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Developing A Multi-Linear Regression Model of Knowledge Management Factors Influencing Collaborative Projects in the Aviation Industry

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Abstract: Effective knowledge management is emphasized as crucial in drafting strategic plans and initiating collaborative projects in the UAE aviation industry. The low awareness of knowledge management in the industry underscores the need to integrate it into collaborative projects for improved management operations and long-term growth in the global aviation market amid fierce competition and evolving technology trends. Hence, this study was carried out to formulate a multi linear regression model of knowledge management factors affecting the collaborative project for UAE aviation industry. A questionnaire survey was conducted among the respondents who associated with the aviation industry in UAE. A total of 373 sets of data was used to formulate the equation using SPSS software. It was found that the generated model has a strong correlation coefficient of 0.898 between the predictors and dependent variable. Also, strong coefficient of determination of 0,806 which indicates how well the selected independent variables collectively account for the variation in the dependent variables/predicators. This equation model can be applied to collaborative project in UAE aviation industry. This research contributes to the body of knowledge and to the aviation society.

Keywords: UAE aviation industry, multi linear regression model, knowledge management, collaborative projects

1. Introduction

Collaborations involve teamwork, joining forces with other knowledgeable individuals in a certain situation, or overcoming other challenging issues. Collaboration expands the pool of qualified workers from a single business to a global network. Such a global partnership opens up a lot more alternatives and fosters continued ingenuity when tackling complex problems or even other difficult tasks. This could help the business come up with fresh operational strategies. Innovation is essential for enhancing the organisational strategy (Chen and Yang, 2019).

In the aviation industry, knowledge management is important for joint projects. Because of the high number of partners involved in the creation of premium technologies, aeronautical is a difficult business to work in. Moreover, has its own safety measures, which are supervised by the relevant regulatory bodies (Idries et al., 2015). As a result, substantial aeronautical knowledge covering a wide variety of manufacturing developmental projects is required. Similar understanding is required for a variety of products, including airplane components and accompanying technologies. As a result, there is a critical requirement to acquire the necessary information and spread it among the partner businesses.

Al Badi (2018) Workers involved in the aviation business in the UAE corporations are a good example of how a lack of confidence in organizations leads to a lack of knowledge management. Employers are generally hesitant to

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disclose what they understand with one another, thinking that doing so may jeopardize their future interests. Owing to the unavailability of employment stability and permanent residency among expatriates' communities, individuals might lose trust in and commitment to their employer. Furthermore, companies are not trained on the importance of sharing knowledge for the enterprise and its personnel, nor are they convinced because knowledge transfer will not jeopardize their job protection, but rather will be an advantage (Behery, Papanastassiou & Ajmal, 2014).

The current practice of collaborative projects in the UAE aviation industry is limited to collaborative operations, which ease the management of current operation capacity. The UAE aviation industry lacks collaborative development projects that are required for the industry's global expansion as well as long-term growth. The collaborative operation projects, such as the agreement signed between the UAW aviation affaire and the International Civil Aviation Organization (ICAO), aim to enhance the aviation cybersecurity strategy. In addition, the UAE aviation industry signed a collaboration agreement with Pilatus, which aims to manage the supply of carbon fiber to the UAE aviation industry. These collaborative projects focus more on meeting the current operational requirements and have less concern for long-term sustainability (Abbas and Kumari, 2021). The continuation of involving collaborative projects, which has less concern on the development side, will affect the industry's long-term growth. According to Al Hashmi et al., (2020), the aviation industry should pay more attention to collaborative projects that provide a competitive advantage to the industry.

Therefore, according to Bose (2018), knowledge management plays a crucial role in drafting better strategic plans and initiating collaborative projects. Better management knowledge provides a better understanding of either the internal or external environment factors that influence the establishment of a collaborative project. These factors influence the types of collaborative projects required, the optimal benefits' recognition for collaborative projects, and the structure of collaborative projects. Hence, practicing effective knowledge management is needed to lead the establishment of collaborative projects within the UAE aviation industry. This argument is supported by the UAE aviation industry's low awareness of the importance of knowledge management (Al Hashmi et al., 2020). Thus, UAE aviation industry should integrate knowledge management in collaborative projects to improve the current management operations which aimed to manage the long-term growth of the industry. This will ensure a better position within the global aviation market. Furthermore, the current trend is toward collaborative technology projects, which run parallel to the fierce global competition in the aviation industry.

2. Knowledge Management in UAE Aviation Collaborative Projects

UAE aviation collaborative projects refer to the various initiatives and endeavours undertaken in the United Arab Emirates (UAE) aviation sector with the aim of fostering cooperation, innovation, and development (Al Marzouqi *et al.,* 2019). These projects involve collaborations between government entities, aviation companies, research institutions, and other stakeholders to drive advancements and promote excellence in the aviation industry.

In the UAE, several collaborative projects have been established to address various aspects of aviation, including infrastructure development, aviation research, technology innovation, sustainable practices, and talent development (Alameeri *et al*., 2017). These projects leverage the expertise and resources of multiple organizations to achieve common goals and contribute to the growth and success of the aviation sector in the UAE.

In the context of knowledge management, UAE aviation collaborative projects involves activities and efforts made by many stakeholders in the UAE aviation sector to efficiently manage and exploit knowledge for ongoing innovation, growth, and improvement (Ala Afridi, 2021). Through the exchange of knowledge, best practises, and lessons learnt, these programmes hope to improve operational effectiveness and decision-making among industry participants. Parties involved are government entities, aviation companies, research institutions, and industry experts.

2.1 Behaviour of Practice (BP)

In the context of knowledge management and collaborative projects, the Behaviour of Practice refers to the actions, behaviours, and activities that individuals and teams engage in to effectively manage and leverage knowledge within the collaborative project environment (Merriam, 2018). It emphasizes how people interact, share, and apply knowledge to achieve project goals and outcomes. While the Behaviour of Practise provides many advantages for knowledge management and collaborative initiatives, it also has drawbacks that call for critical analysis (Wu, Chuang & Hsu, 2014). One of the key advantages of the Behaviour of Practice is its focus on active knowledge creation and application (Kazadi, Lievans & Mahr, 2016). It emphasizes the behaviours and actions of individuals and teams in generating new knowledge, problem-solving, and driving innovation. This proactive approach can lead to valuable insights and expertise that contribute to the success of collaborative projects. Furthermore, the Behaviour of Practice promotes a culture of continuous learning and development (Othman & ElKady, 2023). It recognizes the importance of individuals and teams engaging in professional development activities, participating in training programs, and learning from their experiences and the experiences of others. This focus on learning enhances skills and competencies, fosters personal growth, and ensures the organization remains adaptable and resilient. Additionally, the Behaviour of Practice highlights the importance of collaboration and teamwork in knowledge management and collaborative projects (Bhatti *et al.,* 2021). It encourages individuals and teams to work together, share knowledge, and leverage diverse perspectives. This collaborative approach enhances problem-solving capabilities, promotes creativity, and allows for a more comprehensive understanding of project challenges and opportunities.

However, the Behaviour of Practice also has limitations that need critical consideration. One challenge is the potential for resistance to change and ingrained behaviours within the organization (Choi, 2011; Jiang *et al.*,2019). Encouraging new behaviours and fostering a culture of active knowledge creation may require significant organizational change and a shift in mindset (Chang & Lin, 2015). Overcoming resistance and ingrained habits can be a complex and time-consuming process. Another limitation is the reliance on individual behaviours and actions, which may overlook systemic or organizational factors that influence knowledge management (Ragab & Arisha, 2013). While individual behaviours are important, knowledge management is also influenced by organizational structures, processes, and incentives. Focusing solely on individual behaviour may not fully address the systemic challenges that hinder effective knowledge management and collaboration (Dalkir, 2017). Moreover, the Behaviour of Practice may face challenges in measuring and evaluating the impact of behaviour change on project outcomes (ala Afridi, 2021). While it is important to encourage desired behaviours, quantifying their direct impact on project success can be challenging. Determining the causal relationship between specific behaviours and project outcomes requires robust measurement frameworks and data analysis.

In conclusion, while the Behaviour of Practice offers advantages such as active knowledge creation, continuous learning, and collaboration, it is crucial to critically evaluate and address its limitations. Organizations should consider the broader organizational context, address resistance to change, and develop appropriate measurement and evaluation mechanisms. By taking a holistic approach that considers both individual behaviours and organizational factors, the Behaviour of Practice can contribute to more successful knowledge management and collaborative projects.

2.2 Community Node of Practice (CNP)

Community Node of Practice in the context of knowledge management and collaborative projects brings several advantages, but it also has limitations that require critical evaluation (Rehman *et al.*, 2021). One of the key benefits of the Community Node of Practice is its focus on creating a community of individuals who share common interests, expertise, and goals. This community fosters knowledge sharing, collaboration, and learning among its members. By providing a platform for like-minded individuals to connect and exchange knowledge, the Community Node of Practice can enhance the collective intelligence of the organization and promote innovation (Rocha *et al.*, 2022). Additionally, the Community Node of Practice encourages the development of social networks and relationships among participants. This social aspect facilitates informal knowledge sharing, trust-building, and the exchange of tacit knowledge (Manik *et al.*, 2022). By tapping into the experiences and perspectives of community members, organizations can gain valuable insights that may not be readily available through formal channels. Furthermore, the Community Node of Practice can serve as a support system for individuals working on collaborative projects (Manik *et al*., 2022). It provides a space for members to seek advice, share challenges, and learn from one another's experiences. This collaborative support can contribute to problem-solving, skill development, and overall project success.

However, the Community Node of Practice also has limitations that require critical consideration. One challenge is ensuring active participation and engagement from community members (O'Dell & Hubert, 2011). While the creation of a community is essential, sustaining member involvement and motivation over time can be difficult. Without active participation, the knowledge sharing, and collaborative aspects of the community may diminish, limiting its effectiveness. Another limitation is the potential for insularity within the community (O'Dell & Hubert, 2011; Hawryszkiewycz, 2017). While the Community Node of Practice promotes knowledge sharing among its members, there is a risk of creating a closed group that excludes diverse perspectives and external input. This can result in a narrow scope of knowledge and limited exposure to different ideas and approaches. Organizations need to ensure that the community remains open to external knowledge and actively seeks diverse perspectives to avoid this potential limitation (Agrawal & Joshi, 2011; Aljuwaiber, 2016). Moreover, the Community Node of Practice may face challenges in scaling up and integrating with the broader organization. As the community grows, there is a need to effectively manage and disseminate the knowledge generated within the community to the larger organization (Hislop, Bosnua & Helms, 2018). Ensuring that the knowledge and insights generated by the community reach a wider audience and contribute to organizational learning can be a complex task.

In conclusion, while the Community Node of Practice offers advantages such as knowledge sharing, collaboration, and social support, it is important to critically evaluate and address its limitations. Organizations should focus on sustaining active participation, promoting diversity of perspectives, and integrating the community's knowledge with the broader organization. By carefully considering and managing these limitations, the Community Node of Practice can be a valuable tool in knowledge management and collaborative projects.

2.3 Node of Internal Practice (NIP)

One of the key advantages of the Node of Internal Practice is its emphasis on knowledge creation (Muhammed & Zaim, 2020). By encouraging research, experimentation, problem-solving, and innovation within the organization, it fosters a culture of continuous learning and knowledge generation. This can lead to valuable insights and expertise that contribute to the success of collaborative projects. Furthermore, the Node of Internal Practice promotes knowledge sharing within the organization (O'Dell & Hubert, 2011; Hawryszkiewycz, 2017). By creating channels and platforms for individuals and teams to exchange information, best practices, and lessons learned, it facilitates the dissemination of knowledge and promotes collaboration. This open communication encourages a culture of sharing, enabling the organization to leverage its collective intelligence and improve project outcomes. Additionally, the Node of Internal Practice recognizes the importance of collaboration and teamwork ((O'Dell & Hubert, 2011; Hawryszkiewycz, 2017). By fostering a collaborative culture, it encourages individuals and teams to work together, share knowledge, and combine their expertise to achieve project goals. This collaborative approach enhances problem-solving capabilities and promotes a sense of shared ownership and accountability.

However, the Node of Internal Practice also has limitations that need to be critically assessed. One challenge is ensuring the effective utilization of knowledge generated and shared within the organization (Dalkir, 2013; Widén-Wulff, 2014; Dalkir, 2017). While the emphasis on knowledge creation and sharing is valuable, it is equally important to ensure that this knowledge is actively applied in practical contexts (Manik *et al.*, 2022). Without proper mechanisms for knowledge utilization, the generated knowledge may remain theoretical and fail to have a significant impact on project outcomes. Another limitation is the potential for knowledge silos within the organization (Asrar-ul-Haq & Anwar, 2016; Manik *et al*., 2022). While the Node of Internal Practice promotes knowledge sharing, there is a risk that knowledge may be confined to specific teams or individuals, leading to fragmentation and inefficiencies. Organizations need to implement strategies to overcome these silos and promote cross-functional collaboration and knowledge exchange. Moreover, the Node of Internal Practice may face challenges in capturing and documenting knowledge effectively (Asrar-ul-Haq & Anwar, 2016; Manik *et al*., 2022). Without proper documentation processes and knowledge management systems, valuable insights, best practices, and lessons learned may be lost or difficult to access. This can hinder the organization's ability to leverage its internal knowledge effectively and impede future learning and improvement.

In conclusion, while the Node of Internal Practice offers significant benefits such as knowledge creation, sharing, collaboration, and teamwork, it is crucial to address the limitations it faces. Organizations should focus on knowledge utilization, overcoming knowledge silos, and implementing effective knowledge capture and documentation processes. By critically evaluating and addressing these limitations, the Node of Internal Practice can contribute to more successful knowledge management and collaborative projects within organizations.

2.4 Stakeholders' Knowledge (SK)

A Stakeholders' knowledge plays a crucial role in knowledge management and collaborative projects (Shahzad *et al*, 2020). Stakeholders are individuals or groups with a vested interest in the project's outcomes, such as employees, customers, suppliers, and community members (Wu & Hu, 2018; Matricano *et al.*, 2019). Their knowledge encompasses their expertise, experiences, and perspectives, which contribute to the overall knowledge pool of an organization. In the context of knowledge management, stakeholders' knowledge is valuable in several ways. Firstly, stakeholders bring diverse insights and expertise to the table (Shahzad, *et al*., 2020; Wu & Hu, 2018). By actively involving stakeholders in knowledge sharing activities, organizations can tap into their unique perspectives, ideas, and innovative solutions. This collaborative approach fosters a dynamic learning environment and facilitates the exchange of knowledge among stakeholders. Secondly, stakeholders' knowledge helps organizations make informed decisions (Van Eerd & Saunders, 2017; Gerlak *et al*, 2023). By understanding the needs, preferences, and concerns of various stakeholders, organizations can incorporate their input into the decision-making process. This ensures that decisions align with stakeholder expectations and maximizes the likelihood of project success. Moreover, stakeholders' knowledge contributes to the identification and mitigation of risks (Shahzad *et al.*, 2020; Gerlak *et al.,* 2023). Stakeholders often possess contextual knowledge that can help identify potential obstacles or challenges in a project. By leveraging their insights, organizations can proactively address risks and implement mitigation strategies, leading to more efficient project execution.

In collaborative projects, stakeholders' knowledge is critical for effective teamwork and coordination (Van Eerd & Saunders, 2017; Shahzad *et al.,* 2020; Gerlak *et al.,* 2023). Each stakeholder brings their own expertise and perspectives, which, when combined, create a comprehensive understanding of the project's objectives and requirements. This collaborative knowledge sharing facilitates effective communication, synergy, and enhances the overall project outcomes. To leverage stakeholders' knowledge effectively, organizations must establish knowledge management processes (Miković, 2020; Gerlak *et al.,* 2023). This involves creating platforms for knowledge sharing, such as workshops, meetings, or online collaboration tools. It also includes documenting and organizing stakeholders' knowledge to ensure accessibility and continuity throughout the project lifecycle.

In summary, stakeholders' knowledge is a valuable resource in knowledge management and collaborative projects. By actively engaging stakeholders, organizations can benefit from their diverse expertise, insights, and perspectives. Incorporating stakeholders' knowledge in decision-making, risk management, and collaboration processes enhances project outcomes, fosters innovation, and strengthens stakeholder relationships. Ultimately, stakeholders' knowledge is a key driver of success in knowledge-intensive endeavours.

3. Knowledge Management and Collaborative Projects Factors

This study composites four independent variables that are categorized under the knowledge management dimensions of stakeholders' knowledge, nodes of internal practice, behaviour of practice, and community nodes of practice; and the collaborative project is the dependent variable. The assignment of the dependent variable collaborative project is based on the problem statement, as there was a lack of establishing collaborative projects within the UAE aviation industry to investigate which factors lead to supporting the development or establishment of collaborative projects within the UAE aviation industry. The relationships between these 4 groups of knowledge factors with the collaborative project in aviation industry are as in Table 1

Table 1 - Constructs, codes and number of factors

Independent (IV) / Dependent (DV) Variables	Constructs	Code	Number of KN factors
IV 1	Node of Internal Practice	NIP	5
IV 2	Stakeholders' Knowledge	SK	5
IV 3	Behaviour of Practices	BP	7
IV 4	Community Node of Practice	CNP	6
DV	Collaborative Project	CP	7

List of questions related to each factor in the constructs are as in Table 2

Table 2 - List of factors code and description of each factors

Code	Nodes of Internal Practice (NIP)
NIP1	I view establishing collaborative project as an opportunity, and not as a risk
NIP2	I am ready to do things differently if given the chance to do so
NIP3	Innovation in our organisation is likely to succeedmore if employees can be unique and express this uniqueness in their daily activities
NIP4	This organisation uses my creativity to its benefit (in the right way)
NIP5	My organisation supports mentorship and post-training of the employees
Code	**Stakeholder's Knowledge (SK)**
SK1	The stakeholders are aware of the importance of knowledge sharing toward establishing collaborative project
SK 2	Stakeholders think that encouraging knowledge sharing with colleagues is beneficial toward establishing collaborative project
SK 3	Stakeholders provide most of the necessary help andresources to enable employees to utilize their knowledge effectively toward establishing collaborative project
SK 4	Stakeholders always support and encourage employees to use their knowledge with colleagues toward establishing collaborative project
SK 5	Stakeholders are able to effectively cascade the innovation message throughout the organization toward establishing collaborative project
Code	**Behaviours of Practice (BP)**
BP1	As an employee, I am permitted to generate ideas for the organization toward establishing collaborative project
BP2	Employees are encouraged to challenge actions anddecisions in this organization if they think there is a better way toward establishing collaborative project
BP3	Communications are open and honest among employees in the organization
BP4	Innovation is a basic culture and not just a word in this organization
BP5	This organization encourages continuous learning
BP6	Our organization provides IT support for communication among the employees
BP7	Our organization provide the employees with thenecessary IT support for searching and accessing information
Code	**Community Nodes of Practice (CNP)**
CNP1	Employees in this organization have a strong sense of belonging to the community

CNP2	Employees identified each other as one community in this organization
CNP3	Employees use a common language in this organization
CNP4	Employees interacted frequently with others in this organization
CNP5	Employees are acquaintances of each other in this organization
CNP6	Employees are expected to have a team spirit among each other in this organization
Code	**Collaborative Project in The Aviation Industry CP**
CP1	Our organization have an innovation vision that is aligned with projects, platforms, or initiatives
CP2	Our top management can effectively cascade the innovation message throughout the organization
CP3	There is a clear set of innovation goals and objectives that have been articulated by the top management of this organization
CP4	There is an expectation of developing new skills, capabilities and knowledge that is directed toward supporting innovation in this organization by the top management
CP5	Innovation represents a core value in this organization
CP6	This organization have an effective environment for collaboration within and between its departments
CP7	Our organization provides IT support for collaborative works

Table 2 shows the 30 variables related to knowledge management and collaborative project factors also the questions that were used in the questionnaire survey amongst the people that have engaged with the UAE aviation industry.

4. Results and Analysis

The collected data was analysed using SPSS software for descriptive analysis and multi linear regression output.

4.1 Respondent Demography

A total of 500 of questionnaire sets were distributed randomly to respondents that involved in UAE aviation industry. However, only 373 of a completed questionnaire sets were returned, and this gives a respondent's rate of 79.4% of the questionnaire survey which is an acceptable and good response rate (Story & Tait, 2019). The demography of the respondent is as in table 3.

Table 3 - Respondent background

Age	**Frequency**	**Percent**
22-30 years old	19	5.2
31-40 years old	126	33.9
41-50 years old	167	44.8
Above 50 years old	61	16.1
Total	**373**	100.0
Educational Level	**Frequency**	**Percent**
PhD	29	7.8
Master	58	15.5
Bachelor	160	42.9
Diploma	106	28.4
Secondary/Primary	20	5.4
Total	373	100.0
Airlines	**Frequency**	**Percent**
Air Arabia	48	12.9%
Emirates	105	28.2%
Etihad Airways	96	25.7%
Fly Dubai	70	18.8%
Wizz Air	53	14.3%

Sector	Frequency	Percent
Public	207	55.6
Private	166	44.4
Total	373	100.0

Table 3 shows that there were four age ranges participating in the study, which are 22-30 years old, 31-40 years old, 41-50 years old, and above 51 years old. There were 19 participants representing 5.2% from the range of 22-30 years old. Also, there were 126 participants representing 33.9% from the range of 31-40 years old. Also, there were 167 participants representing 44.8% from the range of 41-50 years old. Finally, there were 61 participants representing 16.1% from the range of above 51 years old. These results ensure that most of the participants were youth and selected between the age of 31 and 50 years old.

For participants' educational qualifications, the most (42.9%) have a Bachelor's degree, 28.4% have a Diploma, and 15.5 % have a Master's degree. Merely 5.4 % said they had a Secondary/Primary school certificate, compared to 7.8% who said they had a PhD. For the respondents' company, most of the respondents from Emirates airline company 28.2% (n=105), followed by Etihad airways 25.7% (n=96), from Fly Dubai 18.8% (n=70), from Wizz Air 14.3% (n=53), and from Air Arabia 12.9% (n=48). As More percentage of the participants (55.6%) working for a private company, whereas roughly 44.4 % work for the government.

4.2 Data Characterisation

Data characterization or data profiling, refers to the process of examining and understanding the fundamental characteristics and properties of a dataset (Abedjan et al., 2022). The main objective of data characterizing is to gain insights into the nature of the data, identify its structure, patterns, and statistical properties, and assess the quality and completeness of the dataset.

4.2.1 Reliability Test

A reliability test is a statistical approach for evaluating the consistency, stability, and dependability of a measurement instrument, such as a questionnaire or test (Taherdoost, 2016). A reliability test's primary purpose is to establish how well a measurement equipment delivers consistent and trustworthy data when used repeatedly on the same people or on different occasions. Result of the reliability test for this study is as in table 4.

Table 4 - Reliability statistics

Cronbach's Alpha	N of Items
.967	30

Table 4 presents the reliability statistics for a set of items on Cronbach's Alpha value as a measure of internal consistency. This table shows two main pieces of information. The Cronbach's Alpha value ranges from 0 to 1, where higher values indicate better internal consistency. In this case, the calculated Cronbach's Alpha is .967, which is a very high value close to 1. This suggests that the items in the scale are highly correlated with each other, indicating a high level of internal consistency. Researchers often aim for a Cronbach's Alpha value of at least .7 or higher as an indicator of good internal consistency, and in this case, the value exceeds this threshold, indicating robust reliability for the scale.

4.2.2 Descriptive Analysis

Descriptive analysis is a type of statistical analysis that focuses on summarising and presenting data in a relevant and comprehensible way (Kemp et al., 2018). Its major goal is to characterise the key characteristics of a dataset, such as its central tendency, variability, and distribution, without drawing any judgements or generalisations about a wider population. Descriptive analysis is often one of the first steps in data analysis and research since it gives researchers and analysts with a clear knowledge of the data's properties and patterns. The result of descriptive analysis is as table 5.

Table 5 - Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
NIP1	373	3	5	4.91	.299	-3.094	.122	8.752	.244
NIP2	373	3	5	4.86	.355	-2.242	.122	3.640	.244
NIP3	373	3	5	4.83	.386	-2.065	.122	3.092	.244
NIP4	373	3	5	4.82	.415	-2.204	.122	4.157	.244
NIP5	373	3	5	4.82	.419	-2.146	.122	3.867	.244
SK1	373	3	5	4.87	.369	-2.755	.122	7.241	.244
SK2	373	3	5	4.84	.390	-2.206	.122	3.973	.244
SK3	373	3	5	4.85	.390	-2.608	.122	6.386	.244
SK4	373	3	5	4.80	.428	-2.011	.122	3.217	.244
SK5	373	3	5	4.81	.440	-2.285	.122	4.629	.244
BP1	373	3	5	4.88	.341	-2.715	.122	6.667	.244
BP2	373	3	5	4.84	.388	-2.237	.122	4.136	.244
BP3	373	3	5	4.83	.398	-2.086	.122	3.379	.244
BP4	373	3	5	4.81	.408	-1.779	.122	1.833	.244
BP5	373	3	5	4.81	.406	-1.803	.122	1.930	.244
BP6	373	3	5	4.87	.349	-2.584	.122	5.867	.244
BP7	373	3	5	4.83	.388	-2.037	.122	2.957	.244
CNP1	373	3	5	4.83	.388	-2.037	.122	2.957	.244
CNP2	373	3	5	4.81	.402	-1.852	.122	2.133	.244
CNP3	373	3	5	4.84	.377	-2.186	.122	3.681	.244
CNP4	373	3	5	4.82	.405	-2.003	.122	2.983	.244
CNP5	373	3	5	4.88	.344	-2.670	.122	6.388	.244
CNP6	373	3	5	4.86	.365	-2.353	.122	4.553	.244
CP1	373	3	5	4.83	.392	-1.981	.122	2.702	.244
CP2	373	3	5	4.82	.394	-1.954	.122	2.580	.244
CP3	373	3	5	4.82	.398	-1.902	.122	2.349	.244
CP4	373	3	5	4.89	.337	-3.070	.122	9.257	.244
CP5	373	3	5	4.84	.396	-2.304	.122	4.609	.244
CP6	373	3	5	4.84	.396	-2.304	.122	4.609	.244
CP7	373	3	5	4.80	.416	-1.849	.122	2.299	.244
Valid N (listwise)	373								

This table 5 presents the descriptive statistics for a dataset with 373 observations on various variables. There 30 variables where each variable, is provided with the descriptive statistics of Minimum; Maximum; Mean; Std. Deviation; Skewness; and Kurtosis. A common rule of thumb for skewness interpretation is that if skewness < -1 or skewness > 1 (Orcan, 2020): The distribution is highly skewed. If -1 ≤ skewness ≤ -0.5 or 0.5 ≤ skewness ≤ 1: The distribution is moderately skewed. If -0.5 < skewness < 0.5: The distribution is approximately symmetric. If kurtosis < 3: The distribution has lighter tails (platykurtic). If kurtosis > 3: The distribution has heavier tails (leptokurtic).

4.3 Multi Linear Regression Model

Multi Linear Regression Model is a statistical technique used to model the relationship between a dependent variable and two or more independent variables (Kumari & Yadav, 2018). It aims to find the best-fitting linear equation that predicts the values of the dependent variable based on the values of the independent variables, allowing for the assessment of the individual and combined effects of the predictors on the outcome. Table 6 is the outcomes of the multi linear regression for this study.

Table 6 - Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.642	.294		2.186	.029		
	NIP	.265	.068	.202	3.888	.000	.609	1.641
	SK	.199	.054	.187	3.659	.000	.629	1.589
	BP	.158	.060	.138	2.628	.009	.601	1.663
	CNP	.237	.050	.234	4.742	.000	.675	1.482

a. Dependent Variable: CP

Table 6 displays the results of a regression analysis aiming to predict the dependent variable CP based on four independent variables: NIP, SK, BP, and CNP. Values in the unstandardized coefficients column is also the regression coefficients values which indicating the expected change in CP for a one-unit change in each corresponding independent variable while holding the other predictors constant. The precision of these coefficient estimations is represented by the standard error (Std. Error) values. There are no universally accepted values for the standard error. The standard error is a measure of uncertainty in regression coefficient estimations, and its magnitude is determined by several factors, including sample size, data variability, and the strength of the link between the predictor variables and the dependent variable. While Standardised Coefficients (Beta) depicts the impact of each independent variable on CP1 in terms of standard deviations. It provides for a comparison of the relative importance of the predictors in influencing the dependent variable. Hence, by using unstandardised beta coefficient of beta, a multi regression equation can be establish from these unstandardized coefficients as follow;

$$\mathbf{CP = 0.642 + 0.265NIP + 0.199SK + 0.158BP + 0.237CNP} \;\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

This equation 1 can be applied to measure the collaborative project performance (CP) in the aviation industry by inserting the variables values of Nodes of Internal Practice (NIP); Stakeholder's Knowledge (SK); Behaviours of Practice (BP); and Community Nodes of Practice (CNP). Greater confidence in the significance of the corresponding predictor is shown by higher absolute t-values. If you calculate a t-value of 2.5 and the crucial t-value for a two-tailed t-test at a significance level of 0.05 and 100 degrees of freedom is approximately 1.984, the coefficient is statistically significant since 2.5 > 1.984. The p-values that correspond to the t-values (Kumari & Yadav, 2018). Lower p-values (usually less than 0.05) indicate that the corresponding coefficients are statistically significant predictors of CP1.

For collinearity statistics, it assesses potential multicollinearity among the independent variables. Multicollinearity produces unstable and inaccurate coefficient estimates, making it impossible to isolate the individual impacts of the predictor variables on the dependent variable (Kumari & Yadav, 2018). It impairs the capacity to evaluate the relative importance of each predictor and reduces the predictive performance of the regression model. Two parameters are measured in collinearity statistics are Tolerance and Variance Inflation Factor (VIF) values. If a predictor variable's tolerance value falls below 0.1 or 0.2, it indicates that the variable is significantly associated with other predictors, indicating potential multicollinearity difficulties in the model. While VIF values are the reciprocal of tolerance. The VIF value of 5 or 10 is the threshold for detecting problematic multicollinearity.

4.3.1 Model Fitness

The model summary provides important information about the fitness or goodness-of-fit of the model. It gives an idea of how well the model fits the data and how effective it is in explaining the relationship between the dependent variable and the independent variables (predictors).

Table 7 - Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898[a]	.806	.794	.144

a. Predictors: (Constant), NIP, SK, BP, CNP

Table 7 presents a regression model's summary, showing that the model has a strong linear relationship with correlation coefficient of R = 0.898. For R Square is coefficient of determination, it indicates how well the selected independent variables collectively account for the variation in the dependent variable. The table shows that the coefficient of determination value is 0.806, which explains approximately 80.6% of the variance in the dependent variable. The model includes several predictors, which are NIP, SK, BP, and CNP. The standard error of the estimate is approximately 0.144, indicating good accuracy in predictions.

5. Conclusion

This study was carried out to formulate a multi linear regression model of knowledge management factors affecting the collaborative project for UAE aviation industry. A questionnaire survey was conducted among the respondents who associated with the aviation industry in UAE. A total of 373 sets of data was used to formulate the equation. It was found that the generated model has a strong correlation coefficient of 0.898 between the predictors and dependent variable. Also, strong coefficient of determination of 0,806 which indicates how well the selected independent variables collectively account for the variation in the dependent variables/predicators. This equation model can be applied to collaborative project in UAE aviation industry by inserting the knowledge management variables values to the equation. This research contributes to the body of knowledge and to the aviation society.

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References

Abbas, J., & Kumari, K. (2021). Examining the relationship between total quality management and knowledge management and their impact on organizational performance: a dimensional analysis. *Journal of Economic and Administrative Sciences, ahead-of-print* (ahead-of-print). Doi: 10.1108/JEAS-03-2021-0046

Abedjan, Z., Golab, L., Naumann, F., & Papenbrock, T. (2022). *Data profiling*. Springer Nature.

Agrawal, A., & Joshi, K. D. (2011, January). A review of community of practice in organizations: Key findings and emerging themes. In *2011 44th Hawaii International Conference on System Sciences* (pp. 1-10). IEEE.

Al Badi, M. S. (2018). *The impact of organisational change inertia on public sector knowledge practices adoption: case of UAE* (Doctoral dissertation, Henley Business School, University of Reading).

Al Hashmi, M. A. A. M., Azam, S. F., & Khatibi, A. (2020). The implementation of human capital management in the aviation sector: An empirical study in the UAE. *European Journal of Economic Financial Research.*

Al Marzouqi, A. H., Khan, M., & Hussain, M. (2019). Employee social sustainability: Prioritizing dimensions in the UAE's airlines industry. Social Responsibility Journal.

Ala Afridi, W. A. K. (2021, December). An Examination and Critique of the Use of Knowledge Management in Achieving Competitive Advantage in Business and Its Existence in the Middle East Airline Industry: A Case Study of Saudi Airline. In *2021 International Symposium on Knowledge, Ontology, and Theory (KNOTH)* (pp. 80-85). IEEE.meeri, A., Ajmal, M. M., Hussain, M., & Helo, P. T. (2017). Sustainability practices in the aviation sector: a study of UAE-based airlines. *International Journal of Sustainable Society*, *9*(2), 119-147.

Aljuwaiber, A. (2016). Communities of practice as an initiative for knowledge sharing in business organisations: a literature review. *Journal of Knowledge Management*, *20*(4), 731-748.

Asrar-ul-Haq, M., & Anwar, S. (2016). A systematic review of knowledge management and knowledge sharing: Trends, issues, and challenges. *Cogent Business & Management*, *3*(1), 1127744.

Behery, M., Papanastassiou, M., & Ajmal, M. (2014). Examining the Relationship between Organizational Culture and Knowledge Management: The Moderation Effect of Organizational Divisions at an Abu Dhabi Gas Company. *SAM Advanced Management Journal, 49*.

Bhatti, S. H., Kiyani, S. K., Dust, S. B., & Zakariya, R. (2021). The impact of ethical leadership on project success: the mediating role of trust and knowledge sharing. *International Journal of Managing Projects in Business*, *14*(4), 982-998.

Bose, I. (2018). The strategic environment of the aviation industry in the UAE: A case study on Etihad Airways. IIUM Journal of Case Studies in Management, 9(1), 21-27.

Chang, C. L. H., & Lin, T. C. (2015). The role of organizational culture in the knowledge management process. *Journal of Knowledge management*, *19*(3), 433-455.

Chen, M. A., Wu, Q., & Yang, B. (2019). How valuable is FinTech innovation?. *The Review of Financial Studies*, *32*(5), 2062-2106.

Choi, M. (2011). Employees' attitudes toward organizational change: A literature review. *Human resource management*, *50*(4), 479-500.

Dalkir, K. (2013). *Knowledge management in theory and practice*. routledge.

Dalkir, K. (2017). *Knowledge management in theory and practice*. MIT press.

Gerlak, A. K., Guido, Z., Owen, G., McGoffin, M. S. R., Louder, E., Davies, J., ... & Joshi, N. (2023). Stakeholder engagement in the co-production of knowledge for environmental decision-making. *World Development*, *170*, 106336.

Hawryszkiewycz, I. (2017). *Knowledge management: organizing knowledge based enterprises*. Bloomsbury Publishing.

Hislop, D., Bosua, R., & Helms, R. (2018). *Knowledge management in organizations: A critical introduction*. Oxford university press.

Idris, M. A., Dollard, M. F., & Tuckey, M. R. (2015). Psychosocial safety climate as a management tool for employee engagement and performance: A multilevel analysis. *International Journal of Stress Management*, *22*(2), 183.

Jiang, Z., Hu, X., Wang, Z., & Jiang, X. (2019). Knowledge hiding as a barrier to thriving: The mediating role of psychological safety and moderating role of organizational cynicism. *Journal of Organizational Behavior*, *40*(7), 800-818.

Kazadi, K., Lievens, A., & Mahr, D. (2016). Stakeholder co-creation during the innovation process: Identifying capabilities for knowledge creation among multiple stakeholders. *Journal of business research*, *69*(2), 525-540.

Kemp, S. E., Ng, M., Hollowood, T., & Hort, J. (2018). Introduction to descriptive analysis. *Descriptive analysis in sensory evaluation*, 1-39.

Kumari, K., & Yadav, S. (2018). Linear regression analysis study. *Journal of Primary Care Specialties*, *4*(1), 33-36.

Manik, H. F. G. G., Christanti, R., & Setiawan, W. (2022). Knowledge management and community-based enterprise: an initiative to preserve the shadow puppet traditional knowledge in Yogyakarta, Indonesia. *VINE Journal of Information and Knowledge Management Systems*.

Matricano, D., Candelo, E., Sorrentino, M., & Martínez-Martínez, A. (2019). Absorbing in-bound knowledge within open innovation processes. The case of Fiat Chrysler Automobiles. *Journal of Knowledge Management*, *23*(4), 786-807.

Merriam, S. B. (2018). Adult learning theory. *Contemporary theories of learning: Learning theorists... in their own words*, 83-96.

Miković, R., Petrović, D., Mihić, M., Obradović, V., & Todorović, M. (2020). The integration of social capital and knowledge management–The key challenge for international development and cooperation projects of nonprofit organizations. *International Journal of Project Management*, *38*(8), 515-533.

Muhammed, S., & Zaim, H. (2020). Peer knowledge sharing and organizational performance: the role of leadership support and knowledge management success. *Journal of knowledge management*, *24*(10), 2455-2489.

O'Dell, C., & Hubert, C. (2011). *The new edge in knowledge: How knowledge management is changing the way we do business*. John Wiley & Sons.

Orcan, F. (2020). Parametric or non-parametric: Skewness to test normality for mean comparison. *International Journal of Assessment Tools in Education*, *7*(2), 255-265.

Othman, A. A. E., & ElKady, M. M. (2023). A knowledge management based framework for enhancing the learning culture in architectural design firms in developing countries. *Journal of Engineering, Design and Technology*, *21*(1), 23-57.

Ragab, M. A., & Arisha, A. (2013). Knowledge management and measurement: a critical review. *Journal of knowledge management*, *17*(6), 873-901.

Rehman, K., Poulova, P., Yasmin, F., Haider, S. A., & Jabeen, S. (2021). Empirical investigation of the impacts of knowledge management on organizational learning-a case study of higher education institutions. *Academy of Strategic Management Journal*, *20*, 1-15.

Rocha, R. G., Kragulj, F., & Pinheiro, P. (2022). Practical wisdom, the (not so) secret ingredient for responsible knowledge management. *VINE Journal of Information and Knowledge Management Systems*, *52*(3), 426-447.

Shahzad, M., Qu, Y., Zafar, A. U., Ding, X., & Rehman, S. U. (2020). Translating stakeholders' pressure into environmental practices–The mediating role of knowledge management. *Journal of Cleaner Production*, *275*, 124163.

Story, D. A., & Tait, A. R. (2019). Survey research. *Anesthesiology*, *130*(2), 192-202.

Taherdoost, H. (2016). Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey in a research. *How to test the validation of a questionnaire/survey in a research (August 10, 2016)*.

Van Eerd, D., & Saunders, R. (2017). Integrated knowledge transfer and exchange: An organizational approach for stakeholder engagement and communications. *Scholarly and Research Communication*, *8*(1).

Widén-Wulff, G. (2014). *The challenges of knowledge sharing in practice: a social approach*. Elsevier.

Wu, I. L., & Hu, Y. P. (2018). Open innovation based knowledge management implementation: a mediating role of knowledge management design. *Journal of Knowledge Management*, *22*(8), 1736-1756.

Wu, L., Chuang, C. H., & Hsu, C. H. (2014). Information sharing and collaborative behaviors in enabling supply chain performance: A social exchange perspective. *International Journal of Production Economics*, *148*, 122-132.