



Research Proposal

An Empirical Investigation into Determinants of Generative Artificial Intelligence (Gen AI) adoption in the Construction Industry: From the Perspectives of Technical Professionals

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CONTENTS

Introduction	3
Definition of Generative Artificial Intelligence.....	3
Global Applications of Gen AI	3
Gen AI Programmes for Construction Projects	3
Government Supports of Implementing Innovative Technologies in Hong Kong	4
Problem Statement.....	5
Research Targets	6
Literature Review.....	6
Theoretical Frameworks.....	7
Technology Acceptance Model (TAM).....	7
Unified Theory of Acceptance and Use of Technology (UTAUT).....	7
Technology, Organisation and Environment (TOE)	7
Theory of Planned Behavior (TPB).....	8
Diffusion of Innovation (DOI)	8
Summary of the Theoretical Framework.....	8
Independent Variables	8
Demographic factors	10
Research Model.....	11
Questionnaires Design.....	11
Research Methodology	13
Literature Reviews	13
Qualitative Methodology	13
Focus Group.....	13
Quantitative Methodology	13
Pilot Test	14
Data Analytic Techniques.....	18
Ethical Considerations for the Research.....	19
Contribution to Knowledge	20
References list	21

Introduction

Definition of Generative Artificial Intelligence

Globally, International Business Machines Corporation (Cole & Mark, 2024) defined Generative Artificial Intelligence (Gen AI) as a system that responds to the user's requests to create original sources of information, such as text, images, video, audio, or software codes. Currently, the popular Gen AI systems, including ChatGPT, Bard, designed by Google, and Copilot, designed by Microsoft, have been promoted in different industries worldwide, for example, generating product designs through a particular instruction in the Manufacturing industry and video game design in the entertainment industry. Its main advantage is to shorten the design time during the production stage.

Global Applications of Gen AI

In 2022, ChatGPT accelerated the adoption of Gen AI in different industries. A McKinsey Survey (2022) mentioned that the adoption of Gen AI has more than doubled since 2017 and contributes US\$4.4 trillion to the global economy annually. Gen AI undoubtedly has been creating both technical and financial impacts globally. Based on the IBM AI Adoption Index (2022), the adoption of AI kept increasing at a steady pace in 2022, with more than 35 % of companies mentioning the use of AI in their business compared to 2021. Accessibility, 44%, is the first factor driving AI adoption in the survey. For the construction industry, Andrill (2023) mentioned the usage of Gen AI, in terms of money, will increase to US\$1945 million in 2023, compared to only US\$142 million in 2022.

Gen AI Programmes for Construction Projects

Several Gen AI programmes related to construction have been promoted in the market to respond to the needs of the construction industry; for example, Generative design AI created by Autodesk (2024) is the application of generating and optimising designs through given constraints and objectives. 2) GenAI CAD (2024) is the technique to assist in the design and modelling process, enhancing accuracy, efficiency and automation. Up to 2022, the design and planning function, 35%, such as BIM was the most popular application in the recent construction industry. The construction optimization solutions, such as Real-time monitoring, 27 %, was ranked after design and planning.

Current Hong Kong Construction Industry's Chronic Conditions

Firstly, the implementation of a construction project is time-consuming and full of uncertainties, which may lead to delays in projects, which is a global phenomenon (Owolabi James, D. et al., 2014). The claim may appear if construction companies fail to complete projects according to the project completion day from the contract blind. Secondly, labour shortage is a long-term problem in Hong Kong. According to the Manpower Forecast For Hong Kong Industry (2023), the overall minimum expected manpower is 48,500 in 2027, which

is far above the minimum expected manpower of 17,500 in 2023. Refer to Table 1; professionals will keep around a 25 % shortage from 2024 to 2027. Therefore, in 2023, Construction sectors were allowed to import a maximum of 1200 workers to face these issues (Chan & Kong, 2023). Hong Kong Government and the Hong Kong Construction Industry Council have started to import labour to solve this matter. Thirdly, population ageing will also influence productivity if the existing workforce keeps older, but no new blood supply to the construction industry. Fourthly, Population ageing is an important issue to be handled in labour supply. According to the Hong Kong Monthly Digest of Statistics 2023, the median age will be increased from 47.3 years old in 2021 to 55.5 years in 2046. Referring to the statistical highlights from Legislative Council Secretariats (2018), 42% or 200 122 registered workers were at or above the age of 50. Based on this assumption, the average age may increase to 56 or above in 2024. Therefore, in 2018, HKSAR started to promote more automation technologies and innovative construction methods to reduce the influence of population ageing.

Table 1: Construction Manpower Forecast

		2023	2024	2025	2026	2027
Skilled/Semi-Skilled Workers		10,000 –	15,000 –	15,000 –	20,000 –	35,000 –
		15,000	20,000	20,000	25,000	40,000
Technicians		10,000 –	4,000 –	4,000 –	5,000 –	5,500 –
		15,000	4,500	4,500	5,500	6,000
Site Supervisory Personnel		1,000 –	1,500 –	1,500 –	1,500 –	2,000 –
		1,500	2,000	2,000	2,000	2,500
Professionals		4,000 –	5,500 –	5,500 –	5,500 –	6,000 –
		4,500	6,000	6,000	6,000	6,500
		Moderate shortage (6% to 15%)				
		Considerable shortage (16% to 25%)				
Source: Manpower Forecast for Hong Kong Construction Industry, 2023						

Government Supports of Implementing Innovative Technologies in Hong Kong

Due to the above chronic issues, Paul Chan, Financial Secretary (2024), mentioned that innovation is the key direction to tackle those concerns in future. Advanced technologies can reduce human errors, accelerate the process, reduce production costs and enhance construction site safety. The Development Bureau (DEVB) of the Government of Hong Kong Special Administrative Region (HKSAR) has set up the construction Innovation & Technology Fund (CITF) to promote the transformations of the local construction industry through advanced technologies, has been increased to support the practical, innovative initiatives which can

benefit the construction industry. Up to 28 March 2024, 3782 projects, valued at HK\$ 12 billion dollars, have been approved through this fund (CITF, 2024). It can be concluded that HKSAR has provided financial support to encourage the adoption of advanced technologies in construction projects.

Hong Kong's main Universities, Vocational Training Council, Construction Industry Council, Hong Kong Productivity Council, and Hong Kong Science and Technology Park promote and organise advanced technology-related events for society (Table 2). The purpose is to equip related individuals with sufficient technical knowl-how to adopt them in their workplace.

Table 2: Examples of AI-related Construction Programmes in Hong Kong

Institution	Programme Name	Features
Hong Kong Institute of Construction	Master Class on AI for Construction	• Improve the business process through advanced computation and AI
Hong Kong Productivity Council	Generative AI for Business Optimisation	• Improve business workflows, create personalised GTP-powered Chatbots and interactive presentations
Hong Kong Institute of Information Technology	Introduction to AI and Generative AI Applications	• To use AI to generate textual content, art images, text-to-video, and PowerPoint slides
HKU Space of Professional and Continuing Education	Artificial Intelligence (AI) in Built Environment in Hong Kong	• To apply AI in various aspects of the built environment, such as, planning and design and smart buildings

Problem Statement

Previous research has shown that technology applications related to safety management, Building Model Information (BIM), cost prediction, quality control, and progress monitoring have been studied in recent decades. Oliver Wyman Forum (2024) has studied how we drive more efficient adoption of Gen AI in which, based on their data, more than 50% of employees said that they use Gen AI in daily work. However, almost one in five respondents reported that they don't use the best practice of Gen AI at all.

“I am not familiar with how to use all the AI things honestly, so I just name it as a better search engine to ask questions.” feedback from one of the programme manager's respondents.

Taiwo, Ridwan, et al. (2024) have investigated the status of using GEN AI in the construction industry. It indicated that adoption challenges, including 1) Resistance to new technologies 2) Lack of skills and expertise 3) High Upfront investment costs 4) Immature Supporting Infrastructure 5) Unclear Governance So, the adoption strategies need to be addressed during the implementation process.

Ghimire, Kim, and Acharya (2024) have studied the opportunities and challenges of adopting Gen AI in the construction industry. Adopting Gen AI in construction requires a strategic framework for security, safety and governance, which is related to employees' awareness and understanding of Gen AI. Therefore, strategic adoption, such as practical guidance, is necessary for employees to reduce the problems.

Based on the above findings about Gen AI adoption issues, adoption strategies, including employee understanding and organisational support, are necessary for the success of Gen AI adoption. However, there is a lack of research to study the Gen AI adoption in the Hong Kong construction industry. Therefore, this research will intensively study the adoption situation of technical professionals in the Hong Kong construction industry and make practical recommendations for the Hong Kong local situation.

Research Question 1: What are the causes and effects among determinants for technical professionals to adopt Gen AI in the Hong Kong construction industry?

Research Question 2: What are the critical determinants that influence the adoption of Gen AI in the Hong Kong construction industry?

Research Targets

To adopt GEN AI into the construction industry, effectively minimising the resistance from technical professionals, the management team, software developers, and even the Government should be highly aware of the result of this research, which may give them an insight into GEN AI implementation for organisation management, how to develop easy-to-use software for software developers and GEN AI regulations planning for the government in Hong Kong.

Literature Review

This investigation includes a review of the adoption of Gen AI from the perspective of technology professionals in the construction industry. Technological Professionals (TP) refer to individuals who possess specialised knowledge and skillsets related to the planning, designing, and managing construction projects in Hong Kong.

A literature review focusing on “intention”, “readiness” and “adoption” will be studied. Literature from ScienceDirect, ProQuest, Google Scholar, etc., will be used to support the literature review. keywords of “adoption”, “intention”, “readiness” and “Gen AI” will frequently appear in this research. Also, since the

target location is Hong Kong, therefore, the keyword of “Hong Kong” will always appear in this research. The literature review will focus on the theoretical frameworks, talking about their adoption and finding out the independent variables for this research.

Theoretical Frameworks

Several adoption-related models were applied to different new initiatives adoption. However, most of the studies not only use a sole adoption model to investigate their research topic but the blended adoption model will be applied to study the topic comprehensively. For example, Merging the Technology Acceptance Model (TAM) and Technology, Organisation and Environment (TOE) framework to study the adoption of precast concrete components in building construction (Katebi, Homami, & Najmeddin, 2022).

Technology Acceptance Model (TAM)

TAM, designed by Fred Davis (1989), is one of the common models used to study the technological adoption of invention products. TAM highlights two major determinants: perceived usefulness and perceived ease of use. The design of the invention product, including functionality and feasibility, will determine the application attitudes of users. TAM has frequently been used to study the adoption attitudes of new initiatives. Similar to the adoption situation of Gen AI, Wallace, Wallace & Sheetz (2014) use TAM to study the adoption of software management programs to improve the project management flow and individual job performance. Based on its result, these two major determinants play critical roles in attracting individuals to adopt software management programmes.

Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT developed by Venkatesh and others, is another common technology adoption model to study the readiness to use new initiatives. Its frameworks include performance expectancy, effort expectancy, social influence, and facilitating conditions. Venkatesh (2022) applied UTAUT model to exactly study the intention and use of AI tools. This research found that individual characteristics, technological characteristics, and environmental characteristics play critical roles in promoting new initiatives in a company. The climate is mature enough or not to implement new initiatives.

Technology, Organisation and Environment (TOE)

TOE's framework was created by Tornatzky and Fleisher (1990). It highlights that the implementation of technology innovation is influenced by the technological context, organisational context, and environmental context. In previous studies, the TOM framework has been applied widely to study advanced technology adoption in different industries.

Gupta, Somya, et al. (2022) used this framework to study the adoption of AI in the insurance industry. This framework has been enriched by sub-categories based on T-O-E. Based on the findings, technological

advantages will be the determinant to adopt AI in the workplace. Top management support will significantly influence the adoption of AI. Financial predictability, such as minimising the risk, and automating the business process, will positively impact the readiness of individuals to adopt AI. However, Regulatory concerns will be significant hurdles for adopting AI. Therefore, government intervention is necessary.

Theory of Planned Behavior (TPB)

TPB is a cognitive theory that explains how personal attitudes, created by Azjen in 1985, subjective norms, and perceived behavioural control influence an individual's decision to adopt a particular behaviour (Azjen, 1991). It likely tries to change the individual's practice through education and thought-shaping strategies. Several previous literature also used TPB to adopt Gen AI in different areas. The one most likely to this research topic is to study the diversity of using Gen AI in higher education (Ivanov, Stanislav, et al., 2024). The advantages of AI have a significant impact on the use of Gen AI. However, weakness and risk can't have a strong relationship on the readiness to use Gen AI.

Diffusion of Innovation (DOI)

Rogers (2003) mentioned that DOI is a process for communicating the innovation initiative through communication channels with the social members. He has mentioned five attributes for adoption process: 1) Relative advantages 2) Comparison 3) compatibility 4) trialability 5) Observability. All of them can help assess the adoption rate of the new initiatives. Olatokun & Igbiniedion (2009) used DOI to study the adoption of Automatic Teller Machines in Nigeria. All factors showed a significant relationship to adopt ATM.

Summary of the Theoretical Framework

The above four theoretical frameworks focus on different perspectives on illustrating the intention of using new initiatives, which also showed significant relationship to the measured target. Therefore, in this research, the mixed model will be created by author to fit the cultural in Hong Kong. TOE frameworks, such as Technological Context, Organizational context, and environmental context, are umbrellas that cover the intention factors suggested by other models. TAM, UTAUT, TPB and DOI were frequently adopted in previous adoption-related research. TAM and UTAUT will be the main frameworks used in this research. Behavioural modification is also important for adopting new initiatives. Therefore, TPB and DOI will be the other two theoretical frameworks to use in this research.

Independent Variables

a. Perceived Usefulness (PU)

PU means that people assume that the technology is useful for them. Chaveesuk, Khalid, and Chaiyasoonthorn (2020) use the TAM model to study the stakeholders' needs for using the blockchain in the construction industry. It found that PU has a strong relationship with the readiness to use. Zhao and

Yan (2023) used TAM to study the adoption of safety compliance of construction workers. As a result, PU found a strong relationship with perceived usefulness.

H1: Perceived usefulness has a significant positive relationship with adopting Gen AI.

b. Perceived Ease of Use (PEU)

PEU means that individuals would use the technology free from effort (Scherer et al., 2019), which is similar to Perceived behavioural Control from TPB (Icek, 1991). Simple to use and less frustrating to use are the considerations for individuals when adopting new initiatives. Scherer, Siddiq, and Tonder (2019) use the TAM Model to study the adoption of digital technology by teachers in education. It showed a sufficient relationship between PEU and the intention to use it. Also, Alnemer (2022) uses TAM to study the adoption readiness of digital banking. It also showed that PEU has a strong relationship with the intention to use.

H2: Perceived ease of use has a significant positive relationship with adopting Gen AI.

c. Social Influence (SI)

SI refers to the influence from friends, colleagues and social networks may affect the intention to use a particular technology (Menon & Shilpa, 2023). Their research showed that social influence has a significant relationship with the intention to use a particular technology. Jahanshahi, Tabibi, and Van Wee (2020) discussed the intention of using a bicycle-sharing system by UTAUT. They found that social influence has a positive relationship with the intention to use a bicycle-sharing system.

H3: Social influence has a significant positive relationship with adopting Gen AI.

d. Facilitating Conditions (FC)

FC refers to the individual's perceptions of how resources and environment support to perform the new behaviours (Ramírez-Correa, Patricio, et al., 2019). Ramírez-Correa, Patricio, et al (2019) investigated the acceptance of online games in mobile devices by UTAUT model. However, there is no significant between facilitating conditions and the acceptance of online games on mobile devices. Menon and Shilpa (2023) investigated the intention to use ChatGPT using the UTAUT model. There is a significant relationship between facilitating conditions and intention to use Chat GPT.

H3: Facilitating conditions have a significant positive relationship with adopting Gen AI.

e. Top Management Support

The research by Ali et al. (2021) shows that support from management for adopting new technology in a company is high and significant. They can provide the necessary financial and manpower approval to purchase and apply a new technology. When top management is not involved in the initiatives, their importance will be dramatically decreased. Therefore, it should be considered in this research.

H4: Top management support has a significant positive relationship with adopting Gen AI.

f. Compatibility

Compatibility refers to an individual's insight into the new initiative with their requirements and confidence (Sahid, 2022). It has a positive relationship between compatibility and the intention to use in m-payment adoption (Oliveira et al., 2016).

g. H5: Compatibility has a significant positive relationship with adopting Gen AI.

Demographic factors

a. Gender

Gender differences will be studied to determine the intention to use Gen AI.

Categories:

1. Male

1. Female

b. Working experience:

Working experience will be different in determining the intention to use Gen AI.

Categories: (Source: Ayman, 2023)

1. 5 years or below

2. 5 years to 10 years

3. More than 15 years

c. Professional Areas:

Differences in professional areas will determine the intention to use Gen AI.

Categories (Modified from Manpower Forecast for Hong Kong Construction Industry, 2023)

1. Architect

2. BIM Professionals

3. Building Surveyor

4. Civil Engineer

5. Construction Manager

6. Electrical Engineer

7. Environmental Engineer

8. Mechanical Engineer

9. Geotechnical Engineer

10. Land Surveyor

11. Landscape Architect

12. Town Planner

13. Quantity Surveyor
14. Safety Professional
15. Sustainability Professional
16. Site Administration Staff
17. Site Foreman
18. Site Supervisor
19. Technicians

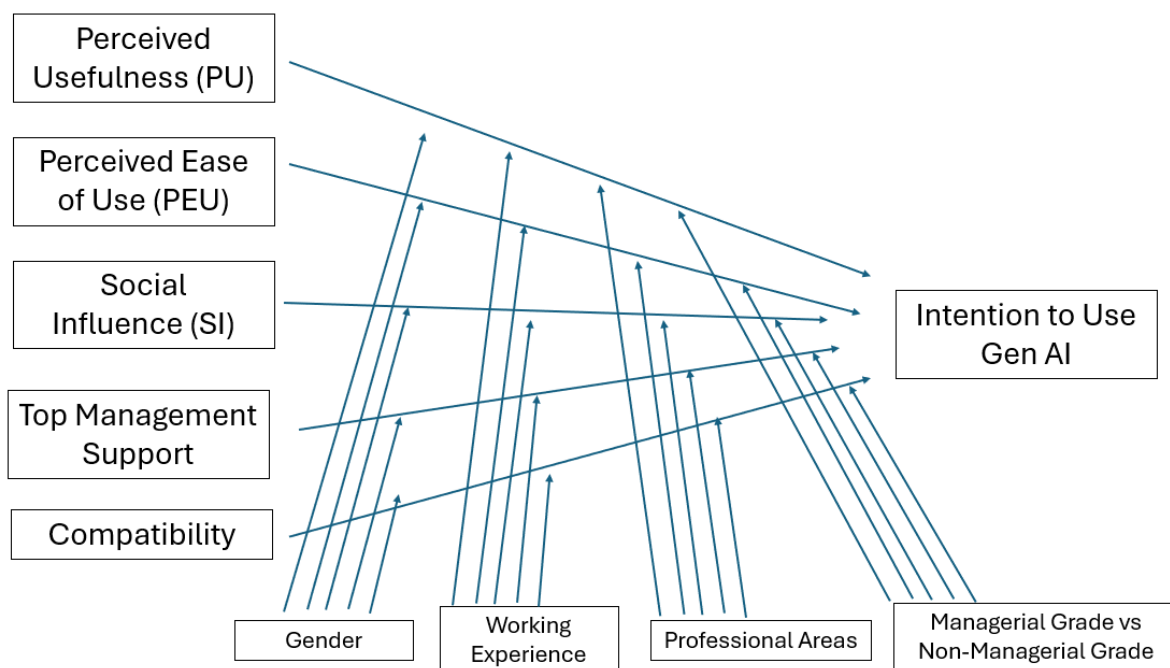
d. Managerial Colleague vs non-managerial

Managerial positions may have differences in the intention to use Gen AI.

Categories:

1. Yes
2. No

Research Model



Created by the Author

Questionnaires Design

Independent Variables	Questions	References
Perceived Usefulness	Applying Gen AI in my work would enhance my effectiveness in work.	(Rajak& Shaw, 2021)

	I would find GEN AI useful in work practice	(Wallace & Sheetz, 2014)
	I think Gen AI are useful for my job	
Perceived Ease of Use (PEU)	I believe that GEN AI is convenient to use.	
	Using Gen AI requires less mental effort.	
	Learning to use Gen AI is easy for me.	
	The operation of Gen AI is easy for me	(Menon & Shilpa, 2023).
Social Influence (SI)	Social media recommendations to use Gen AI.	
	My family, friends, and colleagues' suggestions for using Chat GPT will influence me.	(Jahanshahi, Tabibi, and Van Wee, 2020)
	People whose opinions I value would influence me to use Gen AI	
	People who are important to me think that I should use Gen AI	
Facilitating Conditions (FC)	I have sufficient resources to use Gen AI.	
	I have the sufficient knowledge to use Gen AI.	
	I can seek help from other when I have huddles using Gen AI	
	The Gen AI compatible with other forms of technologies I use	Created by the author
Top Management support	The involvement of top management is essential to adopt Gen AI	
	The direction of management is essential to adopt Gen AI	
	Top management can drive me to adopt Gen AI	

Compatibility	GEN AI is compatible with every aspect of my work.	(Sahid, 2022)
	Gen AI is compatible with my work situation.	

Research Methodology

This research will use a triangulation approach, including literature reviews, qualitative methodology, and quantitative methodology.

Literature Reviews

Snyder (2019) pointed out the importance of literature reviews when conducting empirical research. Literature reviews provide an overview, findings, and social impacts of the existing findings on society. To benefit this research, concrete and precise literature reviews will provide a strong theoretical foundation. By integrating different significant findings, literature reviews can address research questions soundly, not just through sole study. Cooper, Chris, et al (2018) stated that an entire literature review could help reduce the subjective bias in the research. The top two suitable sources should come from academic journals, academic books, and government publications (Denney & Tewksbury, 2013).

Qualitative Methodology

Qualitative methodology helps the researchers gain meaning and insights into the research topics in the given situation. Open-ended interviews and focus groups are common channels for conducting an interview (Mohajan, 2018). It helps to understand the human behaviours, experiences, and feelings of the participants regarding the research topic.

Focus Group

A focus group will be used in this research to collect the participant's subject experiences and views on their intention of using Gen AI in the construction industry. The main purpose of the focus group is to explore a topic deeply that can't be captured by the quantitative methodology. To a certain extent, a focus group is to compensate for the weakness of quantitative methodology. Nyumba & Tobias et al. (2018) investigated 170 articles between 1996 and 2017, in which 3 to 20 participants were a range of the number of participants of the focus group, with a median of 10 participants. Its duration median is 90 minutes. To align with this finding, 10 participants of the focus group will be used. However, due to the tight schedule of participants, a 60-minute session will be addressed for this focus group.

Quantitative Methodology

The quantitative methodology helps provide statistical impacts on the research results (Goundar, 2012). The results of the quantitative methodology are usually used to project the tendency of the larger population in

a particular area. Its advantages are the high reliability of results by serious analytic processes and generating different outcomes according to the collected data to fit the research topic (Choy, L. T, 2014).

Pilot Test

A pilot test is a smaller sample size used to collect data prior to formal data collection. It is important to improve the understanding of the questions and the length of the questionnaires in the formal questionnaire design (In,2017). The target sample size of this research pilot test is 40, higher than Browne's suggestion of 30 (1995). However, due to the limited sample size, errors may appear in the calculation and have less statistical influence on the result.

Rating-Scale Design – Likert Scale

A Likert scale will be adopted to collect the intention and tendency of technical professionals to use Gen AI in the construction industry. It is a psychometric scale with multiple options for respondents to select to indicate their points of view (Nemoto & Beglar,2014). So, it is a proper scaling method for this research.

Scale Direction and Points of Scale

The scale direction is also one of the considerations. Yan, Keusch, and He (2018) found that the scale direction, including “High to Low” or “Low to High”, influences response results. They found that most respondents chose from the options when they appeared first, 46%, more than when they appeared later, 43.5 %. Being supported by this finding, the scale direction of this research will be “high to low”. Selecting different points of scale is another consideration for this research. from the previous research on this matter, Taherdoost (2019) suggested that either a 7-point scale or a 6-point scale would be suitable for the research. If there is a need to show their preference, a 6-point will be suitable because a 7-point scale may appear to centralise tendency. To address this matter, a 6-point “High to Low” scale will be used in this research.

6-Point Scale:

Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
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Collection Method: Google Forms will be used to collect the data in this research.

Keywords search: intention, adoption, readiness, Gen AI

Sampling Techniques: Snowball Sampling

Sampling techniques can be divided into probability sampling and non-probability sampling. Probability sampling is a random sampling in which every individual in the target population has an equal opportunity to be included in the research. Non-probability sampling is a non-random sampling in which respondents aren't selected randomly but limits the target criteria (Taherdoost,2016). Non-probability sampling, called snowball sampling, will be selected in this research to fit real-life accessibility. This method is most effective when the target population is not easy to reach; the researcher can find a group of suitable respondents first, and after gathering their data, they can recommend individuals with similar backgrounds to study (Naderifar et al., 2017).

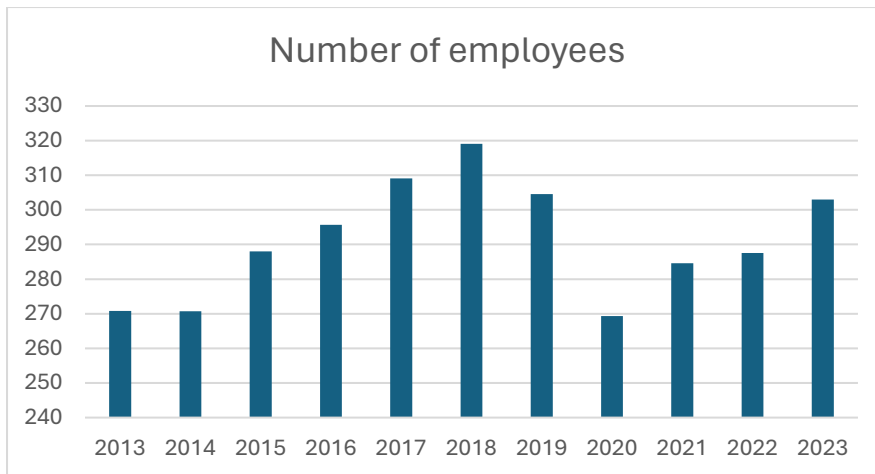
Target population

The target population is technical professionals with specialised knowledge and skillsets related to planning, design and management of construction projects in Hong Kong. Therefore, to decide the sufficient sample size for the research, a 10-year-number of employees in the construction industry will be listed below for further calculation:

Table 3: Construction Industry Employee Distribution from 2013-2023 (Number' 000)

Years	Number of employees
2013	270.8
2014	270.7
2015	288
2016	295.7
2017	309.1
2018	319.1
2019	304.6
2020	269.3
2021	284.6
2022	287.5
2023	303

Table 3: Number of Employees in the Construction Industry from 2013-2023 (Number'000)



Source: Census and Statistics Department, HKSAR, 2024

Table 4: Descriptive Statistic for Table 3

Items	Results
Means	293.16
Median	291.85
Standard Deviation	16.23
Minimum (2020)	269.3
Maximum (2018)	319.1

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Confidence Interval: 95%,

A Confidence Interval (CI) is a standard part of the qualitative results of the research. The importance of the confidence interval is to indicate the precision of the sample result as an estimate of the target population value. Sometimes, 90%, 95%, and 99% CI will be adopted in research studies. In General, a 95% CI will be well enough to be used in the research study, which contains the true population value (Altman, 2005).

P- Value: 0.05

The P-value will be 0.05, and the CI is 95%. The importance of P-value is used to reject the null hypothesis (Figueiredo et al., et al., 2013). When the P-value is lower than 0.05, the null hypothesis can be rejected, which means the hypothesis can be accepted.

Z-score (Standard Score): 1.96

The function of the Z score is to measure how the standard deviations of the data input away from the mean of the overall data (Andrade,2021). The Z-score will be 1.96 if the CI is 95%, which means allowing 1.96 deviations from the overall mean.

Level of Evidence Hierarchy: Level 1

Evidence Hierarchy can be divided into 4 grades, as shown in Table 5 below, which contains different features and limitations. Since this research is an empirical study, it will be a level 1 study.

Table 6: Hierarchy of Evidence

Level	Descriptions & Features	Limitations
1	Generalisable studies • Literature Review • Qualitative Studies • Quantitative Studies	Word Limitation due to not allowing Comprehensive Reporting
2	Conceptual studies • Theoretical Studies	Only limited to the conceptual studies, fewer case studies
3	Descriptive studies • Practical experience studies	Less of theoretical support for the studies
4	Single case study • Focus on one person's experience	Fail to apply to the general situation

Source: Daly, Jeanne, et al. 2007

Sample size: Cochran's Sample Size Formula

Sample size influences the level of research. Referring to the target population, which is the mean of 2013-2013, of 293,16 thousand. Nanjundeswaraswamy and Divakar (2021) mentioned that the Cochran formula would be adopted, which is most suitable for a large population, and the specific level of precision is 0.05, which is suitable for market research. The confidence level is 95%, and the Z value is 1.95, aligned with the above correlation interval. Due to the difficulty of estimating the proportion, the P value assumes 0.5, which is the maximum variability in the population (Sarmah & Hazarika, B. B. (2012).

Cochran's Sample Size Formula:

$$N = Z^2 p(1-P) / e^2$$

$$N = 1.96^2 \times 0.5 \times (1-0.5) / (0.05)^2$$

$$N = 3.841 \times 0.25 / 0.0025$$

$$N = 384.1$$

Therefore, this research uses a sample size of 384. Referring to Table 5, Conroy (2015) also prepared a published table. The larger population sample size is 384.

Table 5: Sample Size for Prevalence Studies

Confidence Interval	Size of Population					
$\pm 5\%$	Large	5000	2500	1000	500	200
	384	357	333	278	217	132

Source: (Conroy, 2015)

Data Analytic Techniques

Descriptive Statistic

Descriptive statistical analysis plays a core role in research by helping researchers understand and describe the collected data. It provides the first image of the data collected. Therefore, its function will not answer the research, which will be answered by statistical tests in the later part of the data analysis (Johnson, 2014). Mean, mode, median, variance, and standard deviation will be used to describe the data collected from this research.

Mean: It will be used to calculate the average score of quantitative variables, which are the intention determinants of adopting Gen AI in this study.

Mode: It will consolidate the qualitative variables, such as demographic data, including gender, working experiences, and positions, in this study.

Median: A median is the middle number of the collected data.

Variance: It will be used to study the spread of data from the mean, which can help to study the distribution of the data. In this study, the specific intention score differences from the mean score can be evaluated through variance.

Standard Deviation: It will be used to study the range of the score from the mean score. It can be used to evaluate the consistency and performance of the collected data. In this study, it will be used to study the overall score of intention determinant differences from the mean score.

Descriptive analysis is important in this research to help prepare suitable policies and actions for adopting Gen AI for colleagues with different intention rates.

Correlation (Pearson Correlation)

Correlation measures the association between two variables. Pearson's correlation is commonly used to measure the strength of linear association between two variables (Sedgwick,2012). The range of correlation is from -1, negative correlation, through 0 to 1, positive correlation, which indicates different levels of correlation, as shown in the table below.

Table 6: Different levels of correlation

Range	Interpretation
0.00-0.10	Very Low Correlation
0.10-0.39	Low Correlation
0.40-0.69	Lightly Correlation
0.70-0.89	High Correlation
0.90-1.00	Very high Correlation

Source: (Schober, Boer & Schwarte, 2018)

Correlation is crucial to this study, as it determines the result of this research topic: the relationship between the intention determinants and readiness to adopt GEN AI in the construction industry. It will highly influence future implementation. Therefore, for those determinants that have a strong correlation, more resources may be invested to gain the largest effort.

Regression Analysis: Independent T-test and One-way ANOVA

To find the correlation between two variables, regression analysis, including simple and multiple regression analysis, will be used in the data analysis process. An Independent T-test will be used to analyse only the independent variable without sub-categories with the dependent variable, a simple regression analysis. However, if the independent variable includes sub-categories, such as Gender containing Male and Female, and two independent variables need to be measured, One-way ANOVA will be used to measure their cross-correlation within the dependent variable.

Reliability

Cronbach's alpha value, which is at least 0.7 (Hussey, Ian, et al., 2023), is used to measure the reliability of data collected from respondents. The purpose is to ensure that the analysis result meets the significant criteria for p-value. The range of Cronbach's Alpha is 0 to 1. Generally speaking, the higher Cronbach's alpha appears, the higher the reliability of the result. In this research, 0.7 will be accepted.

Ethical Considerations for the Research

Ethical issues will be considered in this research. For the data collection part, the topic, purposes, applications, and duration of keeping the questionnaires will be indicated on the first page of the questionnaire before

starting to answer the survey. Respondents need to click “Agree” before doing the research. All respondents must be voluntary to be involved in this research. All data will be kept confidential until the completion of this research.

For the focus group study, all participants will be explained the topic, purposes, applications, and duration of keeping the information before starting the session. Video recording will be arranged after obtaining their consent. All participants are voluntary to join this group and should agree to join by written consent.

Contribution to Knowledge

The application of Gen AI is a global trend for every industry, including the construction industry. No one can be excluded from this tendency. How we can adopt it smoothly and purposefully is our question. Therefore, the result of this research is valuable to understanding the 5 determinants of Gender, positions, working experience and managerial staff or not of influencing individuals to use GEN AI in the construction industry. After obtaining the result, the promotion initiatives can be concentrated on specific target groups matching the strong relationship between variables. The focus and direction will be more concrete if it follows the result of this research.

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APPLICATION FOR ETHICAL APPROVAL

RESEARCH STUDENTS

This form is to be completed by the student within **SIX** months for full-time students and **TWELVE** months for part time students, after the commencement of the research degree or following progression to Part Two of your course.

Once complete, submit this form via the **MyTSD Doctoral College Portal** at (<https://mytsd.uwtsd.ac.uk>).

This document is also available in Welsh.

RESEARCH STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk, with the title 'Ethical Approval' followed by your name.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

Please read the notes for guidance before completing ALL sections of the form.

This form must be completed and approved prior to undertaking any research activity. Please see Checklist for details of process for different categories of application.

SECTION A: About You (Principal Researcher)

1	Full Name:	Chan Hoi San			
2	Tick all boxes that apply:	Member of staff:	☐	Honorary research fellow:	☐
	Undergraduate Student	☐	Taught Postgraduate Student	☒	Postgraduate Research Student
3	Institute/Academic Discipline/Centre:	HKMA			
4	Campus:				
5	E-mail address:	hoisanc@gmail.com			
6	Contact Telephone Number:	60834182			
For students:					

7	Student Number:	2247751
8	Programme of Study:	Master Of Business Administration
9	Director of Studies/Supervisor:	Pro. Ho. Leo

SECTION B: Approval for Research Activity

1	Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)	YES	☐	NO	☒
					Date
2	If Yes, please indicate source of approval (and date where known): Approval in principle must be obtained from the relevant source prior to seeking ethical approval	Research Degrees Committee	☐		
Institute Research Committee		☐			
Other (write in)		☐			

SECTION C: Internal and External Ethical Guidance Materials

	Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, location-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines. You may add rows to this table if needed.	
1	UWTSD Research Ethics & Integrity Code of Practice	☒
2	UWTSD Research Data Management Policy	☒
3	<i>[List any other relevant documents here]</i>	☐

SECTION D: External Collaborative Research Activity

If there are external collaborators then you should gain consent from the contact persons to share their personal data with the university. If there are no external collaborators then leave this section blank and continue to section E.

1	Institution	N/A				
2	Contact person name	N/A				
3	Contact person e-mail address	N/A				
4	Is your research externally funded?	YES	☐	NO	☐	
5	Are you in receipt of a KESS scholarship?	YES	☐	NO	☐	
6	Are you specifically employed to undertake this research in either a paid or voluntary capacity?	Voluntary	YES	☐	NO	☐
7		Employed	YES	☐	NO	☐
8	Is the research being undertaken within an existing UWTSD Athrofa Professional Learning Partnership (APLP)?	If YES then the permission question below does not need to be answered.	YES	☐	NO	☐

9	Has permission to undertake the research has been provided by the partner organisation?	(If YES attach copy) If NO the application cannot continue	YES	☐	NO	☐
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Where research activity is carried out in collaboration with an external organisation

10	Does this organisation have its own ethics approval system?	YES	☐	NO	☐
	If Yes, please attach a copy of any final approval (or interim approval) from the organisation (this may be a copy of an email if appropriate).				

SECTION E: Details of Research Activity

1	Indicative title:	An Empirical Investigation into Determinants of Generative Artificial Intelligence (Gen AI) adoption in the Construction Industry: From the Perspectives of Technical Professionals			
2	Proposed start date:	5 May 2024	Proposed end date:	18 Nov 2024	
	Introduction to the Research (maximum 300 words per section) Ensure that you write for a <u>Non-Specialist Audience</u> when outlining your response to the points below: <i>Purpose of Research Activity</i> <i>Proposed Research Question</i> <i>Aims of Research Activity</i> <i>Objectives of Research Activity</i> Demonstrate, briefly, how Existing Research has informed the proposed activity and explain <i>What the research activity will add to the body of knowledge</i> <i>How it addresses an area of importance.</i>				
3	Purpose of Research Activity GEN AI has become widely applied in different industries, and it is agreed that it will be an important technology in future. However, there is lack of research to discuss the adoption situation of Gen AI in the Hong Kong construction industry. Therefore, in this research, the intention determinants of adopting Gen AI in the Hong Kong construction industry from the perspectives of technical professionals will be investigated to develop future policies and promotion initiatives to encourage GEN AI implications in the construction industry. (this box should expand as you type)				
4	Research Question Research Question 1: What are the causes and effects among determinants for technical professionals to adopt Gen AI in the construction industry? Research Question 2: What are the critical determinants that affect the adoption of Gen AI in the construction industry? (this box should expand as you type)				
5	Aims of Research Activity				

	The aim of this research is to identify the critical determinants of adopting Gen AI in the Hong Kong construction industry smoothly (this box should expand as you type)
6	Objectives of Research Activity The application of Gen AI is a global trend for every industry, including the construction industry. No one can be excluded from this tendency. How we can adopt it smoothly and purposefully is our question. Therefore, the result of this research is valuable to understanding the 5 determinants of Gender, positions, working experience and managerial staff or not of influencing individuals to use GEN AI in the construction industry. After obtaining the result, the promotion initiatives can be concentrated on specific target groups matching the strong relationship between variables. The focus and direction will be more concrete if it follows the result of this research. (this box should expand as you type)
	Proposed methods (maximum 600 words) Provide a brief summary of all the methods that may be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. You do not need to justify the methods here, but should instead describe how you intend to collect the data necessary for you to complete your project.
7	This research will use a triangulation approach, including literature reviews, qualitative methodology, and quantitative methodology. a. Literature Reviews Literature reviews provide an overview, findings, and social impacts of the existing findings on society. To benefit this research, concrete and precise literature reviews will provide a strong theoretical foundation. By integrating different significant findings, literature reviews can address research questions soundly, not just through sole study. b. Qualitative Methodology It helps to understand the human behaviours, experiences, and feelings of the participants regarding the research topic. c. Quantitative Methodology The results of the quantitative methodology are usually used to project the tendency of the larger population in a particular area. Its advantages are the high reliability of results by serious analytic processes and generating different outcomes according to the collected data to fit the research topic. (this box should expand as you type)
	Location of research activity Identify all locations where research activity will take place.
8	Hong Kong (this box should expand as you type)
	Research activity outside of the UK If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and

	whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural and/or legal sensitivities or vulnerabilities of participants. If you live in the country where you will do the research then please state this.
9	N/A <i>(this box should expand as you type)</i>

10	Use of documentation not in the public domain: Are any documents NOT publicly available?	NO	☒
		YES	☐
11	If Yes, please provide details here of how you will gain access to specific documentation that is not in the public domain and that this is in accordance with the current data protection law of the country in question and that of England and Wales. <i>(this box should expand as you type)</i>		

	Does your research relate to one or more of the seven aims of the Well-being of Future Generations (Wales) Act 2015?	YES	NO
12	A prosperous Wales	☐	☒
13	A resilient Wales	☐	☒
14	A healthier Wales	☐	☒
15	A more equal Wales	☐	☒
16	A Wales of cohesive communities	☐	☒
17	A Wales of vibrant culture and thriving Welsh language	☐	☒
18	A globally responsible Wales	☐	☒
19	If YES to any of the above, please give details:		
	<i>(this box should expand as you type)</i>		

SECTION F: Scope of Research Activity

	Will the research activity include:	YES	NO
1	Use of a questionnaire or similar research instrument?	☒	☐
2	Use of interviews?	☐	☒
3	Use of focus groups?	☒	☐
4	Use of participant diaries?	☐	☒
5	Use of video or audio recording?	☒	☐
6	Use of computer-generated log files?	☐	☒

7	Participant observation with their knowledge?	☐	☒
8	Participant observation without their knowledge?	☐	☒
9	Access to personal or confidential information without the participants' specific consent?	☐	☒
10	Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?	☐	☒
11	Performance of any acts which may cause embarrassment or affect self-esteem?	☐	☒
12	Investigation of participants involved in illegal activities?	☐	☒
13	Use of procedures that involve deception?	☐	☒
14	Administration of any substance, agent or placebo?	☐	☒
15	Working with live vertebrate animals?	☐	☒
16	Procedures that may have a negative impact on the environment?	☐	☒
17	Other primary data collection methods. Please indicate the type of data collection method(s) below.		
	Details of any other primary data collection method: (this box should expand as you type)	☐	☒

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

SECTION G: Intended Participants

If there are no participants then do not complete this section, but go directly to section H.

	Who are the intended participants:	YES	NO
1	Students or staff at the University?	☐	☒
2	Adults (over the age of 18 and competent to give consent)?	☒	☐
3	Vulnerable adults?	☐	☒
4	Children and Young People under the age of 18? (Consent from Parent, Carer or Guardian will be required)	☐	☒
5	Prisoners?	☐	☒
6	Young offenders?	☐	☒
7	Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?	☐	☒
8	People engaged in illegal activities?	☐	☒
9	Others. Please indicate the participants below, and specifically any group who may be unable to give consent.		
	Details of any other participant groups: (this box should expand as you type)	☐	☒

	Participant numbers and source Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?	
10	How many participants are expected?	300-400 <i>(this box should expand as you type)</i>
11	Who will the participants be?	The target population is technical professionals with specialised knowledge and skillsets related to planning, design and management of construction projects in Hong Kong. <i>(this box should expand as you type)</i>
12	How will you identify the participants?	Colleagues who are working in the construction industry will be selected. <i>(this box should expand as you type)</i>

	Information for participants:	YES	NO	N/A
13	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	☒	☐	☐
14	Will you tell participants that their participation is voluntary?	☒	☐	☐
15	Will you obtain written consent for participation?	☐	☐	☒
16	Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	☒	☐	☐
17	If the research is observational, will you ask participants for their consent to being observed?	☐	☐	☒
18	Will you tell participants that they may withdraw from the research at any time and for any reason?	☒	☐	☐
19	With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☒	☐	☐
20	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	☒	☐	☐
21	Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	☐	☐	☒
22	If NO to any of above questions, please give an explanation			
	<i>(this box should expand as you type)</i>			

	Information for participants:	YES	NO	N/A
24	Will participants be paid?	☐	☒	☐
25	Is specialist electrical or other equipment to be used with participants?	☐	☒	☐
26	Are there any financial or other interests to the investigator or University arising from this study?	☐	☒	☐
27	Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?	☐	☒	☐
28	If YES to any question, please provide full details			
	<i>(this box should expand as you type)</i>			

SECTION H: Anticipated Risks

	Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them. If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.		
1	Full risk assessment completed and appended?	Yes No	☐ ☒
2	Risks to participants For example: sector-specific health & safety, emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information		
	Risk to participants: <i>(this box should expand as you type)</i>	How you will mitigate the risk to participants: <i>(this box should expand as you type)</i>	
3	If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities		
	<i>(this box should expand as you type)</i>		
4	Risks to the investigator For example: personal health & safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest		
	Risk to the investigator: No major risk for anonymous survey <i>(this box should expand as you type)</i>	How you will mitigate the risk to the investigator: N/A <i>(this box should expand as you type)</i>	
5	University/institutional risks For example: adverse publicity, financial loss, data protection		
	Risk to the University: N/A <i>(this box should expand as you type)</i>	How you will mitigate the risk to the University: <i>(this box should expand as you type)</i>	
6	Environmental risks For example: accidental spillage of pollutants, damage to local ecosystems		
	Risk to the environment: <i>(this box should expand as you type)</i>	How you will mitigate the risk to environment: <i>(this box should expand as you type)</i>	
Disclosure and Barring Service			
	If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.	YES	NO
7	Does your research require you to hold a current DBS Certificate?	☐	☒

8	If YES, please give the certificate number. If the certificate number is not available please write "Pending"; in this case any ethical approval will be subject to providing the appropriate certificate number.	
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SECTION I: Feedback, Consent and Confidentiality

1	Feedback What de-briefing and feedback will be provided to participants, how will this be done and when? N/A <i>(this box should expand as you type)</i>
2	Informed consent Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded in accordance with prevailing data protection legislation. For the survey, respondents need to click "agree" button on the page of consent form before starting the research. For the focus group, the purposes of this group will be explained to participants in details. <i>(this box should expand as you type)</i>
3	Confidentiality / Anonymity Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case. Name and contact information will not be recorded in the questionnaires. A password will be used for the working computer. The data will be deleted after passing the examination board. <i>(this box should expand as you type)</i>

SECTION J: Data Protection and Storage

	Does the research activity involve personal data (as defined by the General Data Protection Regulation 2016 "GDPR" and the Data Protection Act 2018 "DPA")?	YES	NO
1	"Personal data" means any information relating to an identified or identifiable natural person ('data subject'). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person. Any video or audio recordings of participants is considered to be personal data.	☐	X
	If YES, provide a description of the data and explain why this data needs to be collected:		
2	<i>(this box should expand as you type)</i>		
	Does it involve special category data (as defined by the GDPR)?	YES	NO
3	"Special category data" means sensitive personal data consisting of information as to the data subjects' – (a) racial or ethnic origin, (b) political opinions, (c) religious beliefs or other beliefs of a similar nature,	☐	X

	Will data from the research activity (collected data, drafts of the thesis, or materials for publication) be stored in any of the following ways?	YES	NO
5	Manual files (i.e. in paper form)?	☒	☐
6	University computers?	☐	☒
7	Private company computers?	☐	☒
8	Home or other personal computers?	☒	☐
9	Laptop computers/ CDs/ Portable disk-drives/ memory sticks?	☒	☐
10	“Cloud” storage or websites?	☒	☐
11	Other – specify:	☐	☒
12	For all stored data, explain the measures in place to ensure the security of the data collected, data confidentiality, including details of backup procedures, password protection, encryption, anonymisation and pseudonymisation:		
	Password and login name will be applied to the system. <i>(this box should expand as you type)</i>		

Data Protection			
	Will the research activity involve any of the following activities:	YES	NO
13	Electronic transfer of data in any form?	☐	☒
14	Sharing of data with others at the University outside of the immediate research team?	☐	☒
15	Sharing of data with other organisations?	☐	☒
16	Export of data outside the UK or importing of data from outside the UK?	☐	☒
17	Use of personal addresses, postcodes, faxes, emails or telephone numbers?	☐	☒
18	Publication of data that might allow identification of individuals?	☐	☒
19	Use of data management system?	☐	☒
20	Data archiving?	☐	☒
21	If YES to any question, please provide full details, explaining how this will be conducted in accordance with the GDPR and Data Protection Act (2018) (and any international equivalents, where appropriate):		
	<i>(this box should expand as you type)</i>		

22	List all who will have access to the data generated by the research activity:		
	Researcher only <i>(this box should expand as you type)</i>		
23	List who will have control of, and act as custodian(s) for, data generated by the research activity:		
	Researcher Only <i>(this box should expand as you type)</i>		
24	Give details of data storage arrangements, including security measures in place to protect the data, where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.		
	Password will be granted for the used computer. The data will be deleted after completing this research. <i>(this box should expand as you type)</i>		
25	Please indicate if your data will be stored in the UWTSD Research Data Repository (see https://researchdata.uwtsd.ac.uk/). If so please explain. <i>(Most relevant to academic staff)</i>		
	No <i>(this box should expand as you type)</i>		
26	Confirm that you have read the UWTSD guidance on data management (see https://www.uwtsd.ac.uk/library/research-data-management/)	YES	☒
27	Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding	YES	☒

SECTION K: Declaration

	The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants. In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: https://www.uwtsd.ac.uk/research/research-ethics/		
1	Signature of applicant:		Date: 16 May 24

For STUDENT Submissions:

2	Director of Studies/Supervisor:	Leo Ho	Date: May 17, 2024
3	Signature:		

For STAFF Submissions:

4	Academic Director/ Assistant Dean:		Date:
5	Signature:		

Checklist: Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

☒	I have read the guidance notes supplied before completing the form.
☒	I have completed ALL RELEVANT sections of the form in full.
☒	I confirm that the research activity has received approval in principle
☐	I have attached a copy of final/interim approval from external organisation (where appropriate)
☐	I have attached a full risk assessment (where appropriate) ONLY TICK IF YOU HAVE ATTACHED A FULL RISK ASSESSMENT
☒	I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.
☒	I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Academic Director.

RESEARCH STUDENTS ONLY

Once complete, submit this form via the **MyTSD Doctoral College Portal** at (<https://mytsd.uwtsd.ac.uk>).

RESEARCH STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk, with the title 'Ethical Approval' followed by your name.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.