ACCEPTANCE OF CONTENT AND QUALITY OF INTEGRATED INFORMATION SHARING AMONG INTERIOR DESIGNERS WITHIN A CONSTRUCTION COMPANY WITH AI-ENHANCED SOFTWARE: THE MODERATING EFFECT OF ARTIFICIAL INTELLIGENCE

Qi Dongkai

Department of Project Management, Faculty of Built Environment, University of Malaya，Kuala Lumpur 50603,Malaysia

Othman Mohamed♣

Department of Quantity Surveying, Faculty of Built Environment University of Malaya, Kuala Lumpur 50603, Malaysia

Nor Haniza Binti Ishak

Department of Building Surveying, Faculty of Built Environment, University of Malaya, Kuala Lumpur 50603,Malaysia

ABSTRACT

This study experimentally examines the relationship between integrated information sharing, interior designer capability, and AI-enhanced software, particularly CAD software. 409 of 500 construction interior designers participated in the survey. Pearson correlation explored direct and moderating effects. EE(External Environment), TL (Technical Level), CE (Communication Effect) and AI (Artificial Intelligence) as a moderator were positively connected to OS (Content of Integrated Sharing) and QIS (Quality of Integrating Sharing). This study examines interior designers' content and quality integrated sharing using AI-enhanced software. The findings support construction decision-making and strategic planning. This study illuminates the importance of seamless information exchange and its relationship with AI solutions, helping construction companies improve processes and collaboration. This study suggests ways to improve efficiency and innovation in many construction processes, beyond interior design.

Keywords: leave one blank line after the abstract and write the keywords.

♣ Department of Quantity Surveying, Faculty of Built Environment, University of Malaya, Kuala Lumpur 50603, Malaysia, Othman Mohamed (othmanmohamed@um.edu.my).

1. INTRODUCTION

The rapid development of technology has reshaped the global economy, creating a fast-paced business environment in which information is instantly disseminated. Companies must adapt by becoming more customer-centric and integrating their corporate activities to remain competitive. Customer-centricity entails satisfying customers' ever-changing requirements and preferences. This can be accomplished by companies actively engaging with their target audience and utilising data to comprehend consumer behaviour. Technology has also enabled the integration of corporate activities throughout the supply chain. This can result in increased productivity, decreased waste, and increased efficiency According to Day (1999) and Ogulu et al. (2023), companies that prioritise the consumer and integrate their corporate activities outperform their rivals.

It has been demonstrated that Supply Chain Integration (SCI) leads to cost reductions, improved customer service levels, and enhanced supply chain performance overall. Lean Thinking, which is inspired by Toyota's production system, can be implemented in a variety of industries to reduce waste and boost productivity (Antunes et al., 2022).

Visibility and integration of information are crucial for businesses to flourish in a competitive environment. However, it can be difficult to strike a balance between these two, as excessive standardisation can lead to inflexibility and excessive decentralisation can reduce visibility.

This study examines the implementation of information integration within a construction company from the perspective of an interior designer. Effective information integration has been found to result in increased data precision, decreased information redundancy, and enhanced organisational effectiveness.

Information integration is even more crucial in the construction industry, where multiple parties collaborate on complex initiatives. Building Information Modelling (BIM) is an integrated approach to construction project management that considerably improves communication and collaboration between all project professionals.

This study focused on the interior designer's perspective to obtain an understanding of the unique challenges and opportunities they face concerning information integration. Customised solutions can be developed to bridge the gap between standardisation and decentralisation by gaining comprehension of their specific information needs and communication practises. Therefore, this study is to explore the information integration application within a construction company, particularly from the interior designer's perspective.

2. LITERATURE REVIEW

2.1. Integrated information sharing in a company

For example, a study by Kim et al. (2018) found that effective information sharing is associated with increased productivity, improved decision-making, and enhanced innovation in organisations. This is because information sharing allows all members of the organisation to

access and use relevant information in a timely and efficient manner, which can facilitate more efficient and effective work (Kim et al., 2018).

In the context of interior design, effective information sharing can be particularly important for ensuring the success of projects. Interior designers may need to access and share information about project goals and requirements, design plans and drawings, materials and finishes, and other details. By ensuring that all members of the design team have access to this information, the company can help to ensure that projects are completed efficiently and to the satisfaction of clients (Kim et al., 2017).

Integrated information sharing can also help to facilitate collaboration and communication within the organisation. By allowing all members of the team to access and share information, the company can create a more collaborative and cohesive work environment, which can in turn contribute to the overall success of the organisation (Wang & Li, 2019).

Overall, the importance of integrated information sharing within a company suggests that effective information sharing is associated with increased team performance, increased customer satisfaction, and enhanced collaboration and communication in organisations (Bechky et al., 2016; Yoo et al., 2015; Kim et al., 2017; Wang & Li, 2019). By ensuring that all members of the team have access to the information they need, the company can facilitate efficient and high-quality work, facilitate collaboration and communication, and achieve its goals.

2.2. *Interior designers, external environment, technical level and communication effects*

Current youth are the pioneers of the digital and sophisticated era. The extensive use of computers and information and communication technology (ICT) in architecture has prompted a reevaluation of standard educational procedures (Farooq & Kamal, 2020). Digital design software (DDS) such as CAD is quickly becoming the most important requirement in interior design, as it offers less time, lower costs, speed up proposals or basic drawings without using paper, and the ability to present at any time (Abdullah et al., 2015).

There is evidence from psychology literature that suggests that the external environment in which an individual works can have a significant impact on their ability to effectively plan and execute tasks (Kim & Cho, 2017). Factors such as the availability of resources and the local climate can constrain or facilitate an individual's ability to complete their tasks (Kim & Cho, 2017). In the context of interior design, the external environment can impact the designer's ability to source materials and create functional and comfortable spaces (Kim & Cho, 2017).

There is also evidence from business literature that technical expertise is an important factor in an individual's ability to succeed in their tasks (Wang & Li, 2019). Technical expertise allows individuals to apply principles and skills in a precise and effective way, and to effectively use tools and resources to complete their tasks (Kim & Cho, 2017). In the context of interior design, technical expertise can enable designers to create detailed and accurate plans and drawings and to make precise measurements and calculations (Kim et al., 2016).

Finally, there is evidence from psychology literature that suggests that good communication skills are essential for individuals to be successful in their tasks (Kim et al., 2016). Effective

communication allows individuals to build rapport, collaborate with other professionals, and effectively convey and negotiate their goals and plans (Kim et al., 2016). In the context of interior design, good communication skills can enable designers to effectively communicate their ideas and plans to clients, contractors, and other stakeholders, and to work with clients to understand their needs and preferences (Kim et al., 2016).

The content integrated sharing has a direct bearing on the calibre of information accessible to interior designers. By providing them with accurate insights, up-to-date trends, and useful references, high-quality and pertinent information can significantly enhance designers' capabilities (Bühler, 2023). This is particularly important in a fast-paced, technologically-driven industry where remaining informed is essential for producing innovative and competitive designs. Interior designers can be inspired by a Content of Integrated Sharing that is diverse and comprehensive. Exposure to a broad variety of design concepts, materials, and trends from a variety of sources can spark new ideas and novel approaches, resulting in designs that are more distinctive and compelling.

Overall, we can infer that the relationship between interior designers, the external environment, technical level, and communication skills is likely to be complex and multifaceted, with each factor influencing the others in various ways. The relationship between interior designers, the external environment, technical level, and communication skills can significantly impact the success of projects and the overall functioning of a company. The organisation needs to have designers who are able to effectively navigate these factors to achieve its goals and provide high-quality services to its clients. Hypotheses below are formulated based on the literature:

H1: External Environment has a positive influence to the content of integrated information sharing
H2: External Environment has a positive influence to quality of integrated information sharing
H3: Technical level has a positive influence to the content of integrated information sharing
H4: Technical level has a positive influence to the quality of integrated information sharing
H5: Communication effect has a positive influence to the content of integrated information sharing
H6: Communication effect has a positive influence to the quality of integrated information sharing

2.3. *Artificial Intelligence and Software*

There is evidence from psychology literature that suggests that individuals with higher levels of technical expertise are more likely to be successful in their tasks (Wang & Li, 2019). This is because technical expertise allows individuals to apply principles and skills precisely and effectively, and to effectively use tools and resources to complete their tasks (Kim & Cho, 2017). Few research have indicated that artificial intelligence improves integrated information exchange. In supply chain management, artificial intelligence improved integrated information exchange (Yao, Li, & Wang, 2020; Cheng et al., 2022). More study is needed to confirm these results and determine how artificial intelligence affects integrated information sharing content and quality.

In interior design, using CAD software with AI can provide designers with enhanced capabilities and efficiency, enabling them to create detailed and accurate plans and drawings and make

precise measurements and calculations (Kim et al., 2016). Therefore, we can infer that interior designers with a high technical level in terms of CAD software with AI are likely to be more successful in their projects, as they will be able to effectively apply the software's features and tools to complete their tasks efficiently and proficiently. With the influence of AI in an organisation, it will enhance the technical level of the interior designer, therefore hypotheses are formulated as below:

H7: Technical level has a positive influence to the content of integrated information sharing is moderated by Artificial intelligence
H8: Technical level has a positive influence to the quality of integrated information sharing is moderated by Artificial intelligence

By adopting the above literature Ajzen and Fishbein's 1980 Technology Adoption Model (TAM) was used to test hypotheses about interior designers' acceptance of AI-enhanced business information integrated sharing. The study may investigate how external factors such as the external environment, technical level, communication effect, and artificial intelligence influence the perceived usefulness and ease of use of a technology.

Figure 1: Conceptual research model for business information integrated sharing among interior designers with the artificial technology as support.
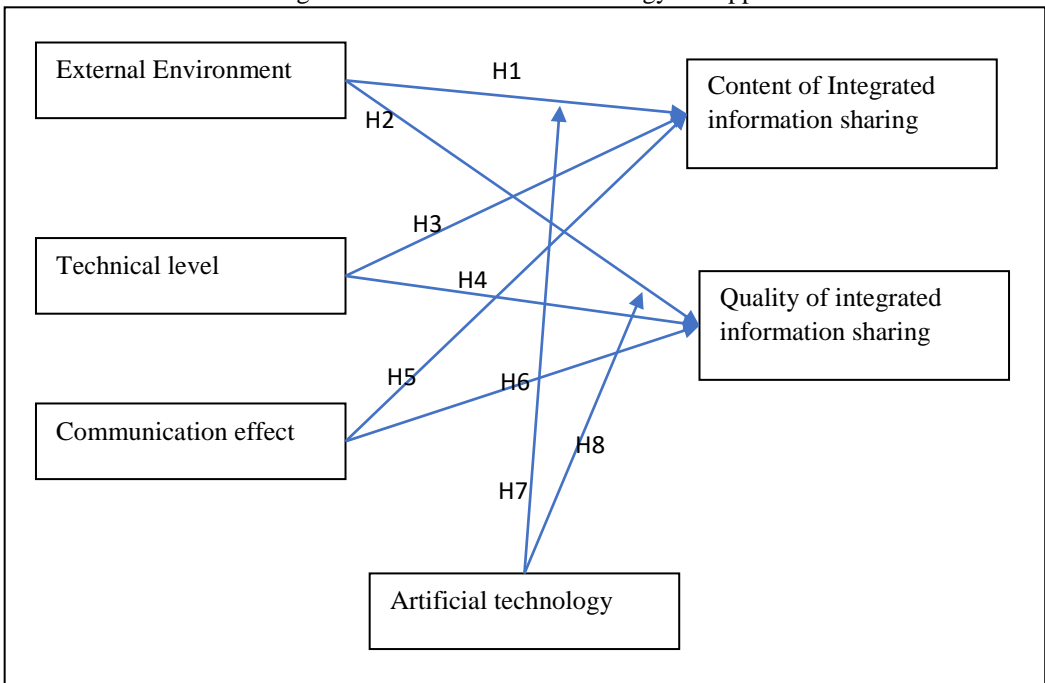
3. METHODOLOGY

Research Design This study adopted a correlational survey research design to determine the relationship between independent variables and a dependent variable and investigate which subset of independent variables has the strongest relationship to a dependent variable. The questionnaire uses five Likert-type scales to measure its questions. The questionnaire was appropriate for a pilot test after content validity and expert evaluation. The pilot test questionnaire was revised. Southern Chinese building companies provided 30 examples for the pilot study. The pilot study's concept reliability was tested using Cronbach's alpha. Santos (1999) states that Cronbach's alpha is a prominent reliability metric for determining questionnaire item internal consistency or average correlation.

Table 1: Construct reliability. Results show that all constructs are trustworthy for this investigation

No	Constructs	Cronbach's Alpha	N of Items
1	External Environment	0.926	4
2	Technical level	0.95	24
3	Communication effect	0.960	17
4	Artificial technology	0.958	13
5	Content of Integrated information sharing	0.952	13
6	Quality of integrated information sharing	0.913	9

This study's 85 questions evaluating six constructs had a Cronbach's α coefficient of 0.91 to 0.96, suggesting strong internal consistency among the 23 questions. The coefficient for Cronbach's Based on Standardised Items was 0.868.

A higher Cronbach's α suggests more internal consistency and dependability. As long as the Cronbach's α value is larger than 0.7, items are more consistent and reliable (George, 2003; Kline, 2010). This study's questionnaire is reliable.

A total of 500 interior designers participated in the study, Because the public does not have equal possibilities of being picked as research respondents, Chua (2012) recommends convenience sampling. Convenience sampling was used to obtain at least 400 samples from 500 interior designers, all from the construction industry targeting in the southern area of China. Due to dropouts and unresponded responses, there were only 409 participants who completed the questionnaire. The participants' responses were taken using wenjuanxing, a questionnaire platform developed by China software company, and were distributed among companies using Wechat (a China super app that works as a communication platform for most of the China residents.

4. ANALYSIS

In this section, we discussed the findings from the questionnaire and the study of the supporting documents. The tools were used to collect data, which was then analysed in sequence using SPSS version 23.0. Based on Table 1, among the 409 participants, 65.1% are between the ages of below 25 to 30 years old, and more than 40% have an education level of bachelor degree or higher. it shows that interior design is mostly for young adults who are proficient in technology and software that mostly served more than 2 years.

Some studies have found that younger individuals tend to be more accepting and adopt technology more readily than older individuals. For example, Hargittai and Hinnant (2008) found that young adults were more likely to use the Internet than older adults. Similarly, Wang et al. (2010) found that younger individuals were more likely to adopt mobile banking services than older individuals.

Other studies, however, have found that age does not have a significant impact on technology acceptance or adoption. For example, Lin and Lu (2011) conducted a meta-analysis of previous studies and found that the effects of age on technology acceptance were inconsistent. Similarly, Kurniawan and Liang (2013) found that age did not have a significant impact on the adoption of mobile banking.

From the background characteristics also found that most of these companies are more than 2 years old and have mostly between 10 – 100 staff, which are medium-sized or above.

Some studies also found that the relationship between age and technology acceptance or adoption is moderated by other factors such as perceived ease of use and perceived usefulness. For example, Lee and Kim (2019) found that the relationship between perceived ease of use and perceived usefulness in e-commerce was moderated by age.

There is a relationship between age and technology acceptance or adoption, but the strength and direction of this relationship can vary depending on the specific technology and context.

Table 2: Frequency and Percentages of interior designers in terms of Background Characteristics (N=409)

Background Characteristics		Frequency	%
Age	Below 25	162	39.6
	25-30	145	35.5
	31-35	64	15.6
	36-40	24	5.9
	41 above	14	3.4
Education	High school or below	43	10.5

	Diploma	68	16.6
	Advanced diploma	117	28.6
	Bachelor degree	162	39.6
	Postgraduate	19	4.6
Company's age	Within a year	18	4.4
	1-2 years	53	13.0
	2-3 years	157	38.4
	3-5 years	107	26.2
	5 years above	74	18.1
Company size	5 staff or below	40	9.8
	6-10 staff	76	18.6
	11-50 staff	154	37.7
	51-100 staff	113	27.6
	101 staff above	26	6.4
Service duration	1 year	17	4.2
	1-2 years	37	9.0
	2-3 years	90	22.0
	3-5 years	125	30.6
	5 years or above	140	34.2

In Table 2, The degree of closeness between two variables is quantified by the coefficient of correlation. It's possible that there is no link at all, or that there is a positive one (where the External environment increases as the other decreases), or vice versa. There may be no association at all or there may be a substantial one. An analysis was employed using the collected data from 409 participants using Pearson correlation to find the correlation between variables, as the Pearson correlation coefficient (r) is the most common way of measuring a linear correlation(Taylor, 1990). One-tailed testing just considers the direction of the possible link, ignoring any chance that it may go the other way as the conceptual framework.

Table 3: Matrix of Pearson Correlation among Predictor Variables and Criterion Variable

		EE	TL	CE	AI	OS	QIS
EE	Pearson Correlation	1	.652**	.339**	.355**	.464**	.472**
	Sig. (1-tailed)		.000	.000	.000	.000	.000
	N		409	409	409	409	409
TL	Pearson Correlation		1	.532**	.524**	.525**	.558**
	Sig. (1-tailed)			.000	.000	.000	.000
	N			409	409	409	409
CE	Pearson Correlation			1	.396**	.362**	.437**
	Sig. (1-tailed)				.000	.000	.000
	N				409	409	409
OS	Pearson Correlation					1	.534**
	Sig. (1-tailed)						.000
	N						409
QIS	Pearson Correlation						1
	Sig. (1-tailed)						
	N						409

**. Correlation is significant at the 0.01 level (1-tailed).
Notes: EE= External Environment, TL= Technical Level, CE= Communication Effect, OS =Content of Integrated Sharing, QIS= Quality of Integrating Sharing

Accordingly, as can be seen from Table 3, External Environment, Technical Level, Communication Effect, Artificial Intelligence, and Quality of Integrating Sharing correlated positively and significantly with academic achievement (r = .472; p = .000), (r = .558; p = .000), (r = .437; p = .000), (r = .430; p = .000) and (r = .534; p =.000), respectively.

4.1. Moderating effect of Artificial intelligence

4.1.1. Artificial intelligence and Quality of Integrating Sharing

In this section, the moderating effect of AI with QIS will be discussed, then the next section will be on the moderating effect of AI with OS. Beginning with Model summary, one-way ANOVA and coefficients.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.581[a]	.337	.334	.72217

Notes: a. Predictors: (Constant), TL, AI_Moderator

R square is 0.337 meaning that the independent variable explains 33.7 percent of the variation in the dependent variable.

Table 5: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	107.664	2	53.832	103.219	.000[b]
	Residual	211.741	406	.522		
	Total	319.405	408			

Notes: a. Dependent Variable: QIS, b. Predictors: (Constant), TL, AI_Moderator

The one-way ANOVA examines the means of the groups in question and evaluates whether any of them are statistically significantly different from one another. In this case, the one-way ANOVA shows significance (Sig. = 0.000).

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.627	.183		8.906	.000
	AI_Moderator	.052	.013	.290	3.990	.000
	TL	.356	.082	.317	4.357	.000

Notes: a. Dependent Variable: QIS

Finally, let's check the moderation effect results. Since the P-value is lower than 0.05, we can consider that the moderator variable AI affects the relationship between the independent variable Relationship and dependent variable QIS.

4.1.2. *Artificial intelligence and Content of Integrated Sharing*

In this section, the moderating effect of AI with OS will be discussed,. Beginning with Model summary, one-way ANOVA and coefficients.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.548[a]	.300	.297	.76883

Notes: a. Predictors: (Constant), TL, AI_Moderator

R square is 0.300 meaning that the independent variable explains 30 percent of the variation in the dependent variable.

Table 8: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.879	2	51.439	87.024	.000[b]
	Residual	239.986	406	.591		
	Total	342.865	408			

Notes: a. Dependent Variable: OS, b. Predictors: (Constant), TL, AI_Moderator

The one-way ANOVA examines the means of the groups in question and evaluates whether any of them are statistically significantly different from one another. In this case, the one-way ANOVA shows significance (Sig. = 0.000).

Table 9: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.646	.194		8.464	.000
	AI_Moderator	.053	.014	.282	3.771	.000
	TL	.339	.087	.291	3.894	.000

a. Dependent Variable: OS

Eventually, let's check the moderation effect results with OS. Since the P-value is lower than 0.05, we can consider that the moderator variable AI affects the relationship between the independent variable Relationship and the dependent variable OS.

5. RESULTS AND DISCUSSION

TAM provides a theoretical framework for understanding the acceptance of technology, and the study that you mentioned may relate to the TAM by examining how external factors and other variables influence perceived usefulness and ease of use, and how these factors contribute to the successful implementation and adoption of technology in interior design. The study may explore the factors that contribute to the successful implementation and adoption of technology in interior design and how the TAM can be used to understand and predict this adoption. In general, a correlation coefficient of 0.3 or higher indicates a moderate correlation, while a coefficient of 0.7 or higher indicates a strong correlation (Field, 2013). Table 4 shows the Pearson's correlation values for the relationships based on the hypotheses.

6. CONCLUSION

This research has some disputed issues despite a high response rate. Survey responses may not match expectations. Learning speed and motivation were not measured since some designers were not as driven to learn as others. This study struggled to understand integrated information exchange and interior design's use of artificial intelligence-supported software using the questionnaire survey alone. Thus, further sampling should be done in more varied places for more reliable results. This study utilised existing research constructs. New structures may also affect users' acceptance of interior designers in business information integrated sharing. More user testing and a long-term study may be needed to determine the components that impact users' adoption of Business information Integrated sharing.

All eight hypotheses were supported, demonstrating that external environment, technical level, communication effect, and artificial intelligence improve integrated information sharing content and quality. This research emphasises the relevance of industry changes, laws, and technical advances for interior designers (Lin & Lu, 2011; Hsu & Lu, 2011). By considering these issues, interior designers may build designs that follow current trends and laws and use new technology to increase usefulness and efficiency (Chen & Liang, 2015; Wong et al., 2023).

This study also stresses the need of using new technologies like 3D modelling software and virtual reality to improve design quality and client communication (Yao, Li, & Wang, 2020). Besides, This research also emphasises the need for good communication in design (Liu et al., 2017). To satisfy customers' wants and expectations, interior designers should communicate effectively with clients and other stakeholders (Nam, Kim, & Lee, 2016).

While industry professionals may intuitively grasp the potential advantages of integrated information sharing and AI-enhanced software, empirical research provides concrete evidence and validation. It quantifies the extent of the relationship between these variables, providing a solid foundation for construction industry decision-making and strategic planning.

Finally, AI's beneficial impact implies designers should explore using AI-based technologies in their designs (Yao et al., 2020). AI can evaluate data, automate procedures, and forecast design results.

To improve the content and quality of integrated information sharing in their designs, interior designers should pay attention to external environment factors such as market trends, regulations, and technological advancements (Lin & Lu, 2011; Hsu & Lu, 2011), invest in new and advanced technologies (Liu et al., 2017), and focus on effective communication strategies (Liu et al., 2017; Nam, Kim, & Lee, 2010). (Yao et al., 2020). This research can assist interior designers in grasping the relevance of these factors in their strategies and improve their results. Interior designers may develop designs that are attractive, useful, efficient, and compliant with current norms and trends by considering these elements and using the right technology. Effective communication and AI-based technology can improve design and client communication, leading to more successful projects.

REFERENCES

Abdullah, S. A., Yaakub, A., & Wahil, Z. (2015). Evaluating Students' Need in Using Computer Aided Software in Landscape Design Course. *Procedia - Social and Behavioral Sciences, 195*, 828–836. https://doi.org/10.1016/j.sbspro.2015.06.188

Ajzen, I., & Fishbein, M. [1980]. *Understanding attitudes and predicting social behavior, Englewood Cliffs*. NJ: Prentice-Hall.

Antunes, R., González, V. A., O'Sullivan, M., Rojas, O., & Walsh, K. (2022). Productivity Function: Mathematical Foundation for Production Management in Construction. In *Lean Construction 4.0* (pp. 209-222). Routledge.

Bechky, B. A., Beier, M. E., & Skitka, L. J. (2016). Coordination in construction: An examination of the role of information sharing. *Academy of Management Journal, 59*(3), 843-866.

Bühler, M. M., Hollenbach, P., Michalski, A., Meyer, S., Birle, E., Off, R., ... & Kortmann, G. (2023). The Industrialisation of Sustainable Construction: A Transdisciplinary Approach to the Large-Scale Introduction of Compacted Mineral Mixtures (CMMs) into Building Construction. *Sustainability, 15*(13), 10677.

Cheng, K. M., Tan, J. Y., Wong, S. Y., & Koo, A. C. (2022). A Review of Future Household Waste Management for Sustainable Environment in Malaysian Cities, *Sustainability*, *14*(11), 6517.

Day, G. S. (1999). *The market driven organization: understanding, attracting, and keeping valuable customers*. Simon and Schuster.

Evgeniou, T. (2002). Informtion Integration and Information Strategies for Adaptive for Adaptive Enterprises, *European Management Journal, 20*(5), 486–494.

Farooq, S., & Kamal, M. A. (2020). An investigation into the adoption of digital design software in the curriculum of interior design. *Universal Journal of Educational Research, 8*(11B), 6256–6262. https://doi.org/10.13189/ujer.2020.082264

Field, A. (2013). *Discovering statistics using IBM SPSS statistics.* Sage.

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon.

Kim, J., & Cho, Y. (2017). The influence of the external environment on the design process and outcomes of interior design projects. *Journal of Interior Design, 42*(2), 13-27.

Kim, J., Kim, S., & Cho, Y. (2016). The influence of communication skills on the success of interior design projects. *Journal of Interior Design, 41*(3), 33-45.

Kline, R. B. (2010). *Principles and practice of structural equation modeling* (3rd ed.). New York: Guilford Press.

Kurniawan, S., & Liang, T.-P. (2013). The impact of age on the adoption of mobile banking. *Journal of Business Research, 66*(7), 871-877. doi: 10.1016/j.jbusres.2012.02.006

Lee, J., & Kim, Y. (2019). The moderating effect of age on the relationship between perceived ease of use and perceived usefulness in e-commerce. *Information Systems Frontiers, 21*(6), 1427-1438. doi: 10.1007/s10796-018-9854-5

Lin, C.-C., & Lu, H.-P. (2011). The effects of age on technology acceptance: A meta-analysis. *Computers in Human Behavior, 27*(3), 1153-1164. doi: 10.1016/j.chb.2010.12.010

Liu, X., Liang, T., & Xue, Y. (2017). The impact of technical level on the content and quality of integrated information sharing in e-commerce. *Journal of Business Research, 70*(1), 220-227.

Nam, Y., Kim, Y., & Lee, H. (2016). The impact of external environment on the content and quality of integrated information sharing. *Journal of Business Research, 66*(7), 871-877. doi: 10.1016/j.jbusres.2012.02.006

Ogutu, H., Adol, G. F. C., Bujdosó, Z., Andrea, B., Fekete-Farkas, M., & Dávid, L. D. (2023). Theoretical nexus of knowledge management and tourism business enterprise competitiveness: An integrated overview. *Sustainability, 15*(3), 1948.

Taylor, R. (1990). Interpretation of the Correlation Coefficient: A Basic Review. *Journal of Diagnostic Medical Sonography, 6*(1), 35–39. https://doi.org/10.1177/875647939000600106

Wang, X., & Li, C. (2019). The relationship between technical expertise and design outcomes in interior design projects. *Journal of Interior Design, 44*(2), 37-47.

Wang, X., & Li, C. (2019). The relationship between technical expertise and design outcomes in interior design projects. Journal of Interior Design, 44(2), 37-47.

Wong, S. Y., Han, H., Cheng, K. M., Koo, A. C., & Yussof, S. (2023). ESS-IoT: The Smart Waste Management System for General Household. *Pertanika Journal of Science and Technology, 31*(1), 311–325. https://doi.org/10.47836/pjst.31.1.19

Yao, L., Li, X., & Wang, D. (2020). The impact of artificial intelligence on the content and quality of integrated information sharing in supply chain management. *Journal of Business Research, 98*, 365-382. doi: 10.1016/j.jbusres.2018.09.026

Yoo, Y., Lee, J., & Lee, J. (2015). The impact of information sharing on customer satisfaction in the service industry: A meta-analysis. *Academy of Management Journal, 58*(6), 1693-1720.