication. However, the other cultures have not statistically significant related with communication.

Table 4: Impact of Clan Culture, Adhocracy Culture, Market Culture and Hierarchy Culture on Job Satisfaction Elements-Summary

Dependent Variables – Job Satisfaction Elements																				
	Independent Variables	Model 1 – Pay		Model 2 – Promotion		Model 3 – Supervision		Model 4 – Fringe Benefits		Model 5 – Contingent Rewards		Model 6 – Operating Conditions		Model 7 – Co-worker		Model 8 – Nature of Work		Model 9 – Communication		Hypothesis Supported or Rejected
		B	t-value	β	t-value	B	t-value	β	t-value	B	t-value	β	t-value	B	t-value	β	t-value	β	t-value	
H1	Clan Culture	0.33	3.39**	0.47	4.71**	0.65	5.78**	0.48	4.36**	0.58	5.27**	0.22	1.72	0.66	7.28**	0.59	6.79**	0.33	2.74**	Partially Supported
H2	Adhocracy Culture	0.38	3.90**	0.21	2.08*	0.08	0.70	0.11	0.99	0.31	2.79**	0.03	0.25	0.05	0.55	0.31	3.49**	0.11	0.92	Partially Supported
H3	Market Culture	-0.44	-4.95**	-0.13	-1.46	-0.36	-3.55**	-0.21	-2.05*	-0.22	-2.18*	-0.35	-3.03**	-0.29	-3.44**	-0.15	-1.89	-0.08	-0.69	Partially Supported
H4	Hierarchy Culture	0.25	2.37	0.09	0.78	0.24	1.91	0.07	0.61	-0.01	-0.08	0.08	0.56	0.16	1.55	-0.20*	-2.09*	0.34	2.56	Partially Supported
R ²		0.381		0.390		0.354		0.241		0.386		0.024		0.436		0.419		0.333		
*p<0.05, **p<0.01																				

Snapshot of the Analysis

Table 4 presents the results of all multiple regression models conducted to examine the impact of each cultural dimension on different elements of job satisfaction. In this model, the values of R-squared range between 0.241 and 0.436, except for operating conditions, where the value of R-squared is too small i.e. 0.024. This suggested that a considerable amount of variance in the elements of job satisfaction is explained by these different types of cultures, though the relationship itself is weak considering the values of coefficient of determination (R²).

Discussion of the Findings

Assessment of the research hypotheses:

- H1: Clan culture has a positive relationship with job satisfaction.
- H2: Adhocracy culture has a positive relationship with job satisfaction.
- H3: Market culture has a negative relationship with job satisfaction.
- H4: Hierarchy culture has a negative relationship with job satisfaction.

Impact of Clan Culture on Job Satisfaction

The first hypothesis of the study has been partially proved with eight of the nine elements of job satisfaction. The results proved that clan culture has a positive relationship with all job satisfaction dimensions, however; operating condition has not found any relation with clan culture. The operating conditions are always specified, however; clan culture is based on shared values and meaning which encourages family-oriented culture, that concentrates on a harmonized internal environment with supportive colleagues and management. This culture tends to be more flexible and considerate to needs of the employees. This kind of culture values and encourages teamwork among its members (Cameron and Quinn, 2006; Braga et al., 2014; Fernandes et al., 2015; Carvalho et al., 2018).

The finding of the study is in line with previous literature the study such as Lund (2003) and Fatima (2016) which have also proved a positive association between clan culture and job satisfaction in the context of market organizations in the USA, and San et al., (2009), study who focused on a sample of Korean nurses working at a public hospital. The findings of Belias and Koustelios (2014) has also supported our study that employees perceived a friendly working environment as an extended family whereas; leaders are perceived as mentors that help to develop organizational commitment and friendly relation among the employees to enhance the satisfaction level (Fatima, 2016; Al Shammar, 2018).

Impact of Adhocracy Culture on Job Satisfaction

The second hypothesis of the study has partially been proved in this study. A statistically significant and positive relationship has been proved between adhocracy cultures and pay, promotion, contingent rewards, and the nature of work. However; no statistical relationship has been found between adhocracy culture and supervision, fringe benefits, coworkers, operating conditions and communication. Pay, promotion rewards and nature of work depend on monetary benefits, however; the rest of the elements of adhocracy culture, stress the working environment which should be more creative. Creativity aspects depend on employees to bring something new so that organizations could perform better, however; public sector organization is more focused on defined rules and regulations with some specific benefits that are compulsory with time.

The finding of the study is in line with the studies of Lund, (2003), San et al., (2009), Ashraf and Rezaie, (2015), Fatima, (2016) and Al Shammari, (2018). Adhocracy culture-oriented organisations focus on risk-taking and innovation and help to achieve their goals with the help of differentiation edge that is brought by innovation.

Impact of Market Culture on Job Satisfaction

The third hypothesis has also been partially accepted, however; market culture has a statistically significant, however; negative relationship with pay, supervision, fringe benefits, contingent rewards, operating conditions, and co-workers only. It has found no link with promotion, communications and nature of work. It shows that these three aspects of market culture will not either a positive or negative impact on the job satisfaction of employees if public sector organizations are market culture-oriented. On

the other hand, findings prove that market culture has a strong and negative impact on the satisfaction level of employees due to the increasingly competitive, tough, and demanding nature of the organizations. It stresses on limiting competitive moves towards achieving goals that eventually increases pressure on employees. This complies with previous literature that proved the negative correlation between market culture and job satisfaction (Fatima 2016). The study of İşcan and Timuroğlu (2007) has also proved that market culture is indirectly related to job satisfaction. The previous literature has covered has indicated a negative correlation between market culture and job satisfaction (Agho et al. 1993; Becherer, Morgan, and Richard, 1982; Bhargava and Kelkar, 2000; San et al., 2009; Zavyalova and Kucherov, 2010).

Impact of Hierarchy Culture on Job Satisfaction

The fourth hypothesis has also been partially proved with a negative association between hierarchical culture and job satisfaction. However; only one aspect of job satisfaction (nature of work) has been found statistically significant. From the Hierarchy culture perspective, the less bureaucratic culture of an organization is more desirable for increasing job satisfaction otherwise employee will be more frustrated because, hierarchical culture stresses rules and regulations where an employee cannot show their creativity and take the risk to increase competitiveness (Odom, Boxx, and Dunn, 1990; Goodman et al., 2001; Du Preez, 2003; Lund, 2003; San et al., 2009; Kucherov, 2010; Badawy, Kamel and Magdy 2016, Fatima 2016). Several studies have also highlighted this aspect because hierarchical culture emphasis on bureaucratic nature of the working environment which diminishes the creativity that ultimately reduces job satisfaction. Organizations dominated by hierarchy culture obtain their targets through formal rules and policies, strong control over through supervision while discouraging shared values (Öz, Kaya and Çiftçi, 2015; İşcan and Timuroğlu, 2007).

Concluding Remarks

These findings suggest adopting a clan and adhocracy culture in public sector organizations in Dubai to ensure job satisfaction among employees. Moreover; it has been also suggested that public sector organizations should employ significant resources for influencing the development and leveraging of the Clan and Adhocracy. The findings may also indicate that Market and Hierarchical Culture are not effective for improving some aspects of job satisfaction because employee's satisfaction in these two types of organizational culture is lower. Hence; it is very important to understand that which culture can enhance job satisfaction and provide more theoretical support when promoting Clan and Adhocracy culture at public organizations. It is very important to have a favorable organizational culture with existing determinants that increases job satisfaction levels as job satisfaction depends on employees' attitudes as a reflection of the existing organization's culture (Wallach, 1983; Lok and Crawford, 1999; Silverthorne, 2004; Chen, Sparrow, and Cooper, 2016; and Whitehall, 2018).

Suggested Future Studies

There are several suggestions for future research to validate the findings of this study:

1. Adopting different data collection methods by employing qualitative plus quantitative, as conducting a focus group interviews will help to justify the findings.
2. Conduct a more frequent research to assess the situation over time.

3. Additional study with a focus on the private sector will provide a more holistic assessment about the emirate of Dubai.

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Exploring the Applicability of Artificial Intelligence in Transnational Higher Education

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Abstract

Artificial intelligence (AI) is a rapidly evolving phenomenon that is increasingly discussed in terms of its transformative impact in education. In the context of specific management challenges faced by TNE providers this paper explores the application of AI. The integration of AI can have a significant impact on a wide range of educational processes that can enhance the sustainability and development of TNE programmes by improving efficiencies and transforming management and administration, student recruitment and pedagogical processes.

Keywords: Artificial intelligence, machine learning, transnational education, higher education, adaptive software, intelligent tutor systems

Introduction

The internationalisation of higher education (HE) has grown significantly over the last two decades driven by the rapidly expanding needs of developing economies for greater HE capacity than possessed in domestic systems (Ilieva, 2016). Transnational education (TNE) represents a key internationalisation strategy for higher education institutions to export their programmes to various offshore markets (Shams, 2016). Globally it reflects a dynamically evolving and highly competitive environment in which managing transnational education is a complex and risky undertaking that presents unique challenges for sending institutions (Magne et al., 2017). Sustainability, scalability and profitability have become key concerns (Healey, 2018; Chaney, 2012). The rapid evolution of Artificial Intelligence (AI) holds significant potential to address many of the challenges and problems providers face in delivering TNE programmes. The purpose of this paper is to explore how the use of artificial intelligence in TNE processes can positively impact the delivery of high-quality and sustainable transnational education.

Transnational Education

Transnational education embraces all types of higher education provision in which the learners are located in a different country to that of the awarding institution (UNESCO, 2001). This includes distance and online education programmes as well as study programmes delivered as part of: a) collaborative arrangements such as joint degrees, franchising and twinning, and b) non-collaborative arrangements such as branch campuses and offshore institutions (Council of Europe, 2002). For exporting universities there are significant commercial benefits in terms of revenue generation and enhancing institutional visibility and influence, as well as academic advantages that centre on international engagement and experience for staff, and opportunities for international research and innovative curriculum development (University of Oxford, 2017; McBurnie and Ziguras, 2011).

Artificial Intelligence and Higher Education

AI solutions are underpinning a whole new range of possibilities in HE aimed at extending human capabilities in teaching, learning and research (Popenici and Kerr, 2017) in addition to management and administration, AI is penetrating every economic sector at a rapidly expedited pace and higher education is no exception (Klutka et al., 2018). In the transnational context, the process of internationalisation impacts significantly on universities' social responsibilities across a broad range of university operations presenting challenges for the provision of transnational education that is sustainable and fulfils the needs of both partners. Thus the current development of AI in higher education suggests a range of possibilities for enhancing transnational education delivery that can also help to ensure that TNE is provided in a sustainable and socially responsible manner.

Artificial Intelligence (AI) is the theory and development of computer systems to perform tasks that usually require human intelligence (OED, 2018). AI is: responsive, by engaging in interactions, interpreting meaning and formulating appropriate responses; decisive, in terms of interpreting information and undertaking action to achieve goals; adaptive, able to internalise new information and adjust behaviours; and autonomous, to a degree able to make decisions independent of human input (Klutka et al., 2018). Artificial intelligence (AI) is characterised as a technology employing machine intelligence and human like reasoning abilities to enable the processing of historical and real-time data to provide determinations, forecasts, recommendations and suggestions. AI is based not on a single technology but rather a combination of different technologies, algorithms, statistical models and methods environment (Ertel, 2018; Kok et al., 2009). Artificial intelligence is increasingly being studied and deployed across many diverse fields in addition to education such as science, engineering, medicine, economics, marketing, finance and the stock market (Halal, 2003; Metaxiotis et al. 2003; Stefanuk and Zhodzikhshvili, 2002). Numerous different categories of research have emerged within the AI field including machine learning, neural networks, natural language processing, data mining, reasoning and expert systems (Wisskirchen et al., 2017; Peng and Zhang, 2007; Zhou et al. 2007). AI is already generating significant impacts on the nature of services within HE and providing possibilities for scaling up education at an unparalleled rate (Klutka et al., 2018; Popenici and Kerr, 2017). Growing participation in HE and increasing class sizes, staff costs and wider institutional financial pressures increases the appeal of technology and AI solutions in education.

Challenges in Transnational Education

AI has the potential to support the management and administration of TNE that is challenged by institutional, governance and pedagogical factors. A major criticism of TNE is the lack of responsiveness to the local context in which TNE programmes are located and the exportation of educational programmes based on the pedagogies and curricula of the home provider (Knight, 2012). Providers that subscribe to a responsive approach to TNE face significant barriers in establishing effective and efficient partnerships. TNE is challenged by operating within multiple organisational cultures with their own unique decision-making structures and processes and dynamics. An institutions' financial context places significant constraints on resources for TNE partnerships. Furthermore, TNE partnerships are increasingly viewed as highly complex and operating as a locus of diverse actors, roles and

national and cultural differences. This context and increasingly competitive and dynamic nature of the sector has led some to call into question the long-term sustainability of TNEs (Healey, 2018; Shams, 2016).

The changing shape of TNE and the demand by host nations for equitable partnerships and development of national goals places increasing complexity and has implications for deeper and intensive collaboration and co-ordination. The sustainability of TNE depends on implementing innovations that can generate significant efficiencies across all areas of TNE operations. Greater emphasis is being placed on a personalised approach towards learning and teaching in transnational educational provision that is sensitive to cultural context and student expectations while focusing on the needs of the individual learner (Tuomi, 2018). The challenge of personalisation for transnational learners is made more difficult by the limited training and preparation received by many faculty for teaching and imparting knowledge in cross-cultural environments (Lewin, 2008). A lack of research into TNE pedagogy means that teachers have limited external knowledge to draw on while extant studies focus primarily on cultural differences in student learning styles rather than the wider competencies needed to support negotiation of other cultures (Dunn and Wallace, 2006). According to Paige and Goode (2009) this means that academics are frequently unfamiliar with culturally proficient pedagogical strategies or the most effective ways to respond in a culturally sensitive manner.

In terms of management TNE implementation can be dominated by an instrumentalist ideology, which influences a centralised, standardised and controlled approach that acknowledges the legitimacy, integrity and organisational culture of the home institution (Brandenberg and de Wit, 2011; Stier, 2004). Nevertheless application of a one-size-fits-all approach is potentially ineffective across different nations and regions and may alienate receiving countries and lead to unaddressed needs (Todtling and Trippel, 2005; Vrontis, 2003). Yet increasingly artificial intelligence is providing techniques to developing insights and intelligence on transnational markets that can support the formulation of strategies that can sustain the business viability of TNE provision by addressing stakeholder needs and expectations (Shams, 2016).

Application of AI to TNE Operational Challenges

One of the major challenges in transnational higher education is the extent to which programmes can be designed to be locally responsive and address cultural and development needs of host nations (Reid and Spencer-Oatey, 2013; Knight, 2004). Such an approach is highly challenging and costly in terms of time and resources due to a complex range of processes that need to be established to realise such goals. Such challenges can be mitigated through the use of artificial intelligence with wide-ranging implication for adaptation of pedagogy and curricula and institutional management that can provide improved levels of effectiveness and efficiency.

Pedagogy

Adaptive learning systems based on neural networks, decision trees or fuzzy logic are being applied to identify students' learning styles and preferences (Bajaj and Sharma, 2018) and customise delivery of student content and learning paths. Personalisation is a core concept in the adaptive approach which aims to support

and enhance the pedagogical and learning process in a topic while respecting the individuality of the learner (Dasic et al., 2016).

Using big data and datamining technologies algorithms employing decision tree methodologies can provide analytics to increase the efficiency of institutional processes and functions such as student recruitment and retention (Sugiyarti et al., 2018). This can be beneficial to addressing ethical dimensions of TNE in terms of widening access and inclusiveness. Artificial intelligence holds potential to address these problems through the use of computational intelligence utilising various data mining techniques to develop knowledge profiles for each student to assist tutor decision-making, help to monitor, classify and predict student performance, as well as support recommendation systems to provide relevant information to students (Gomede et al., 2018).

The data generated from such systems can be used to provide a further level of student differentiation around which teaching strategies and course structures can be designed (Wu et al., 2019). Personalisation is advancing to a granular level to align not only with learner characteristics including personality and learning style but even learner states including emotions, motivation, affect and engagement (Wu et al., 2019; Woolf et al., 2013). Intelligent analysis mechanisms such as neural networks can dynamically identify and predict student learning styles by means of their behaviour within interactive learning systems. This can provide major benefits in terms of reducing cognitive overload problems and maximising student learning efficiency (Bajaj and Sharma, 2018; Li and Zhou, 2018).

Such application can help to counter the challenge TNE faces in terms of delivering learning and providing accessibility to students from different cultures with different styles of learning and preferences and cultural backgrounds (Bajaj and Sharma, 2018). This can promote understanding of their needs by observing and identifying the current state of user behaviour to predict the learning style of the next state (Li and Zhou, 2018).

Some applications of AI can enable real-time understanding of student differences and learning preferences to support pedagogical strategies for different cultures. An Intelligent Tutoring System (ITS) is an integrated adaptive software system (Dasic et al., 2016) predicated on a knowledge-based architecture that identifies the current state of a student's knowledge and learning and manages the introduction of learning materials by means of an interactive and dynamic interface (Tuomi, 2018). Ongoing development aims to incorporate user interfaces that collect real-time data on learner behaviour and combine it with historical data and interactions to model the learner (Tuomi, 2018). Emerging systems can leverage more advanced reasoning representing inferences about users based on information on cultural preferences as well as their relevant stereotypes and beliefs (Woolf et al., 2013). Thus the method and content of learning materials can adapt to the individual abilities of students and take into account student background characteristics as well as skills and behaviours (Dasic et al., 2016).

Learner analytics (LA) and educational data mining (EDM) are two distinct technological advancements that can support TNE providers to improve the effectiveness and efficiency of scarce resources (Papamitsiou and Economides, 2014; Woolf et al., 2013). AI can help to explore and leverage different types of

student data available to provide highly adaptable heuristics to analyse educational data. Programmes can be enhanced and resources can be more effectively targeted by predicting learner requirements for further support and attention, assisting teachers to plan support interventions, and supporting learners to appraise learning achievements (Woolf et al., 2013). These can reason over a student's cognition and meta-cognition, their weaknesses and strengths as well as challenges and motivational style. This provides just-in-time information which can be used to shape the learner's experience (Becker, 2017). In EDM, this can be used to identify which learners need help and how teachers can change academic behaviour (Woolf et al., 2013).

Application of an intelligent tutoring system can enhance the provision of appropriate feedback by facilitating identification of gaps in teaching and learning and more effective assessment of individual student progress even across large-scale programmes (Chassignol et al., 2018). Such systems thus liberate the time of teachers to focus on more complex teaching tasks for which human intelligence is still needed (Becker, 2017).

Student Support

The effective and efficient learning of students has significant implications for the outcomes and sustainability of transnational programmes. Developments in AI are consistently leading towards greater capability to support and tailor transnational student learning by providing the means to determine the depth of student knowledge and the extent of their interest (Walkington and Bernacki, 2019). Current developments in machine learning enable the detection of the quality of student understanding of the topic through identifying the causal structure and causal chains of student explanations presented within assignments (Wiley et al., 2017).

Another potential use of AI in TNE is to foster relationships and promote the development of peer support systems for transnational students (Woolf et al., 2013). Based on relevant data on students' interests, needs and skillsets, machine learning applications can be employed to match transnational learners with suitable mentors, alumni, peers, and industry contacts to help create an accessible and immediate network of personal learning support (McKenzie, 2018; Subrahmanyam and Swathi, 2018). A virtual peer or mentor is another AI technique that could provide direct and instantaneous learning support for transnational students. A virtual mentor can interact with students based on an appraisal of student needs and error analyses to provide targeted and specific support on demand (Subrahmanyam and Swathi, 2018).

The characteristic delivery of transnational programmes in a language different to that of the student means that overcoming language barriers is a major issue for TNE (McKenzie, 2018). Recent advances such as Neural Machine Translation (NMT) suggest that artificial intelligence possesses significant promise in helping to address language barriers in the TNE context. NMT more closely approximates a human level of translation than able to be achieved by non-AI machine translators by incorporating the larger context of words and sentences and their intended meaning (Wu et al., 2016). This is achieved using deep learning, which leverages the pattern recognition attributes of machine learning but combines multiple layers within a

programme to attain a result greater than obtainable from any single layer (Klein et al., 2017).

AI virtual assistants have additionally been used to provide teaching assistance in higher education classes, as exemplified by Jill Watson, an AI programme at Georgia Tech that replied to students' email queries in regard to assignments. Students were surprised to learn that they were interacting with a virtual teaching assistant. Over the development of a year it is estimated that the VA will be capable of responding to over 40% of student questions freeing human teaching assistants to address more philosophical or complex questions (Mooney, 2018).

Assessment

Assessment of student learning and knowledge is subject to greater challenges in the TNE context in terms of maintaining credibility, fairness and the overall quality of the assessment process (Becker, 2017; Craft, 2004). The incorporation of AI within evaluation systems can provide new insights by exploring datasets to support teachers in understanding student responses (Becker, 2017; Craft, 2004). AI-driven assessments can be integrated into meaningful learning activities including collaborative projects and games to assess the entire learning taking place as it occurs (Becker, 2017). This means a reduction in dependency on assessment of limited samples of what has been taught to students.

In TNE programmes there is potential for subjectivity in assessments in the application of cross-cultural standards and approaches. AI technologies can support moderation of assessments to increase understanding of accurate application of schemes and reduce variation. The UK and China is experimenting with machine intelligence to perform essay marking for interpretation of general arguments and meaning of content and to provide human-comparable assessment of quality. This system is capable of providing feedback and recommendations on grammatical, structures and writing style (Sandle, 2018; Ryan, 2018). Such applications of AI can yield greater efficiencies and time-savings to improve operational burdens within TNE programmes.

Curricula

AI shows promise in supporting the contextualisation of the transnational curricula in a way that is also dynamic and motivating for students. This is particularly applicable in cross-cultural TNE contexts to provide culturally tailored content. AI adaptive systems can be integrated as direct instructional tools to provide student support and guidance through learning activities, applications or simulations. Content can be localised to correlate with learners' needs (Klutka et al., 2018). AI is also being deployed to create digital content at similar grammatical levels as human tutors. AI can support the digitisation and condensation of textbooks into digestible study guides that include chapter summaries, practice tests and flashcards (Subrahmanyam and Swathi, 2018). As AI advances it is considered likely this process will increasingly be shaped towards the preferences and needs of individual learners.

Institutional Governance and Management

AI can be deployed in transnational education to maximise and optimise complex institutional management processes. Modern information systems are increasingly supporting organisations to make informed and rational decisions and to adapt and learn to enhance administrative effectiveness (Picciano, 2014). However while the expanding scale and complexity of HE institutions has led to the generation of significant quantities of data, its value and usefulness is limited by storage across multiple systems with minimal interoperability impeding meaningful aggregation and communication (Klutka et al., 2018). AI can support creation of a more connected institution by facilitating the ability to draw on multiple data systems to guide enhancements for administrators and students (Roll and Wylie, 2016).

Student recruitment for TNE programmes can present significant challenges in terms of reach, communication and processing of student enquiries from diverse cultures. Machine learning applications can help to address this problem through their ability to recognise patterns, make predictions and apply newly identified patterns to situations not originally in their programmed design (Popenici and Kerr, 2017). AI can be deployed to provide administrative support to students through recruitment and enrolment which can be multi-stage processes accompanied by minimal support. Such applications can be usefully applied to enhance the admissions process through generating accurate predictions and forecasts (King, 2018). Drawing on robust historical internal data and external data including economic trends accurate predictions on student enrolment can be made to mitigate these risks. Learning analytics focus on enterprise learning systems and issues such as retention and test results to identify students in need of help and support (Woolf et al., 2013).

Artificial intelligence techniques have the potential to enhance the overall quality of services provided to students in transnational education. A key approach is to use virtual assistants (VAs) to respond to frequently asked questions from students and prospective students. By leveraging AI through virtual assistants, institutions can deliver answers to thousands of common questions such as tuition costs and financial calculations and eligibility across many different channels (Klutka et al., 2018; Page and Gehlbach, 2017). Virtual assistants can scale such processes benefiting both efficiency and student satisfaction, and by easing the transition to student and campus life support student retention. This is conducted in an interactive and informative manner freeing the time of administrators to manage higher priority tasks (Klutka et al., 2018). In the future, AI and big data may be innovatively combined so that institutions can provide more rapid and efficient answers to student needs and as new answers are fed into repositories services will become smarter over time (Harrison, 2018).

Machine learning could be used to significantly enhance efficiency by automating course selection and scheduling processes for each individual student. Such techniques can be used to evaluate a student's academic record to provide a suggested course schedule in which students are most likely to achieve success and is tailored to academic requirements and time constraints (King, 2018).

AI technologies have been deployed to address challenges and issues in relation to partnership and cooperation at the international level between higher education institutions. In one example an intelligent tutoring system was used to meet the

needs of faculty and administrative staff and create a learning environment to overcome difficulties in using monitoring systems. This identified cooperative activities conducted by staff and institutions, assessed the results of cooperation agreements over time, and made personalised follow-up of international students (Laaziri et al., 2018).

The high risk of reputational damage to institutions has been a major factor and source of tension for TNE programme design and quality concerns. Risk mitigation is a critical area in TNE management where evidence shows that institutional approaches may lack strategic consideration of a comprehensive range of internal and external risks linked to TNE operations including financial, academic and reputational risks. Controls on the marketing and promotion of TNE programmes can also be inadequate (Stafford and Taylor, 2016). AI presents significant potential to optimise quality assurance processes for TNEs and achieve intelligent and proactive analysis and monitoring of a wide range of quality dimensions to provide early prediction and warnings (Chedrawi and Howayeck, 2019). AI analytics and machine intelligence can be applied to support an intelligence led quality assurance process through optimisation and pattern detection, risk monitoring and early warning, predicting quality and triggering automated alerts and responses to reduce the burden on TNE managers (Al Jaber, 2018). AI blockchain technology could be used to automate the complex processes accompanying recognition of qualifications and the transfer of credits thus increasing learning opportunities across universities (Alam and Kendall, 2018).

Conclusion

The emergence and development of artificial intelligence has stimulated significant debate in relation to the future role of teaching and learning in higher education and the choices and strategies that institutions will make in this regard. This paper has reviewed the application of AI to transnational education context and specifically how emergent technologies can address the challenges of TNE and provide new capabilities to optimise operational aspects. Many TNE processes can be supported by AI software derived from complex algorithms and techniques to improve their effectiveness and efficiency. The application of AI can serve to mitigate the complexities in providing more local responsive and contextual educational strategies that serve the interests and needs of wide ranger of stakeholders. At a time when TNE sustainability is called into question and the prevailing competitive environment universities engaged in transnational education are required reflect on and rethink their function, pedagogical models and their potential relation with AI solutions. Transnational education institutions are able to apprehend a vast range of possibilities and challenges presented by AI in teaching, learning and administration, offering the potential to widen access to education and promote equitable access to learning while maintaining the purpose and core values of higher education. By using intelligent, adaptive and personalised technologies enabled by artificial intelligence higher quality in pedagogy, curricula and learning support for transnational students can be provided and that contributes towards a more ethical socially responsive approach. The integration of AI can have a significant impact on a wide range of educational processes that can enhance the sustainability and development of TNE programmes by improving efficiencies and transforming management and administration, student recruitment and pedagogical processes.

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A case study of animal welfare and the UK's leading restaurant companies

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Abstract

Restaurants are intimately bound up with animal welfare, in that a food offer is their raison d'être, but the issue of animal welfare in the restaurant industry has received little attention in the academic literature. This exploratory case study looks to add to this literature by reviewing how the leading UK restaurant companies have publicly addressed animal welfare. The case study identifies, and draws out, five themes, namely strategic corporate commitment, a focus on supply chains, policies on specific categories of animals and food products, auditing, and welfare performance, that illustrate/capture the approach the leading restaurant companies in the UK have taken to animal welfare. The authors also raise a number of wider issues about the restaurant companies approach to animal welfare, including the aspirational nature of their commitments, the emphasis on audits, the role of animal welfare pressure groups and campaigns, and the impact of the COVID-19 pandemic.

Keywords Animal welfare: Animal welfare policies; UK restaurants; Auditing; Welfare performance

Introduction

Animal welfare is a topic of public interest across many societies, and it generates vociferous and passionate debate. Domestic pets aside, most people's closest, if indirect, contact with the welfare of animals is through the food they eat, though in many ways animal welfare is effectively separated from the practice of eating animal products. Buller (2016) argued that 'shopping for welfare-friendly food products becomes an act of care-at-a-distance', while Buller and Roe (2018), claimed 'we largely take farm animals' lives (and deaths) for granted when we eat them and their products' and they suggested 'for most of us, meat, egg and dairy consumption has become so distinct – geographically, morally aesthetically - from livestock, that the animal disappears.' The restaurant industry is intimately bound up with animal welfare in that a food offer is its raison d'être, but rather surprisingly, the issue of animal welfare in restaurants has received little attention in the academic literature. With these comments in mind, this case study looks to extend this literature by providing an exploratory review of how the leading restaurant companies in the UK have publicly addressed animal welfare. The case study includes an outline of the basic characteristics of animal welfare, a cameo literature review, brief details of the frame of reference and method of enquiry, a review of how the selected restaurant companies' approach animal welfare, a reflective discussion on this approach, and a conclusion which suggests a number of future research agendas.

Animal Welfare

Animal welfare revolves around the belief that animals are sentient beings, namely that they feel or perceive things and that consideration should be given to their physical, emotional and behavioural well-being. As such, animal welfare concerns arise over a variety of issues, including care for domestic pets, the exploitation of animals for commercial entertainment and in the tourist industry, animal experimentation in scientific and medical laboratories, and the treatment of animals in modern agricultural production systems. Essentially, the concept of animal welfare is concerned with how an animal is coping with the conditions in which it lives, and it is generally seen to include three elements, namely, an animal's normal biological functioning; its emotional state; and its ability to express normal behaviours.

For the American Veterinary Medical Association (2020) an animal is seen to be in 'a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well-nourished, safe, able to express innate behavior, and if it is not suffering from unpleasant states such as pain, fear, and distress', and 'ensuring animal welfare is a human responsibility.' More popularly, commitments to animal welfare are often characterised by the 'Five Freedoms' framework, initially drawn up by the UK's Farm Animal Welfare Council (2009). These five freedoms, or domains, are freedom from hunger and thirst; freedom from discomfort; freedom from pain, injury or disease; freedom to express normal behaviour; and freedom from fear and distress.

Cameo Literature Review

In looking across the food industry a quarter of a century ago, Hughes (1995) argued that concerns about animal welfare 'presents the UK industry with both threats and opportunities. Livestock products that are animal welfare-friendly, produced with traditional/natural methods and carry "passports" offer important consumer benefits that can provide a competitive edge.' However, the issue of animal welfare and the restaurant industry has received limited attention in the academic literature. Where such work has been published it has often examined animal welfare as just one of a number of issues, rather than focussing exclusively on animal welfare. That said, a cameo literature review of the work published on animal welfare and the restaurant industry provides an academic context and set of reference points for the case study.

Some work has been published on how restaurant companies have looked to assure the animal welfare of products on their menus, and on their success in getting their animal welfare messages across to customers. Fraser (2006), for example, reported that a number of restaurant and food retail companies had developed programmes to assure their customers that the food products they sold met basic animal welfare standards. Here the author contrasted the standards at Marks and Spencer, the major UK retailer, with those at McDonalds restaurants in the US, where standards were explicitly described as 'fairly basic.' Grandin (2010) argued that the use of animal based scoring systems had resulted in great improvements in handling and stunning when it was used by restaurant companies to audit slaughter plants. Kim et al. (2018) suggested that linking animal welfare initiatives to marketing programmes had not proved effective. Further, the work by Kim et al. (2018) suggested that while consumers increasingly demand that food companies demonstrate greater social responsibility, they are increasingly sceptical of

companies' engagement with social causes, and they were particularly sceptical of marketing messages about animal welfare.

Research has also been undertaken to examine if animal welfare concerns influenced customers' restaurant patronage and menu choices. In looking to investigate the factors that influence the effectiveness of customer relationship management advertising, Kim et al. (2016), for example, examined the effect of message type and social cause category, including animal welfare, on attitudes and behavioral intentions in the customers of US restaurants. Here, Kim et al.'s (2016) work suggested that consumers' attitudes towards restaurant companies' advertisements were not affected by the category of social cause. Schjoll and Alfnes (2017) suggested that few researchers had studied the effect of how credence attributes such as origin, organic, animal welfare, sustainability and free trade, affected customers' menu choices. In a study of menu labelling in an experiment in 'a fine dining restaurant' in Norway, Schjoll and Alfnes (2017) found that adding words to the menu description, such as organic, or describing animal welfare, had a very limited effect on customers' choices in the restaurant. Filimonau and Krivcova (2017) argued that animal welfare can be a crucial factor driving food choice but concluded their work with a general recommendation that restaurants should play a more active pro-active role in encouraging customers make more environmentally friendly purchasing decisions.

On the conceptual side, Buller and Morris (2003) argued that that science has largely failed to provide a socially acceptable conceptualisation of animal welfare, and most of the more recent work on the concept of animal welfare seems to have been concerned with definition rather than theorising. However, as this case study is focused on how restaurant companies have addressed animal welfare, legitimation theory and stakeholder theory are arguably of greater relevance. Legitimation theory is essentially concerned with how organisations obtains its legitimacy, and licence to operate, by its attachment to certain values within society (e.g., Burlea and Popa 2013). There are a large number of definitions of stakeholder theory (Miles 2017), but essentially it holds that a company should create value for all its stakeholders, including shareholders, suppliers, employees, society at large, animals, and the environment.

Frame of Reference and Method of Enquiry

In looking to undertake an exploratory review of how the UK's leading restaurant companies publicly addressed animal welfare, the authors chose the top ten restaurant operators, by revenue, as listed by Food Service (2018), namely McDonalds, Starbucks, Costa Coffee, Domino's Pizza Group, Pret A Manger, Kentucky Fried Chicken, Nando's, Subway, Burger King, and Pizza Hut, to provide the framework for the case study. The authors employed a simple method of enquiry, which they believed to be fit for purpose to discover if, and how, the selected companies addressed animal welfare. More specifically, Internet searches were conducted using the name of each of the selected restaurant companies and animal welfare as the key phrases. These searches, undertaken in March 2021, provided the empirical material for the case study. As this material is in the public domain on the selected restaurant companies' corporate websites, the authors took the considered view that they did not need to seek permission to use it.

Some authors (e.g., [de Grosbois 2016](#)) have used forms of content analysis to systematically identify themes and issues on corporate websites. However, given the exploratory nature of this case study and that the material on animal welfare on the selected restaurant companies' websites was clearly signposted, the authors were minded that a sophisticated quantitative content analysis was not appropriate. Rather, the authors undertook an informed reading of the relevant document to draw out the important issues and themes. The paper draws extensively on selected quotations drawn from the selected restaurant companies' corporate websites. The aim here, is to explore how the companies publicly expressed, and evidenced, their approaches to animal welfare, and the authors took the view that this was perhaps best captured in the retailers' own words, not least in that quotations could convey corporate authenticity, and offer greater depth of understanding (Corden and Sainsbury 2006). When outlining issues of the reliability and the validity of information drawn from Internet sources, Saunders et al. (2009), emphasised the importance of the authority and reputation of the source, and the citation of a specific contact who could be approached for additional information. In collecting the restaurant companies' material on animal welfare, the authors felt that these two conditions were met.

Approaches to Animal Welfare

The Internet searches revealed that all the selected restaurant companies posted animal welfare statements or policies or reports. However, the depth and detail of this material on animal welfare varied considerably, and while some of the companies did little more than signal their commitment to animal to animal welfare, others looked to evidence that commitment in a number of ways. However, rather than describing each of the company's specific approaches to animal welfare, the aim here is to identify, and draw out, a number of general themes that illustrate the approach the UK's leading restaurant companies have taken to animal welfare. More specifically, the authors' reading of the restaurant companies' animal welfare statement and policies enabled them to identify five general, but interlinked, themes namely, strategic corporate commitment, a focus on supply chains, policies on specific categories of animals and food products, auditing, and welfare performance.

Firstly, strategic commitment was expressed in a variety of ways and for some of the selected companies such commitments included a forward looking dimension. Nando's (2020), for example, reported signing 'the Better Chicken Agreement, which means that we pledge to fully implement higher standards of chicken welfare for chickens in our supply chain by 2026.' In asserting its belief that 'good animal welfare is a high priority for our business and our guests', Burger King (2019) emphasised the company's commitment 'to working with our protein suppliers to ensure that the health and welfare of animals reared to produce products for our business are protected at all times' and its requirement that 'our animal welfare policy standards be well embedded across our supply chain for all species.'

Costa Coffee (2021) claimed 'we understand our customers expect us to ensure responsible animal welfare standards in our supply chain' and 'over and above this however, we believe that having good animal welfare management is the right thing to do.' Kentucky Fried Chicken (2020), suggested 'we know that incredible taste is so closely linked to quality — and because we believe that great quality starts with higher animal welfare standards s on farms, we took a big step last year and became

the first in our sector to sign up to the Better Chicken Commitment.’ Starbucks (2020), emphasised ‘our goal is for all our products to meet high quality and ethical standards’ and for the food and dairy we serve this means a commitment to social responsibility standards with animal welfare as a primary focus.’

A number of the selected companies looked to enshrine their approach to animal welfare, within the Five Freedoms framework. Pizza Hut (2019), for example, emphasised that the company supports the commonly accepted Five Freedoms of animal welfare.’ Here, in addressing freedom from hunger and thirst, for example, the focus was seen to be on animals having ‘ready access to fresh water and a diet to maintain full health and vigour’, while the provision of ‘sufficient space, proper facilities and company of the animal's own kind’ is seen to address freedom to express normal behaviour. While Domino’s Pizza Group stressed its commitment to the Five Freedoms, the company signalled that it also had animal welfare policies covering its corporate commitment to adherence to current legislation, the transport of live animals, the use of antibiotics and growth promoters, and genetic engineering.

Secondly, the selected restaurant companies explicitly recognised that their supply chains played the crucial role in addressing animal welfare. Pizza Hut (2019), for example, claimed ‘the single greatest product responsibility for Pizza Hut is to ensure that the highest standards of food quality and safety are always maintained in our supply chain. It is also an important ethical concern and we work closely with our suppliers to ensure that the animals reared for Pizza Hut are well cared for and are reared in the right way. Pizza Hut will only work with suppliers committed to recognised humane practices, good animal husbandry and welfare standards.’ McDonald’s (2020) acknowledged ‘while McDonald’s doesn’t raise any livestock or operate any slaughter facilities, we understand our responsibility to improve the health and welfare of those animals in our supply chain throughout their lives.’

Subway suggested that its guests and stakeholders expected the company’s sourcing policies to reflect the highest quality and safety standards and claimed that strong animal welfare standards served not only to ensure the health and welfare of farm animals, but also to contribute to the health and well-being of the company’s guests, as well as society and the environment. Further, the ‘Vision’ underpinning Subway’s (2019) ‘Animal Welfare Policy’, for example, was focused on the belief that ‘safe and quality food comes from healthy farm animals that are bred, raised, transported and slaughtered with high standards of animal welfare’, and that ‘together with our suppliers, we aim to provide our customers with safe and quality food without compromising animal welfare practices recommended by the best available science.’ Domino’s Pizza Group (2019) stressed its commitment ‘to ensuring high standards of animal welfare throughout its supply chain’ and that ‘all suppliers to Domino’s Pizza UK and Ireland Limited must adhere to our policy and work towards achieving our long-term commitments.’

Thirdly, some of the selected restaurant companies provided details on specific animals and animal products. Pizza Hut, for example, outlined its policies on pork and beef; poultry; eggs; dairy; and fish and seafood. In addressing eggs, for example, Pizza Hut (2019) stipulated that ‘all whole/shell and product/ingredient eggs sold within Pizza Hut must originate from free range farms’, and that no eggs or egg products are ‘to be sourced from hens in caged systems.’ At the same time, ‘all pork and beef sold within Pizza Hut must be sourced from farms that are certified by

a relevant national farm assurance scheme that is annually independently audited by a recognised certification body and uphold animal welfare certification' (Pizza Hut 2019). Pizza Hut (2019) also stipulated that 'all milk used in our mozzarella within Pizza Hut must be sourced from farms that are certified by a relevant national farm assurance scheme that is annually independently audited.'

In addressing the sourcing of beef, McDonalds set out its long term commitments to animal welfare, including ensuring that all cattle have access to loose housing (when housed) by 2030, that all animals are given analgesics for all surgical procedures and for all forms of castration, dehorning and disbudding, and reducing mortality rates below 1.5%. In focusing on pigs, Domino's Pizza Group (2019) emphasised that 'all pigs should be reared in compliance with source country legislation', that the company is 'committed to eliminating the use of close confinement production systems such as sow stalls from our supply chain', and to working with 'suppliers to ensure environmental enrichment is provided to all pigs in the supply chain by 2025.'

Fourthly, there were commitments to auditing designed to help to ensure animal welfare at various stages within the supply chain. Kentucky Fried Chicken (2020), for example, reported 'in order to ensure that the welfare of chicken is continuously improving, all suppliers are independently audited to formally assess compliance, share best practice and identify opportunities for improvement.' More specifically, KFC reported that suppliers are visited every fifteen months and that all aspects of supply are audited. Subway (2019) reported giving preference to suppliers that 'already utilize credible third-party audit programs to ensure animal welfare standards are maintained as part of their own sustainability mission' and, 'when necessary', Subway implements third party audit programmes at its suppliers.

Pizza Hut reported that the company required all its suppliers to permit independent auditors access to supplier documentation, management, and workers to determine compliance and progress against its sourcing code of practice. More specifically, Pizza Hut reported that all its pork, beef, poultry, and dairy suppliers are independently audited annually. For poultry, for example, Pizza Hut's requirement for suppliers include stocking densities, environmental standards covering lighting and air quality, perch space and the availability of pecking substrates. In a similar vein Burger King reported that many of its beef suppliers 'source from farms which adhere to national farm assurance schemes' and that 'these schemes are independently audited and verified by recognised certification bodies.' Here, Burger King's requirement is 'beef cattle must have access to pasture both on farm and at fattening, at least during the growing season', that when the cattle are outdoors, 'there is constant access to shade and shelter', and that 'stocking densities must be carefully controlled to ensure that good cattle welfare is maintained at all times.'

Domino's Pizza Group's (2019) animal welfare policy includes a number of references to the company's audit requirements. Under this policy, the use of antibiotics, hormones or growth promoting antibiotics is strictly prohibited and such usage is strictly monitored and subject to ad-hoc audit by Domino's Pizza Group. The policy also specified that all suppliers are subject to a compliance audit, and that all new suppliers must complete an animal welfare questionnaire. More generally, in reviewing suppliers' compliance with its animal welfare, policy, 'higher risk companies' are audited 'at least every two years', while all other suppliers 'receive an audit at least every four years' (Domino's Pizza Group 2019). McDonalds

emphasised its stringent requirements on the humane slaughter of animals within its suppliers' slaughterhouses and reported that its expectations are verified by independent audits of such operations. Further, McDonalds(2019) reported 'where suppliers are identified through independent audits as not complying, we work with them to develop their practices and, where necessary, robust and sustainable corrective action plans.'

Fifthly, some of the selected restaurant companies suggested that they were moving towards reporting on their performance in looking to meet animal welfare targets, though here again some of their goals were aspirational. McDonalds (2019) reported briefly on its goals on animal housing, cage free and free range eggs, and chicken welfare, and while the company reported that all the eggs used in its menu, and as ingredients, within the UK were cage free, its commitment to sourcing chickens with improved welfare outcomes was to be fully implemented by 2024. Kentucky Fried Chicken (2020) reported on its 'animal welfare outcomes', which the company described as 'key performance indicators', that were seen to 'cover critical areas of health & production that are important indicators of good Husbandry and the welfare of chickens.' Here the aim was to 'identify, report and drive meaningful improvement on the most pressing challenges across the industry' (Kentucky Fried Chicken 2020). More specifically, Kentucky Fried Chicken (2020) reported on a number of 'flock outcomes measures', including environmental enrichment, stocking densities, transition to higher welfare breeds, the responsible use of antibiotics, and mortality rates.

Discussion

All the selected restaurant companies publicly addressed animal welfare, albeit in different measures, but some wider issues merit reflection and discussion. Companies were often at their most emphatic in emphasising their strategic commitment to animal welfare, but some of these claimed commitments are explicitly aspirational and expectational. Such corporate aspirations and expectations can be seen to reflect public concerns about animal welfare but as some of the selected companies source animal products across extensive geographical areas, fulfilling such aspirations presents complex challenges. Not least in that there are different cultural attitudes to animal welfare in different communities and different parts of the world.

At the same time, the restaurant companies' commitments to animal welfare are at least one step removed from their own operations, and this massively reduces their control of animal welfare measures. Here an important element in some of the restaurant companies' approaches to animal welfare is the regular independent audits of their animal and animal products' suppliers. However, in examining consumer concerns about food safety, the environment and animal welfare, Haggarty (2009) argued that audit-based governance is effectively shaped by the food industry's major players, who have effectively converted perceived 'consumer preferences into checklists of acceptable farming practices.' More specifically, in reviewing the role of 'audit in animal welfare', Escobar and Demeritt (2016) highlighted the general 'tendency for audit processes to become decoupled from the qualities they are meant to assure.' As such, there is the danger that the audit exercises become a routine reporting end in themselves, rather than a means, to an end.

More generally, some of the selected restaurant companies are facing increasingly strident criticisms of their approach to animal welfare. World Animal Protection (2018), for example, launched its 'Change for Chickens Campaign' in 2016, which looked to draw attention to what it saw as some restaurant companies' failures to address the welfare of chickens within their supply chains. Two years later (World Animal Protection 2018), published a damning report 'The Pecking Order', which argued that the major fast food companies were 'failing the chickens their businesses depend on.' Further, the report claimed that the majority of the '600 billion chickens farmed annually worldwide endure acute and severe suffering', and that they are subjected to 'cruel confinement in crowded, featureless and unnaturally lit sheds' (World Animal Protection 2018). SubwayEatCruelty (2020), an alliance of animal protection groups, claimed that while Subway promises its customers that its food is of a high quality and that it is produced sustainably and to high ethical standards, 'the exact opposite is the case' and 'the chickens that end up in Subway's sandwiches and salads have lived, and died, under excruciating conditions... At a time when social media is becoming an increasingly important force in energising public opinion, it remains to be seen how well the leading restaurant companies in the UK will be able to assuage animal welfare concerns.

At the time of writing, it is impossible to consider animal welfare issues and restaurant companies without some reference to COVID-19, not least because 'the virus affected virtually all parts of the hospitality value chain' (Gosling et al. 2020). On the one hand, media reports that many abattoirs and meat packing and processing plants were COVID-19 hotspots and had been closed, albeit temporarily, and restrictions on international trade in meat and poultry products, have disrupted many traditional supply chains. On the other hand, public concerns about the COVID-19 pandemic, and about reported incidences of high levels of the virus amongst people working in food processing and packing plants, and fears about the future transfer of viruses from animals to humans, have heightened consumer awareness about the safety of animal products within food supply chains. It remains to be seen if, the leading restaurant companies in the UK will continue to commit the financial resources required to address animal welfare concerns, or if they will concentrate their resources on looking to rebuild their businesses. That said, restaurant companies will surely ignore the potential long term implications of COVID-19 at its peril.

The COVID-19 pandemic may provide important opportunities for leading restaurant companies to review, and to revise their approaches to animal welfare and food safety. Looking to alternative futures, Plant Based News (2020), a media outlet producing content about veganism and plant based living, suggested that 'with growing concerns about food safety in light of the COVID-19 pandemic and estimates that [three out of every four new or emerging infectious diseases in people come from animals](#), it's about time that food companies ramped up their efforts to prevent the spread of such diseases.' Further Plant Based News (2020) claimed that 'the immune systems of animals raised on lower welfare factory farms are far weaker than any other; couple this with the immense overcrowding seen on these intensive farms - where some 90 percent of farmed animals are raised - and the risk of contracting and spreading dangerous diseases is worryingly high.'

At the same time, the review of the selected restaurants' approaches to animal welfare has also highlighted some links to legitimation theory and stakeholder theory. In publicly addressing animal welfare, and in the wake of strident criticism of their approach to animal welfare, the selected restaurant companies might be seen to be pursuing

legitimation strategies, and, as such, their approach might be seen to be consistent with legitimation theory. The selected restaurant companies approach to animal welfare might be seen to illustrate the importance of the companies' relationships with their stakeholders, particularly with suppliers and with the general public. On the one hand growing public concerns about the welfare of animals might be seen to be reflected in the selected restaurant companies' increasing public commitments to animal welfare. However, the restaurant companies do not report on if, and how, if they elicited customer's opinions on animal welfare, or on if, and how, such opinions were incorporated into their animal welfare policies. On the other hand, the locus of power between the selected restaurant companies and their suppliers lies very much with the restaurant companies, in that they look to control their suppliers business operations.

Conclusion

This case study has provided an exploratory review of how the ten leading restaurant companies in the UK have publicly addressed animal welfare. Five interlinked themes illustrated the selected companies' approach to animal welfare namely, strategic corporate commitment, a focus on supply chains, policies on specific categories of animals and animal foodstuffs, auditing, and welfare performance. At the same time, some of the restaurant companies' commitments to animal welfare are aspirational, and at least one step removed from production, and there are specific concerns about auditing in meeting commitments, and more general public concerns for the welfare of animals in the companies' supply chains.

The case study has its limitations, not least that its empirical material is drawn solely from the selected restaurant companies' corporate websites and does not include any face to face interviews, or focus group sessions, with representatives from those companies. At the same time, the authors did not include the restaurant companies' suppliers in their research enquiries. However, the authors believe that their simple method of enquiry is fit for purpose for an exploratory review paper, that it adds to the currently limited literature on animal welfare in the restaurant industry, and that it offers a useful platform for future research.

Animal welfare in the restaurant industry certainly offers a wide variety of research agendas. At a conceptual level, for example, animal welfare provides opportunities to test, develop, and refine stakeholder theory by exploring how the positions of different groups of stakeholders within the restaurant industry are incorporated into corporate decision making about approaches to animal welfare. At the same time, analysis of both changing perceptions of the importance of animal welfare considerations, as well as how such changes might be balanced against other corporate goals, will also contribute to ongoing work on stakeholder theory. A wide range of empirical research opportunities can also be identified. At the corporate level for example, research may help to increase understanding not only of why, and how, restaurant companies develop their policies on animal welfare and how they look to elicit stakeholders' opinions, but also of how restaurant companies look to take account of wider pressure group campaigns in formulating such policies. Research on how animal welfare concerns inform the relationships between restaurant companies and their suppliers, and on the location of power within these relationships, also merit attention.

At the operational and consumer level, many research issues arise, but two sets of questions provide an illustration of possible research agendas. Does greater consumer awareness of restaurant companies' approaches to animal welfare influence patronage and menu choices? How do restaurant companies incorporate animal welfare policies into their general marketing messages, into marketing messages at the point of sale, and if, and how, corporate approaches to animal welfare are communicated, and regularly reinforced, to restaurant employees? Finally, although this case study has explored the animal welfare commitments and policies pursued by the leading restaurant companies in the UK, an examination of smaller, and more local, companies' policies on animal welfare, would broaden the scope of this genre of work.

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Leveraging innovation input on enhancing smart service quality. Cases from Abu Dhabi Emirate

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Abstract

Globally, there are growing demand for smart service by the government. More prominently, there is more concentration on leveraging the technology and its enablers to meet the growing demand for developing smart services delivered by the government for economic and social upliftment. Enhancing smart service quality is crucial and important to the UAE and especially for the Abu Dhabi Emirate due to the huge investment made in developing high quality and 24/7 services in the Public Sector.

This research carried out to identify impeding open innovation mechanisms that are enablers of superior quality of Government Smart Services and examine the relationship between innovation input mechanism and the quality of Government Smart Services. Specifically, the paper pursues the following objectives to evaluate the impact of innovation input mechanism on smart service quality dimensions such as (Reliability, Responsiveness, Website Design, Security, Personalization, and Ease of Use).

The research findings of the study proved that there are positive relations between innovation input and six smart service quality dimensions. Also, the results present significant impact of the organizational innovation input in Abu Dhabi emirate public government organization and how it can contribute in enhance the smart service quality.

Key words: Innovation, Innovation mechanism, Innovation input, Smart Service Quality, UAE, Abu Dhabi Emirate, Public Sector.

Introduction

Electronic government services refer to a more democratic way for citizens to access and engage with the government through the use of smart devices such as mobile phones and tablets (Chung et al 2015).

Having such effective government services allows ease at transition and to develop the emerging economies (Gil-Garcia et al 2014). Administrations have put nationwide directives to modernize once-difficult actions to improve integration with citizens (Wang et al 2005).

As reported by (Alshamsi and Abdulbaqi 2017), "Smart Information and Communication Technologies (ICTs) is the enhanced impactful way that foster effective government service delivery to its citizens.

UAE government needs to ensure that its policies and systems are enabling citizens to participate and address their needs to improve the quality of smart services (Al-Khoury, 2013). For example, the Emirate Abu Dhabi has clear vision of the digital future for the emirate and its plans to become a leading center for technology and innovation in the Middle East by enhancing government services, shared government solutions, data and applied intelligence, cybersecurity, and governance. The Abu Dhabi government aim to enable, support and deliver a digital government that is proactive, personalized, collaborative and secure. (Abu Dhabi Digital Authority, 2021).

Objective

The concept of 'open innovation' was explored by (Chesbrough et al 2006), (Enkel et al 2009), and (Gassmann et al 2010). From a practical aspect, it enables organizations to attain competitive advantages and adapt themselves to the upcoming and on-going change in market including new opportunities. The Input mechanism of innovation was developed through knowledge flows to leveraging the use of information and communication technologies (ICTs). This relationship is very crucial to advance national innovative systems which allows institutions including that of government to encourage open innovation for better performance and economic and social growth.

It is for this reason that the research being carried out to understand the impact of open innovation input mechanisms on SSQ as it relates to the Government of Abu Dhabi, UAE. The overarching aim of this research is to identify impeding open innovation mechanisms that are enablers of superior quality of government smart services and examine the relationship between innovation and the quality of government smart services. The article objective is to evaluate the impact of the input innovation mechanisms on smart service quality.

Literature review

Henry Chesbrough invented the word "Open Innovation" (Chesbrough, 2003). Several studies have associate the Open Innovation (OI) with the process of receiving intended knowledge output or input. According to Chesbrough, OI accelerates the process to better advantages of innovative determinations (Chesbrough et al 2006).

OI practices have significant positive affect on innovation activities due to the complementarities and distinctiveness of capitals, resources and knowledge that are provided by organizations. However; some of the idiosyncratic feasts of Public/ Government Sector organization decision-making process which has posed a challenge in order to collaborate with external factor for innovations (Micheli et al 2012; Nutt, 2006).

In today's competitive global market, governments and businesses ought to concentrate on fulfilling the requirements of the user to get a knowledge about their needs, and not just the present requirements, but as well the projected desires (Slater and Narver, 1994). Service improvements can therefore essentially be considered as a value generating undertaking (Slater and Narver, 1995).

As stated by Dawson and Horenkamp, all characteristics of SI requires technological advancement that is adaptable and reconfigurable (Dawson and Horenkamp, 2007). Firms should also avail the benefits of SI by delivering better service quality by using methods and strategies. This could be accomplished through fostering of an open

innovation culture that focuses on producing new knowledge for their product/s and service/s (Chen et al 2009).

The recent literature found a direct and positive relationship between innovation and performance in different service sectors (Ordanini and Rubera, 2010). Moreover, innovation (including open innovation) is also useful for those organizations which capitalize on knowledge gained from their users.

Accordingly, the study of Public/Government Sectors innovation comes from the union of several factors core to the Public/Government Sectors and some to a broader context (Matthews et al 2009). (Bloch, 2011) and (Bugge et al 2010) on the other hand, identified that Public/Government Sectors innovation might be resulting from several political, individual and financial factors. In Abu Dhabi, the Public/Government Sectors are coming under growing pressure from numerous directions namely increasing request from residents, demographic changes, resource limitations and ecological challenges (Barber et al 2007; Blind, 2012; Thenint, 2010).

The Input-Process-Output Framework required to measure the innovativeness of an organization including government and its related organizations with regard to OI.

However, current researchers have examined different knowledge management enablers to reach and conclude with the most essential factors, the relationships of organization innovation input as enabler was studied in isolation to fill the gaps (Choi and Lee, 2003). The model assumes that inputs influence the performance of the service and enhancing the quality of smart services. (Choi and Lee, 2003).

Rubera and Kirka (2012) have defined different inputs and activities, which required achieving innovation and producing outputs after going through different tools and methods for process.

Measurement input KPIs within an open innovation which play an important role to measure the success of an organization innovation performance; Input innovation is a complex to be measured by few indicators. Metrics for open innovation to track the performance (Innovation Management, 2014). Also considering input stage of innovation inside the organization.

Many others KPI's can be generated to cover the innovation mechanism inside the organization based on input stage with respect to cover main measurement and it should include set of KPIs namely below: (Delphine M. et.al, 2011).

- Investment in open innovation (% of turnover)
- Number of open innovation dedicated staff
- Specific recruitments to implement open innovation approach
- Number of involved departments in open innovation projects
- Number of registered innovators in the collaborative platform
- Quality of Employees 'Involvement (number of ideas, contributions...)
- % of staff's objectives on the achievement of open innovation planned results
- Amount of open innovation rewards for employees

Service Quality (SQ) is referred to as "an assessment of how well a delivered service imitates to the expectations of the users" (Ramya et al 2019). It is an ability of a service

provider to satisfy its users/consumers in an efficient manner and better the performance of the business (Sok and O'Cass, 2015; Alhosani and Tariq, 2020).

However, the study of (Ekaabi et al 2020) has also incorporated SQ measurement to improve the service quality experiences of the public by investigating smart policing of SQ using the five elements of measuring service quality (i.e. Integrity, Transparency, Integrality, Responsivity and Serviceability) on citizen/customer satisfaction in the context of UAE. However, there is a lack of specific studies that show the relation of innovation and the quality of government smart services offered (Moussa et al 2018; Mustafa and Abdul Talib, (2012); Shamsi et al 2018).

Other studies showed that the most frequent e-Service Quality dimensions focuses on six dimensions. These are (i) Reliability (Ojasalo, 2010) (ii) Responsiveness (Demir et al 2016), (iii) Website design (Li and Suomi, 2009), (iv) Security (Li and Suomi, 2009), (v) Personalization (Kaur, 2018) and (vi) Ease of Use (Zeglat et al 2016). In this paper, we focused on those dimensions, which are defined as the following:

- **Reliability:** Reliability is necessary when it comes to services. It indicates the possibility of performance “a failure-free” which for the specific segment of time. Thus, reliability shows whether the performance and dependence is consistent, whether there is timely execution of services, whether a firm keep its words while serving. Correct reporting and book keeping, billing with accuracy and provide in-time services Garvin (1984; 1987).
- **Responsiveness:** It helps assisting whether an employee is willing to serve in-time for instance, immediate response, getting customer feedback, prompt services to provide, appointment setups on early basis (Lee and Lin, 2005).
- **Website design:** Importance of website design was highlighted. it involves the all essence of customer experiences- navigation, browsing a site, delivery of exact product customer processed for order (Ojasalo, J. 2010).
- **Security:** It refers to freedom and includes financial and confidentiality of the customer. It has great concerns over electronic service customers when using e-services. What is vital for customer satisfaction is knowing that the customer data is protected and secured (Li and Suomi, 2009).
- **Personalization:** It refers to the past purchases so as the customer feedback that helps improving the services and ensure privacy as their great concern. It involves individual attention, a personal note of appreciation from online stores and the query box for questions comments in general a feedback (Ribbink et al 2004).
- **Ease of Use:** It includes the functionality aspect access of information, ease at order placement and navigation (Ribbink et al 2004). It is related to eye-catching URL address well-organized, navigability with ease, catchy content, terms and condition (Raman et al 2008).

As the capital city of the UAE, Abu Dhabi continues to achieve its position as the most prominent emirate has established an e-Government Supervisory Committee to manage its digital transformation agenda.

Most Companies in Abu Dhabi aren't sparing any attempts to tap potential ways to increase sales and development, and the most recent trend is that businesses focusing on big data are revealing prospects to study customer favorites, fidelities and whichever part that will aid increase customer numbers (Asquer, 2014).

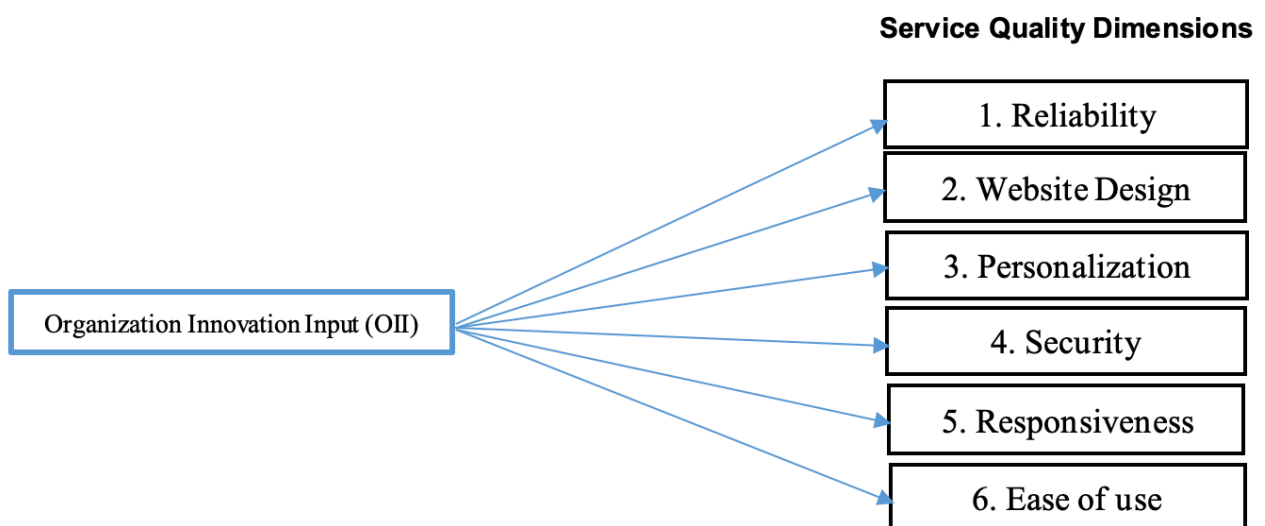
It has been found that the Public/Government Sector are coming under growing pressure due to increasing dynamic changes of global environment which require modernization and technological advancement in Abu Dhabi (Barber et al 2007; Blind, 2012; Thenint, 2010).

Several studies have also highlighted the importance of availing the opportunities that innovative and ICTs have brought in order to build innovation and innovative for the provision of better as a key driver for Public/Government Sector improvement (Blind, 2012; Barber et al 2007). Now it is a major concern of all government to improve their capabilities in order to encounter new global advancement. With the passage of time, public government sector improvement has been growing over the past twenty years (Thenint, 2010; Borins, 2016).

The Framework for answering the research question is derived from two basic fundamental approaches namely the as IPO model (Subiyakto and Ahlan 2014) and the six-dimensions model (Hertog's, 2010) for service innovation within the construct of open innovation. The impact of each element have to be evaluated separately in order to explore the relationships between the input innovation mechanisms which are the independent variables and the dependent variable in terms of the six dimension of Smart SQ.

The proposed Framework considers how to reach smart service quality performance via open innovation input and serves as the underpinning to formulate hypotheses on these relationships.

Figure 1: Conceptual framework



Consequently, the hypothesis supported the previous studies such as (Bon & Mustafa, 2013; Verma & Jayasimha, 2014; Avlonitis et al 2001), (Christensen et al 2011; Danjum and Rasli, 2012; Arshad and Su, 2015). (Walker et al. 2002; Sharabi, 2013) and (Alshamsi and Abdulbaqi, 2017). They have shown great concern over Smart SQ linking up Organization innovation-Input (OII), thus we can say that Open Innovation-Input have a direct correlation with Smart SQ performance.

On the basis of above discussion, sub-hypotheses have been developed that links Smart SQ dimension and Organization Innovation-Input.

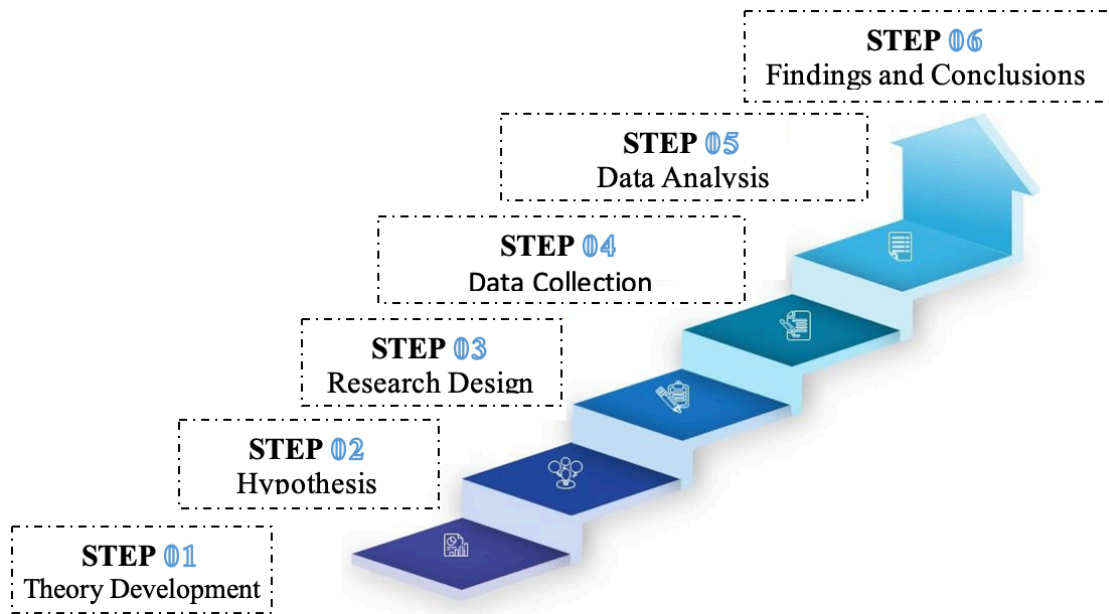
- H1: There is a positive relationship between the extent of innovation input and reliability of smart services.
- H2: There is a positive relationship between the extent of innovation input and responsiveness of smart services.
- H3: There is a positive relationship between the extent of innovation input and web design of smart services.
- H4: There is a positive relationship between the extent of innovation input and security of smart services.
- H5: There is a positive relationship between the extent of innovation input and personalization of smart services.
- H6: There is a positive relationship between the extent of innovation input and ease of use of smart services.

Research Question and Design

The research study will look to answer the following research question: “What is the relationship between the input mechanism of open innovation and their role in enriching Smart Services Quality in Government organizations in the Emirate of Abu Dhabi?”

To achieve the research objectives, the researcher has applied the quantitative method where six steps have been taken as shown in Figure 2. In Step 1: Theory Development. The researcher as part of the literature review identified specific gaps. Step 2 contains the hypotheses of development based on the literature review and the gaps identified. Step 3 entails the selection of research design aimed at determining the research method and instrument to be used when collecting the data. Step 4 is the data collection process. This is where the researcher interviewed sample members. Step 5 involved the analysis of the data. The researcher used several statistical techniques by using the IBM-SPSS statistical tools. Lastly, Step 6: Findings and conclusions where the researcher interpreted the findings of analysis and made concluding remarks necessary.

Figure 2: The quantitative research method



Source: Cooper and Schindler, (2007)

Research Design

The research design provides a frame of research method which ensures how the data will be collected.

This study has adopted a survey as its quantitative research method and its used to collected data from sample with some defined options regarding certain phenomena.

Study sample

A population of the study defines from a specified group with a particular set of characteristics. The target population comprises 53 Abu Dhabi government organizations, all of them have adopted and/or implemented innovation practices at different stages.

In this study a comprehensive survey of all 53 entities has been made where 46 out of 53 organizations has responded. A simple random sample of respondents were selected per organization with an average of 3 to 10 responses received. In this research, Probability-sampling technique has been utilized, where a simple random sample of respondents were selected from each of the targeted organizations. To estimate the proportion of a total population of the employees who have been working in the Innovation and Development units, it was decided to conduct a survey with a sample size of respondents determine by 380 based on 95% confidence level, which corresponded to z score of 1.96 and with 5% margin of error based on the following equation:

$$n = z^2 * \left(\frac{p^2}{e^2} \right)$$

Where:

Z score = 1.96

Population proportion (p) = 31%

Margin of error (e) = 5%

From the 380 employees who are working in the targeted government entities of Abu Dhabi, a total of 329 respondents have been obtained resulting in a response rate of 86%.

Research Instrument Development

Research instrument is usually used by the researcher to collect information which includes interviews, test, surveys or checklists (Clark & Creswell, 2014). The research tool is the means or the device that the researcher utilizes for data gathering to pave way for the resolve of the study questions. The core research tools that have been used in this study are survey questionnaire, based on web application while targeting the employees in selected Abu Dhabi government organizations.

The survey questionnaire is based on the closed-ended question with seven-point Likert scale. The survey questionnaire was split into four groups i.e. the:

- First part asked questions concerning general information;
- Second part covered organization input innovation mechanism practices.
- The last part covering the e-service quality dimensions which are reliability, responsiveness, web design, security, personalization and ease of use.

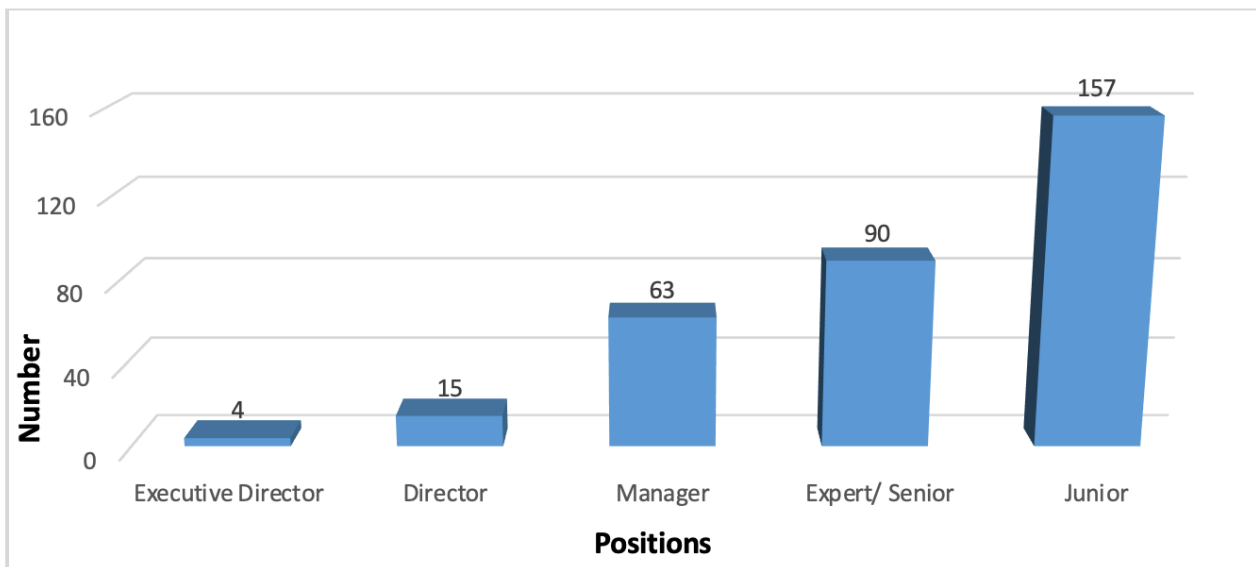
Findings

This section includes the discussion of quantitative data analysis in order to investigate the relation between the dependent and independent variables of the research study. Data analysis conducted using the IBM – SPSS 20 software as a statistical analyzing tool was employed to examine the relations between the variables, i.e. reliability and validity analysis, factors analysis, correlation analysis, variation inflation factor (VIF) check, linear regression analysis and hypotheses testing.

Characteristics of Participants

A breakdown of respondents' positions presented in Figure 3. Respondents were a total of 157 who are working in junior positions whereas 90 respondents are at an expert or senior level. On the other hand, 63 respondents are working in middle management positions whereas 19 respondents are working at a top managerial position either as director (15) or executive director (4).

Figure 3: Number of Respondents by Position



Reliability test is widely used for determining the internal consistency of constructs. Cronbach's alpha coefficient is considered to express the reliability by determining an item's total correlations (Tavakol and Dennick, 2011). For innovation constructs, the Cronbach's Alpha for Organization Innovation Input (OII) is 0.885, Reliability test showed that Cronbach's alpha values for SSQ dimensions Website design, Personalization and Ease of Use constructs were 0.881, 0.832 and 0.820 respectively, which is considered as good internal consistency. The dimensions of Reliability, Responsiveness and Security construct show alphas of 0.636, 0.783 and 0.607, which is considered as a moderate and acceptable internal consistency.

Validity Analysis

The validity test was conducted using the Factor Analysis technique, which reduces a large number of variables into fewer numbers of factors. The Kaiser-Meyer-Olkin (KMO) is used to measure the adequacy of sampling in order to measure how suited the data is for Factor Analysis. The KMO can take values between 0 to 1; however as a rule of thumb KMO values should be higher than 0.8 which indicates the sampling is sufficient (Sekaran and Bougie, 2016; Kaiser et al 2018). According to Tabachnick and Fidell (2007), the value of KMO greater than 0.6 is also statistically significant and suitable for Factor Analysis. The KMO scales for innovation were 0.849 for OII, The KMO value for the SSQ dimension were 0.635 for Reliability, 0.662 for Responsiveness, 0.721 for Website Design, 0.503 for Security, 0.723 for Personalization and 0.715 for Ease of Use. This indicates that the KMO values of scales are good and the sample is adequate to conduct Factor Analysis.

The result confirmed that the factor of innovation input namely OII exceeded 1 for Eigenvalues with values 4.848.

Hypotheses Testing

Correlation analysis is used to test the linear associations between the variables (Sekaran et al 2003). Correlation analysis also indicates the direction of the relationship

between two variables that used in the research. Correlation between the innovation variables OII and the SSQ variables namely Reliability, Responsiveness and Ease of Use are significant at the 0.01 level. It has been found that most of the variables prove a high and moderate correlation, however; the Website's Design and Security coefficients are showing a weak correlation with other variables.

Table 1: Correlations analysis

Dimension	Organization Innovation	Reliability	Responsiveness	Website Design	Security	Personalization	Ease of Use
Organization Innovation	1						
Reliability	0.516*	1					
Responsiveness	0.528*	0.569*	1				
Website	0.230*	0.487*	0.220*	1			
Security	0.174*	0.212*	0.332*	0.069	1		
Personalization	0.459*	0.481*	0.684*	0.240*	0.341*	1	
Ease of Use	0.531*	0.517*	0.678*	0.276*	0.300*	0.712*	1

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

Variation Inflation Factor (VIF)

Variation Inflation Factor (VIF) test aimed to check any potential problems for the independent variables (Colin and Paul, 2012). The result of VIFs of the independent variables confirmed that they were less than 4.3 which is less than the recommended threshold of 10 (Wiengarten et al 2011). The VIF value for OII was 2.593, which confirm that the assumption of absence of multi-collinearity was fulfilled, and the primary assumptions of the regression analysis were valid.

Linear Regression

Definite principles for gaining robust and authentic findings are accepted within the literature on data analysis methods (Freund et al 2006; Allen, 2004). This study has adopted linear regression analysis to examine the linear relationship between the independent and dependent variables at one point in time to test the hypotheses. It is a reliable technique of identifying such independent variables that have an impact on the dependent variable. It is rule of thumb, that t-value greater than or equal to 2 for regression coefficients can confirm a hypothesis. In this paper, multiple regression

analyses have been performed to investigate the relationship between input innovation and SSQ as shown in table 2.

Table 2: Linear Regression Analysis Results for OII and SSQ dimensions.

Independent Variables : Organization Innovation Input (OII)			
Dependent Variable	Beta	t-value	R Square
Reliability	0.516	10.892	0.266
Responsiveness	0.528	11.241	0.279
Website Design	0.230	4.283	0.053
Security	0.174	3.199	0.030
Personalization	0.459	9.350	0.211
Ease of Use	0.531	11.345	0.282

The result of Linear Regression analysis supports the 6 hypotheses designed for the research and prove the positive relation between the organization innovation input and SSQ dimensions. However, OII and SSQ dimensions of website design and security shows low r square values which aligned with correlations result which weakly supported.

Research Implications

In this section, the research will discuss the research implications as it relates to practical and policy-makers and to encourage future research in the field of innovation.

Practical implications

The research study offers a way to advance a culture of Open Innovation as it relates to Smart Services offered by Government Entities residing in Abu Dhabi. It further proposes that the six SSQ dimensions (Reliability, Responsiveness, Website Design, Security, Personalization and Ease of Use) are key indicators when measuring the performance of Open Innovation in Government Entities.

Given the increase in digitalization and to meet the organizational goals. Government Entities can easily develop and manage their innovation by adopting the Open Innovation Framework and measure their impact on society A shift to be strongly considered by the UAE Government and its Entities is the integration of the outcomes of the Excellence Programs and that of an Open Innovation Framework that is unified across all of Government and its Entities. This allows for a unified set of key performance indicators to be applied when measuring or tracking the quality of a Smart Service offered prior to conducting customer satisfaction surveys or opinion polls. This shift will require a dedicated team responsible for promoting and implementing Open Innovation within an organization.

Policy Makers implications

The UAE has already made massive inroads in this regard through its various strategies and leveraging ICTs. The results can be seen in Abu Dhabi where investments in technology has stimulated a new business culture supported by open innovation. For Abu Dhabi, a Smart Government is considered as most essential in the development and implementation of the national economic and social agenda. Data resulted or acquired as part of Open Innovation must be utilised as a basis for policy-makers when developing effective and efficient plans to improve the performance of Smart services with a focus on quality and open innovation (Chesbrough, 2017).

Policy-makers including the leadership of many organisations can benefit from this research study as it provides direction on Open Innovation and how to apply and nurture it by involving key multi-stakeholders when enhancing the quality of a Smart service and in support of the numerous Excellence Award programs namely ADAEP, DGEP and GEM. The Abu Dhabi Government established the Abu Dhabi excellence award to initiate and encourage excellent performance and promote constructive competition between its Government Entities in order to achieve its vision.

Conclusion

The results presented in the paper confirmed that being innovative is key in a competitive world. There are many benefits of innovation in this contemporary world. It not only brings in success, but also helps to improve service quality, techniques, and helps to mediate at the governance level.

The research study aimed understand in greater detail the relationship between organization innovation input with the smart service quality dimension such as reliability, responsiveness, website design, security, personalization and ease of use within the construct of organization Innovation by applying quantitative method for data collection and analysis.

The results show that the independent variable of organization innovation input and of the six dependents variable of SSQ, Reliability was valid and stable. The research hypothesis result is also supported by the earlier studies conducted i.e. that of (Bon and Mustafa, 2013; Verma and Jayasimha, 2014; Avlonitis et al. 2001), (Christensen, et al. 2011; Danjum and Rasli, 2012; Arshad and Su, 2015). (Walker et al. 2002; Sharabi, 2013) and (Alshamsi and Abdulbaqi, 2017) confirm that there are positive relations between OII and the six SSQ dimensions studied and thus the studies confirm the findings of the six hypotheses (H1- H6) of the research.

The research proved the positive relation between innovation input and SSQ in the Abu Dhabi based government organizations. This research conducted from an organization's point of view assessed open innovation and its relation with SSQs.

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