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台灣市場推廣建築工程成本顧問之可行性

Potential to Establish Quantity Surveying / Cost
Management Profession in Taiwan

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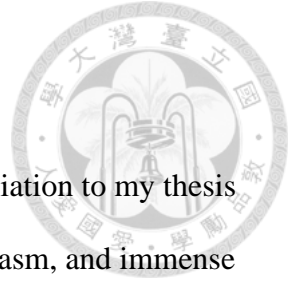
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中文摘要



儘管台灣建築業蓬勃發展，但建築項目仍受到成本超支、工期延誤、績效失誤和施工糾紛等問題的困擾。它背離了項目規劃和執行應注重效率並產生盡可能高的投資回報的項目管理原則。因此有推广工料測量或成本管理服務之必要。工料測量師或成本經理的主要职责是實施嚴格的成本控制与合同管理，以確保公平合理的資源利用，并為建築合同双方獲得利益最大化。

本研究的目的是了解台灣是否有潛力建立及推广工料測量（**QS**）或成本管理顧問專業。本研究首先調查了當前 **QS** 市場參與者所採用的波特通用策略以及競爭優勢。通過研究，我們了解到外資企業投資台灣市場對 **QS** 服務的需求。同時，我們也了解到 **QS** 服務在台灣沒有被廣泛採用的原因是台灣本土企業在項目團隊的配置不同，并採用相對傳統的管理模式。

本研究以 Alex Osterwalder 的“價值主張畫布”為軸心，采訪台灣的工程項目的利益相關者，包括客戶、項目經理、承包商和工料測量師。訪談中我們更好地了解項目客戶或其他利益相關者更喜歡採用 **QS** 服務的一些根本原因，以及阻礙 **QS** 行業在台灣發展的因素。針對在訪談中發現的客戶痛點，我們提出了良好的 **QS** 公司架構以及多種解決方案。儘管目前市場僅限於外資企業客戶，但我們仍然認為台灣有必要發展 **QS** 行業，以建立一個更加透明和更具成本效益的建築工程市場。


在提供建議的部分，我們著眼於台灣 **QS** 行業的大局，為現有的 **QS** 公司、考慮進入台灣市場的國際 **QS** 公司、以及政府、行業專家和教育機構等其他利益相關者提出了建議。因為建立一個強大、規範的行業，不能仅仅依靠外部需

求，而是需要所有利益相關者共同治理和推動一個堅實的供給體系，才能放眼未來。



關鍵詞：工料測量、成本管理、競爭優勢、價值主張畫布、台灣建築業

Abstract

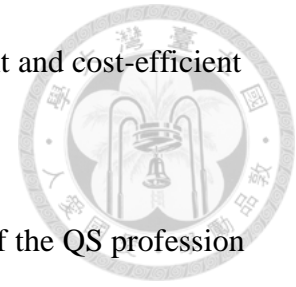


Despite the booming construction industry in Taiwan, construction projects are plagued by issues including cost overruns, schedule delays, performance lapses, and construction disputes. It has deviated from the project management rule whereby project planning and execution should seize efficiency and yield the highest possible return on investment. Therefore, quantity surveying or cost management services are brought into the picture. The main role of quantity surveyors or cost managers is to implement vigorous cost control and contract management to ensure that resources are used to gain the greatest advantage of the principal parties to a construction contract.

The purpose of this study is to understand if there is potential to establish quantity surveying (QS) or cost management profession in Taiwan. This study first investigates the competitive advantage and Porter's Generic Strategies adopted by current QS market players. Through the study, we understand the demand for QS services arises from foreign companies' investment in the Taiwan market. We also understand the reason QS services are not widely adopted in Taiwan is due to the different setups of the project team and relatively conventional approaches adopted by the local construction team.

By utilizing Alex Osterwalder's' Value Proposition Canvas to interview project stakeholders including client, project manager, contractor and quantity surveyor in Taiwan, we can better understand some underlying reasons on project clients or stakeholders prefer adopting QS services and also what hinders the development of QS industry in Taiwan. For the customer's pains which we found from the interviews, we have proposed a good QS firm structure and several solutions to address the pain point. Despite the current market being limited to MNC clients, we still see the need of

developing the QS industry in Taiwan to establish a more transparent and cost-efficient construction market.



In the recommendation section, we look at a bigger picture of the QS profession in Taiwan instead of individual companies. Recommendations have been given to existing QS firms, international QS firms who are looking at entering the Taiwanese market, and other stakeholders such as the government, industry experts, and education providers. It is because building up a strong and regulated profession does not rely on external demand, but also a solid supply system that is governed and promoted by all related stakeholders.

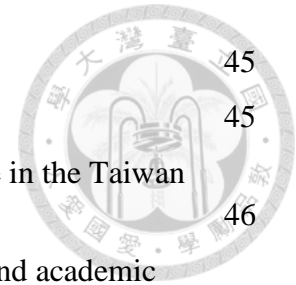
Keywords: Quantity Surveying, Cost Management, Competitive Advantages, Value Proposition Canvas, Taiwan Construction Industry.

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Chapter 1 Introduction



1.1. Research Background

Quantity surveyors (QS) or cost managers manage finances and procurement for construction projects. They calculate budgets based on clients' requirements, prepare detailed estimates to ensure budgets are sufficient for each stage of construction, and advise the client on any decision-making based on a commercial perspective. In certain countries, depending on the regional professional standards, the job scope of QS or cost managers also involves contract administration and procurement.

Compared to professions like engineering and architecture, which are highly regulated and widely recognized in society, the project cost management profession faces challenges in creating greater awareness of the value that they provide for projects. While quantity surveying service has long been adopted in many regions, particularly Commonwealth countries, it hasn't historically been recognized as an independent profession in European countries, China, South America and Taiwan, where project cost management has instead just been taken as a subset of the larger project management and engineering fields, carried out by architects, engineers or project managers.

1.2. Construction Industry in Taiwan

The annual production yield of the Taiwanese construction sector has increased from USD 45.9 billion in 2011 to USD 70.8 billion in 2021. It has increased from 3.7% to 4.6% of the country's total GDP, demonstrating the industry's considerable contribution to Taiwan's overall economic development (Statistical Tables, n.d.). Due to the long-lasting relationship between US and Taiwan, many prominent American companies, including Amazon Web Service (AWS), Cisco, Meta, Microsoft, IBM, Johnson & Johnson, Merck, and Pfizer have established business collaboration and

invested in Taiwan (Taipei Economic and Cultural Office in New York, North Jersey Media Group, 2022).

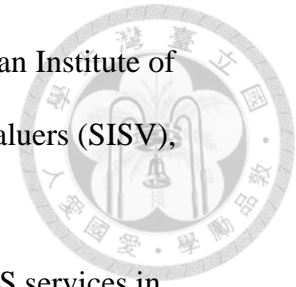
However, Taiwan's construction projects are plagued by issues including performance lapses, cost overruns, schedule delays, etc (Chen & Chen, 2007). The Public Construction Commission (PCC) has reported that 20% of all dispute cases in Taiwan involved disputes between clients and contractors over measurements of quantities. Similar to anywhere in the world, a construction project in Taiwan usually involved different parties including project owners, architects, engineers, general contractors, subcontractors and suppliers. Research by Chen & Chen (2007) discovered that technical expertise is the second utmost important factor that contributes to the success of a partnership construction project, whilst effective communication ranks first. However, the quantity surveyor profession does not have a significant presence in Taiwan Construction Market.

As quantity surveyors do help to complement the expertise of various construction-related parties, particularly on costing and contract matters, therefore able to strengthen the competitiveness and construction capability of the construction team, we wish to understand the gap in the Taiwanese construction market and to determine the potential to establish Quantity Surveying / Cost Management profession in Taiwan.

1.3. Motivation of Research

I did my undergraduate in Singapore, and I was majoring in Project and Facilities Management. Upon graduation, I have been working as a Cost Manager / Quantity Surveyor (QS) in Singapore for 5 years and in Taipei for 3 years. I am a Chartered Quantity Surveyor under the Royal Institution of Chartered Surveyors (RICS) but to my understanding, this profession is not as regulated as Certified Public Accountant (CPA) or Chartered Financial Analyst (CFA) as there are many professional

bodies governing QS professional around the world such as Australian Institute of Quantity Surveyors (AIQS), Singapore Institute of Surveyors and Valuers (SISV), Pacific Association of Quantity Surveyors (PAQS).



In 2019, I was engaged by my current company to provide QS services in Taiwan for a well-known high-tech company that was building its 16-storey hardware research and development center in Banqiao, New Taipei City. It was their largest development outside the United States. With our company's local presence in Taipei, a few other multinational companies across various sectors approached us to provide QS services for their construction or fitting-out projects in Taiwan. In the beginning, I was surprised that Taiwan did not have a similar profession. After consulting a few local industry experts, I understand that typical local construction projects have a different setup for their professional consultant team which will be illustrated further in Section 5 Research Findings.

Given the booming of the Taiwanese construction market which I have experienced personally throughout these three years working in Taiwan, especially having foreign corporations set up offices, data centers, research labs, manufacturing plants or hotels in Taiwan, I think there is a potential to expand QS services in Taiwan. I would also like to apply the theoretical knowledge that I have acquired from GMBA, by analyzing this topic from a business perspective.

1.4. Research Objective

My research findings may be beneficial to professional construction consultancy firms to determine if there is a potential to establish Quantity Surveying / Cost Management profession in Taiwan. Unlike the matured QS industry in Singapore, Hong Kong or Malaysia, Taiwan is a relatively new market for QS services. The senior management teams can refer to the result of interviews to understand the local

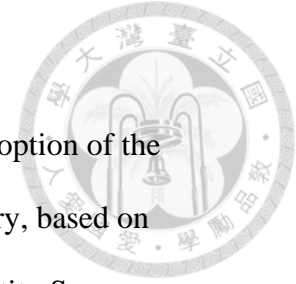
construction market and how different local stakeholders, including the clients, project managers and contractors think of the QS profession. With more local insights, consultancy firms can alter their business strategies such as hiring strategy and target industry to achieve a better outcome.



My research findings may also be informative for foreign construction parties or commercial clients to consider their entering the Taiwan market or more specifically, planning to start construction projects in Taiwan. They can understand the competitive advantages and the value-add of having QS or cost consultants with a local presence in Taiwan.

To my understanding, QS services are not a popular professional service adopted by local developers or local clients. Local developers and clients can understand more about what the services can be provided and how can a QS professional help in the construction life cycle through the literature review and experience sharing from the interviewees who have worked with QS or cost consultants in Taiwan before.

Chapter 2 Literature Review



The research aims to analyze the needs and barriers to the adoption of the Quantity Surveying profession in the Taiwanese construction industry, based on interviews conducted with industrial experts who worked with Quantity Surveyors before. Therefore, the literature review includes typical construction project team structure, the role of a quantity surveyor, the professional construction consultancy service in Taiwan, and the Value Proposition Canvas.

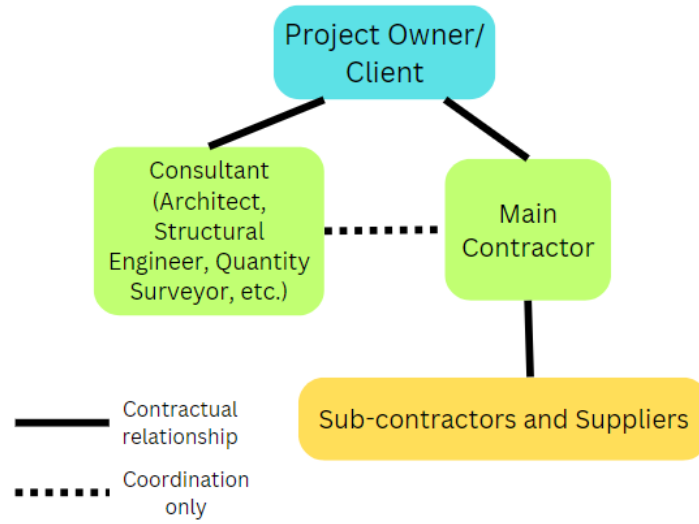
2.1. Construction Project Team Structure

Under the traditional contractual arrangement, which is usually adopted for typical construction projects, the client will engage a consultant team, which may include architects, engineers, and quantity surveyors who play a role in providing professional services to the project and overseeing the construction (Tang et al., 2003). A very broad range of consultants may be required, depending on the project's scope, size, and complexity. With the input from the consultant team on design and procurement, the client will then engage a main contractor to construct the building. Figures 1 and 2 below demonstrate the typical project team structure in construction projects.



Figure 1

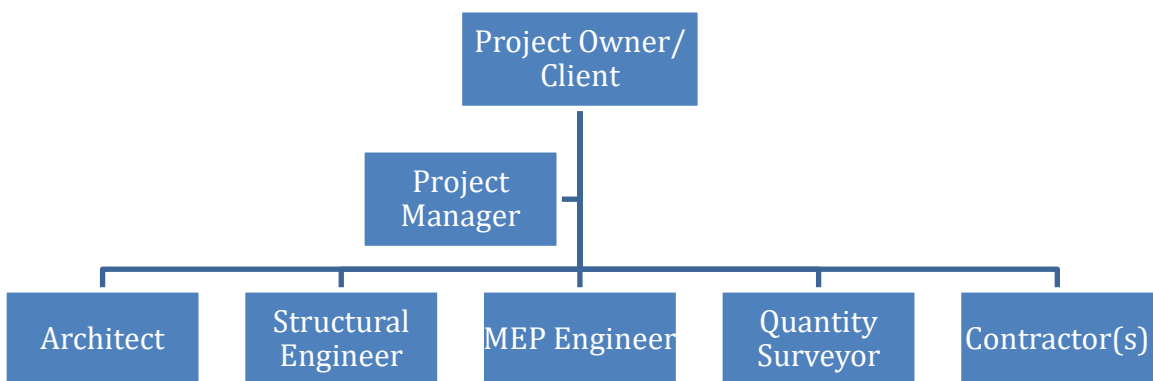
Typical project team structure



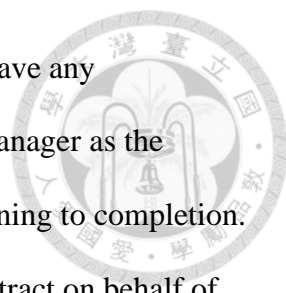
(Adopted from Tang, S., Poon, S., Ahmed, S. M., & Wong, F. K. (2003). *Modern Construction Project Management, Second Edition*. Hong Kong University Press.)

Figure 2

Typical project team structure with Project Manager



(Adopted from Waterhouse, R. (1992). "Project management: spot the difference." *Chartered Quantity Surveyor*, 14(4), 21–22.)

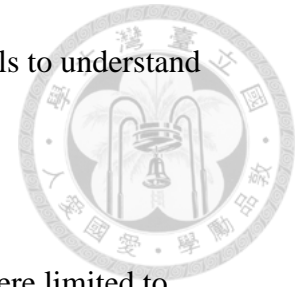


The client, who is the owner of the project, may or may not have any construction knowledge. Therefore, the client will appoint Project Manager as the client's representative to oversee the construction project from beginning to completion. The role of the Project Manager is to administer the construction contract on behalf of the client and to ensure the construction project is carried out according to the schedule, design and specifications as stipulated in the contract (Anyanwu, 2013). Developers or real estate companies will employ individual project managers as their in-house employee as construction is their core business and the volume of construction projects are significant. For commercial clients from other industries, instead of hiring individual project managers, they also can engage professional consultancy firms to provide Project Management services as and when they have construction projects. Section 2.3 will further elaborate on professional consultancy firms in Taiwan.

The contractor, who is the builder, plays the biggest role during the construction stage. The role of the contractor is to execute the construction projects by using their resources including money, labor, raw material, and machinery to translate the design and specifications from paper to physical structure (Anyanwu, 2013). In Taiwan, contractor firms are segregated into three categories, classifying their capability to take on projects of different scales. According to Article 4 of the Construction Industry Act, Grade A contractors can take on projects within ten times of their own paid-up capital. Grade B contractors can take on projects below NT\$90 million. Grade C contractors can only take on projects below NT\$27 million. The selection process of the suitable contractor would be carried out by the procurement team of the client.

The client, project manager and contractor are the three main stakeholders who the QS would liaise with while providing quantity surveying or cost management

services. Therefore, interviews are conducted with these professionals to understand their experience working with QS in Taiwan.



2.2. The Role of Quantity Surveyor

In the olden days, conventional Quantity Surveying works were limited to measuring quantities or surveying quantities of construction works to arrive at the value of proposed works or the completed works. This traditional scope is called measurement and is still being practiced for certain types of construction contracts such as remeasurement contract which is adopted for unforeseeable works like excavation or piling works. Over time, the scope of works of quantity surveyors has evolved extensively (Ashworth & Higgs, 2023). In some consultancy firms or Request for Proposal (RFP) issued by clients, the term quantity surveying has been replaced by cost management services. In general, the role of quantity surveyors or cost managers is to ensure the project is successfully completed within the agreed budget and the employer obtains value for money throughout the whole project life cycle from the conceptual stage, design stage, construction stage to project completion (Smith, 2016).



Figure 3

Typical project stages for Quantity Surveying service

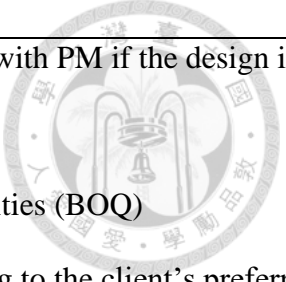


Mbachu (2015), Smith (2016), and Ashworth and Higgs (2023) researched the scope of QS services which includes the traditional role of QS and a wider specialist service such as cost benchmarking and contractual dispute resolution. Typical QS roles and responsibilities are summarized in the table below:

Table 1

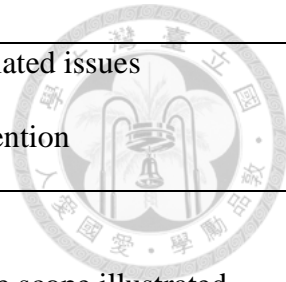
QS roles and responsibilities in each stage

Project Stage	QS roles and responsibilities
Conceptual Stage	<ul style="list-style-type: none"> - Work with Project Manager (PM) on the project feasibility study - Establish budgetary targets as per the client’s requirements. - Budget monitoring throughout the project cycle
Design Stage	<ul style="list-style-type: none"> - Detailed estimate based on the development of design



	<ul style="list-style-type: none"> - Conduct a value engineering workshop with PM if the design is above budget - Prepare pricing schedule / Bill of Quantities (BOQ) - Establish procurement strategy according to the client's preferred contractual arrangement
Procurement and Award Stage	<ul style="list-style-type: none"> - Assist PM with pre-qualification of bidders. Specifically, review the financial capability of each bidder. - Develop Pre-tender Estimate - Advise the client on the appropriate form of contract to use and prepare all commercial tender documents - Evaluate the commercial offer of the contractor to ensure tender accuracy and consistency in pricing - Attend tender interviews to clarify with contractors on commercial requirements such as insurance and performance bond - Prepare commercial tender recommendation report
Construction	<ul style="list-style-type: none"> - Interim payment assessment - Assist PM with change management by assessing contractor's variation order - Provide professional advice on the contractual and financial implications of claims - Cost reporting and financial reconciliation on the forecast final project cost - Provide cash flow forecast to the client and advise any budget raised would be required
Final Account	<ul style="list-style-type: none"> - Manage final account negotiation

	<ul style="list-style-type: none"> - Resolving depute and finalizing cost-related issues - Assess final payment and release of retention
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As QS services are not widely adopted in Taiwan, some of the scope illustrated in Section 2.2. are carried out by professional project management teams, designers, or clients' internal stakeholders such as the procurement team, legal team or finance team.

2.3. Professional Construction Consultancy Service in Taiwan

Traditionally, project owners or clients often think that the hiring of professional project management consultants is an additional cost. Today's construction projects demand extremely specific expertise and practical insight. Due to the complexity of the projects, some issues can no longer be solved using conventional operational procedures (Chou & Yang, 2012). In order to address these difficulties, project management was established, which makes it easier to implement and complete projects. In the case of public school building projects in Taiwan researched by Juan and Liou (2021), the schedule and cost performance of projects were poor as the representatives of the general affairs in schools, who were the client, were lack of professional knowledge and experience in project procurement and contract management. It was recommended to have a Professional Construction Management (PCM) team to handle the project interface integration and cross-functional coordination (Juan and Liou, 2021).

According to Wang (2004), Taiwanese government agencies and private companies are streamlining their organizations and have gradually entrusted professional project management consulting companies to handle project management-related affairs to solve the shortage of manpower and at the same time, leverage the professional expertise to improve construction management functions and project quality. In the execution of a construction project, the sooner the project management

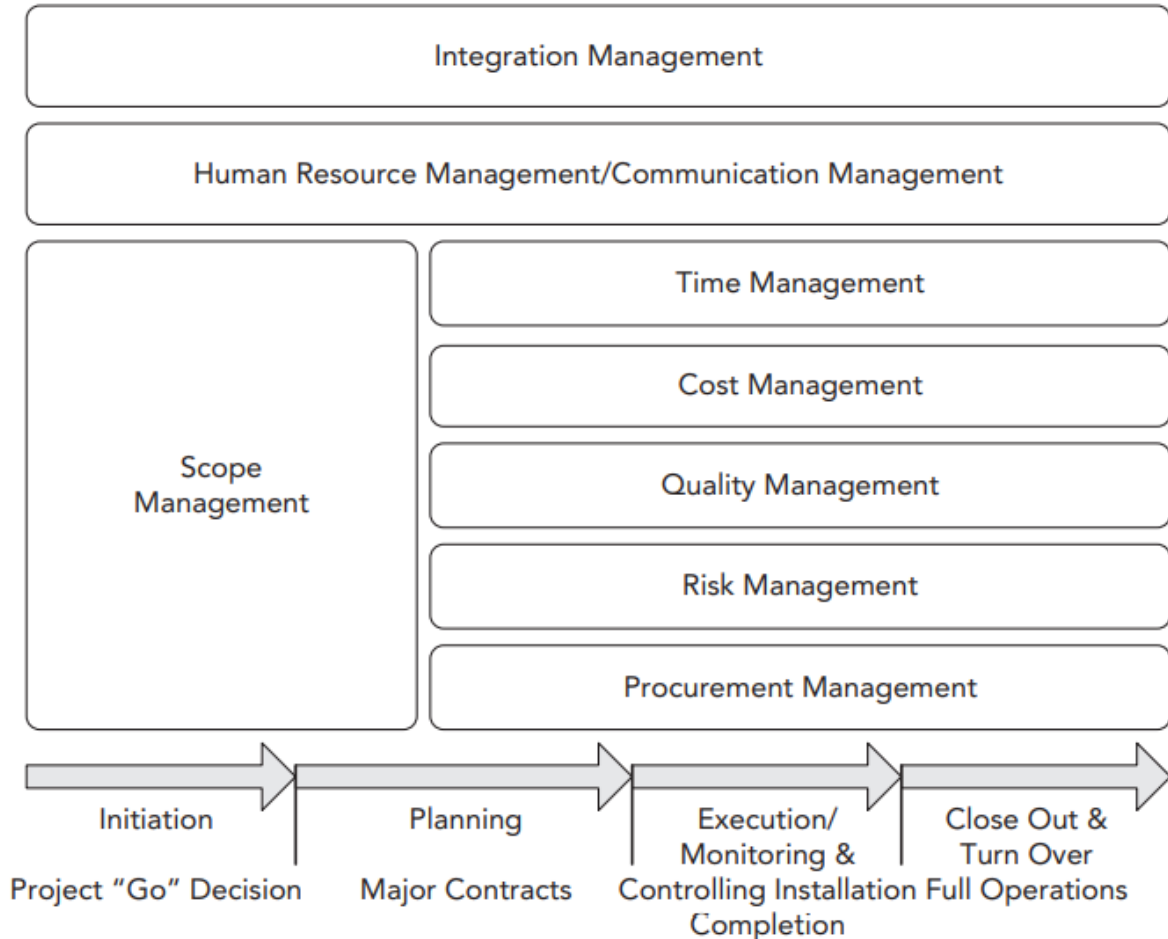
consultant enters, the more benefits can be obtained for the project. For instance, during the planning and design stage, project management consultants would be able to coordinate the opinions and recommendations of design consultants and engineers, grasp the overall consideration of the construction project, and make the design more suitable for the construction of the project and meet the needs of the owner.

It is important to establish the responsibilities and obligations between the owner and the project management consultants. A Guide to the Project Management Body of Knowledge Guide (PMBOK® Guide) has defined the nine project management knowledge areas which need to be measured and managed properly for a construction project (PMI, 2008). Figure 4 illustrates PMBOK® Guide and project phase. An empirical study conducted by Chou and Yang (2012) discovered that among those nine areas, project communication management and procurement management have statistically significant impacts on project outcomes in terms of project performance, client satisfaction and project success.



Figure 4

PMBOK® Guide and project phase



(Adopted from Chou, J., & Yang, J. (2012). Project Management Knowledge and Effects on Construction Project Outcomes: An Empirical Study. *Project Management Journal*, 43(5), 47–67. <https://doi.org/10.1002/pmj.21293>)

With reference to Section 2.2., the scope of procurement management and cost management are duplicated with QS services. It is because contract and commercial matters are always sensitive and some clients would prefer to have an independent cost consultant to manage it, especially for projects with a larger scale and higher budget. Under the empowerment of the client, it is the mission and task of the project manager

to enable the function of the consultancy team to be fully utilized and to obtain project benefits for the clients.



2.4. Quantity Surveying in Taiwan

In the last decades, Quantity Surveying services were not known in Taiwan. In 2003, the Public Construction Commission (PCC) reported that 20% of all disagreement cases in Taiwan involved disputes between clients and contractors over measurements (Lee and Li, Attorneys-at-Law, 2004). Yang (2009) has conducted a study to analyze the background of this issue and has identified a few causes for the occurrence:

1. Unlike other countries that have implemented QS services, there is no standard method of measurement for construction works in Taiwan.
2. The absence of training for estimators
3. No structured or professional training for the personnel who enter the work of estimating and therefore it takes a long time to learn through working

Yang (2009) has suggested a series of practical implementing procedures to adopt a quantity surveying system in Taiwan to solve the critical cost issues and disputes in the local construction market back in the last decades. Nevertheless, due to the absence of strong demand and the QS practice was not well-introduced to local clients, there was minimal progress since then. In this study, we would like to see how the demand has changed and the acceptance level of QS services in Taiwan.

2.5 Value Proposition Canvas

The Value Proposition Canvas, developed by Dr Alexander Osterwalder to supplement Business Model Canvas, is a framework to ensure that there is a fit between the product and the market. The value proposition of a business is what sets it apart from its rivals. New products or services are created to meet clients' expectations and cultivate value through a variety of factors, including the client's experience, brand

image, price, service quality, etc (Osterwalder et al., 2015). It enables entry to high-potential market segments by identifying the target customers and their actual needs and reviewing if the specific needs can be solved by the new product or service.

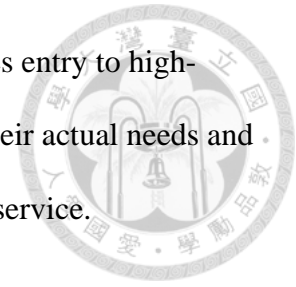
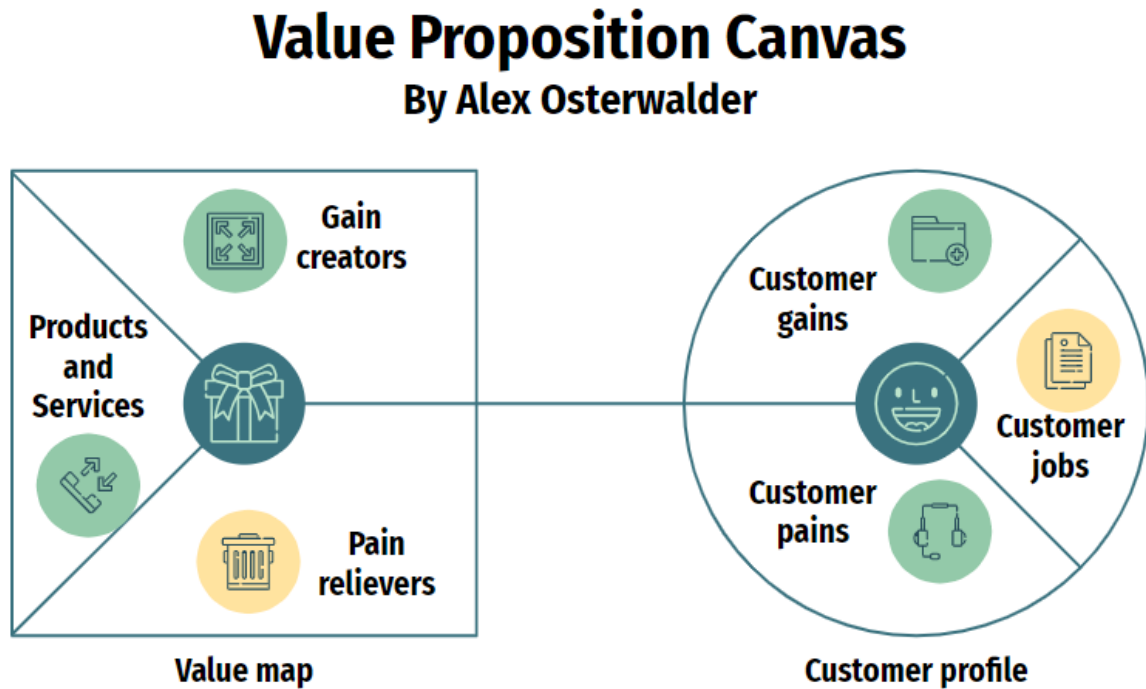


Figure 5

The Value Proposition Canvas



(Adopted from Chou, J., & Yang, J. (2012). Project Management Knowledge and Effects on Construction Project Outcomes: An Empirical Study. *Project Management Journal*, 43(5), 47–67. <https://doi.org/10.1002/pmj.21293>)

Value Proposition Canvas includes a Customer profile and a Value Map. As featured in Figure 5, the customer profile includes defining the customer’s job by understanding what the tasks are to be performed and needs to be satisfied and subsequently identifying the customer’s pains and gains. Customer gains are the advantages that customers need and want, what would excite customers, and what may make them more likely to adopt a value proposition whereas customer pains are the

unpleasant situations, feelings, and hazards that a client encounters while attempting to complete a task (Osterwalder et al., 2015).

With a thorough understanding of the customer profile, the value map can be developed by identifying the products and services the business can offer to the target customer and create value by either being gain creators and/or pain relievers. Gain creators provide the outcomes or benefits that the consumer expects, such as usefulness, social advantages, pleasant emotions, and cost savings. Pain relievers are features that will alleviate or lessen the painful events that customers experience while performing their tasks (Osterwalder et al., 2015).

After completing the customer profile and value map, it is important to connect the element between both maps to ensure the products and services match the customers' job to be done, gain creators help to fulfill customers' goals, and pain relievers help to deal with customers' struggles. In the case study, we will identify the customer profile through interviews with industrial experts. The feedback will be incorporated into the Value Proposition Canvas in order to improvise the proposed business model.

Chapter 3 Industry Analysis



Currently, there are three companies that provide Quantity Surveying services in Taiwan. In this section, we would identify the companies' core competencies and competitive advantage and then follow with Porter's Five Forces Analysis.

3.1. Company A – Currie & Brown

Currie & Brown is a leading global asset management and construction consultancy firm with a head office in London. The headquarter of APAC is in Hong Kong and the company has a branch office in Tokyo, Singapore, Bangkok, Taipei and many other major cities in the region. The company offer project management, cost management and building advisory services across various sectors, including but not limited to commercial property, industrial, education, oil and gas, pharmaceutical, residential, retail, hospitality and high-tech sector (Currie & Brown, n.d.).

Currie & Brown Taipei branch has been established since 2003 and started with providing advice to clients on public-private partnership (PPP) contracts. Throughout the years, Currie & Brown Taipei has expanded their service to project management, project controls and cost management services and earned a first-class reputation in rail, commercial property and the high-tech sector in Taiwan. Strategically located in Taipei Xinyi area, Currie & Brown Taipei has been engaged by several multinational companies to provide cost management or quantity surveying services.

As cost and commercial management is at the heart of Currie & Brown, the cost management or QS services provided by this company are very comprehensive, compared to their competitors in Taiwan. Other than the typical project cost management and procurement advice, Currie & Brown also provide value-added services including benchmarking and efficiency studies, capital allowances advice for tax depreciation, cashflow management, change management, cost modeling,

engineering services cost management, risk and value management, strategic cost planning and estimating, value engineering and whole-life cost advice (Currie & Brown, n.d.).



Currie & Brown Taipei Branch has two competitive advantages in Taiwan. Firstly, the company has both global reach and local delivery. Currie and Brown is known for hiring top local talent who speak the local languages and understand the local culture for their local operations. At the same time, the local operations will be supported by the worldwide Currie & Brown network, to align with the global best practice and deliver consistent professional services to the clients across the region. Unlike their regional competitors such as Turner & Townsend, Linesight, AECOM and Rider Levett Bucknall (RLB) who only published cost data or benchmarking reports in English, Currie & Brown has published their APAC Hospitality Cost Benchmarking Report in both English and Chinese (Currie & Brown, n.d.). This strategy helps Currie & Brown to enter the Greater China market and open their door to local clients.

Secondly, Currie & Brown is the only RICS-regulated Quantity Surveying company in Taiwan (Find a Surveyor, n.d.). In the global construction industry, many corporate clients especially financial institutions pay great attention to the competencies, accreditations and credibility of the service providers. Royal Institution of Chartered Surveyors (RICS) creates and enforces international QS standards, assuring the highest degree of professionalism. RICS also regulates and oversees regulated firms to ensure they uphold the highest standards (Smith, 2016). As an RICS-regulated firm, Currie & Brown is conferred global recognition of professionalism and business standards that distinguishes them from other competitors. Therefore, Currie & Brown has been awarded for cost management or QS services for some iconic projects in Taiwan.

3.2. Company B – Linesight

With over 45 years of expertise, Linesight is a global construction consultancy company that offers a wide range of services to a variety of industries, including data centers, life sciences, commerce, the high-tech industry, housing, hospitality, healthcare, and retail. According to their company website, Linesight provides Program Management, Project Management, Project Controls, Cost Management, Supply Chain Management, Health and Safety, Consultancy, Procurement, Planning and Scheduling services across the globe.

In Asia Pacific, Linesight is known as an international cost-management consultancy that has a strong track record of data center projects. For instance, data center projects account for around half of its consulting revenue in Singapore. Globally, Linesight has been involved in 310 data center projects and has delivered a total of 7400MW of critical power (Linesight - Global Construction Consultants, n.d.).

With extensive experience in the niche data center market and solid cost database, Linesight entered the Taiwan market in 2018, providing cost management services to data center clients mainly in Taichung, Changhua and Taoyuan. Linesight Since then, Linesight has consistently published Yearly Market Review Report and Commodity Report, sharing their views on the Taiwan construction market. In June 2022, Linesight officially announced the expansion of its Taiwan office which is located at Taichung (Ward, 2022).

Leveraging from their expertise and existing clientele from other regions, Linesight's track records in Taiwan are mainly in the high technology sector. Over 71MW of critical IT load has been successfully delivered by Linesight to Taiwanese data centers, and another 125MW is scheduled to come operational. On a rough estimate, assuming an average power consumption of 100watts per terabyte (TB) of

storage, a 71MW data center could potentially support around 710 petabytes (PB) of storage capacity, which means Linesight has involved in the projects to generate 710,000 TB of storage capacity in Taiwan. In addition, Linesight's ongoing projects, which include five data centers, are anticipated to be delivered between mid-2023 and the first quarter of 2024 (Ward, 2022).

Linesight has two competitive advantages in Taiwan. Firstly, as mentioned above, Linesight has a strong capability statement in providing cost management services for data center projects, which is the trend for the Taiwan construction market. According to Research and Markets (2022), the Taiwanese data center market is projected to grow at a compound annual growth rate (CAGR) of 18.4% from 2022 to 2027, driven by the increasing demand for cloud services and digital transformation across various industries. Several multinational companies including Microsoft, Google, and Amazon Web Services have been expanding their data centers in Taiwan, given the strategic location in East Asia, advanced telecommunication infrastructure and political environment. As the construction of data center, which requires strong mechanical and electrical knowledge, has a higher entry barrier than other construction projects, Linesight is in a very good position to grow with the growing industry.

Secondly, being a global company, Linesight has a strong market research team which can help the company to position itself better in the Taiwanese market and also attract other multinational companies who have the intention to enter the Taiwanese market. In Linesight's Q4 2022 Commodity Report which forecasts material prices through the beginning of 2023, it highlighted how the declining exports, deteriorating demand and rising interest rate have affected the construction industry growth in Taiwan, despite foreign direct investments and loosening of COVID19-related restrictions (Linesight, 2023). According to Logistics in Taiwan: Navigating a

Sustainable Building Boom (2022), Linesight has identified that the demand for logistics space is growing due to the growth of e-commerce and increasing demand for exports of electronics, in particular microchips and semiconductors. Linesight has demonstrated its understanding of local authority requirements for reducing carbon footprint and its ability to provide consultancy services to clients to build greener logistics facilities through the report. The reports are published in English and presented with graphics and charts to visually represent industry information and complicated data, as shown in Figure 6.

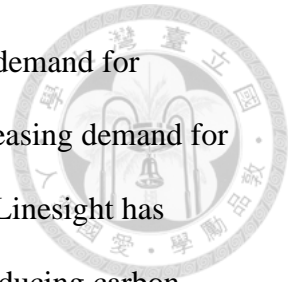
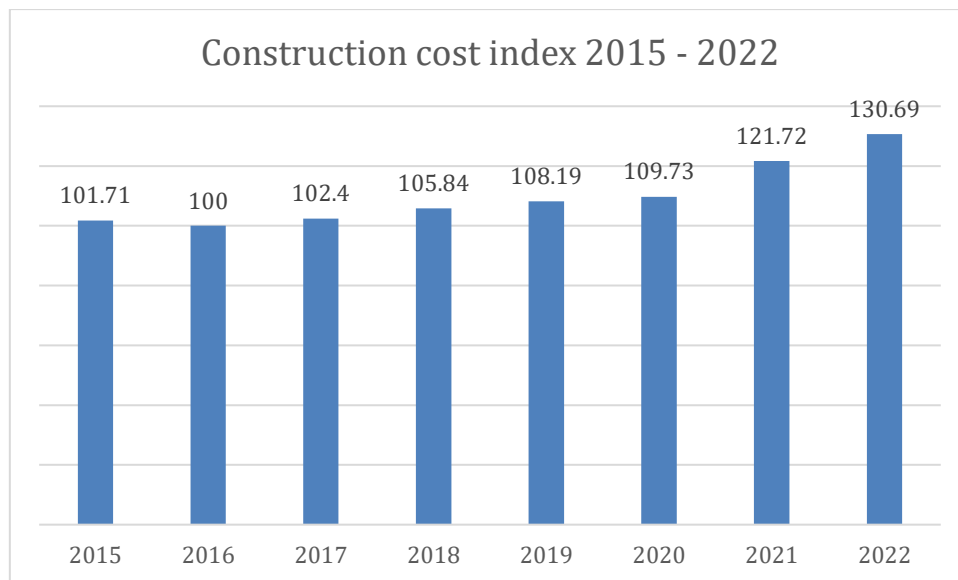


Figure 6

Visual representation of Taiwan Construction Cost Index



(Adopted from Linesight. (2023). *Linesight Taiwan Commodity Report - Q4 2022*.

Retrieved April 16, 2023, from <https://www.linesight.com/insights/linesight-taiwan-commodity-report-q4-2022/>)

3.3. Company C – Bravo Management Consultancy

Bravo Management Consultancy is a home-grown professional construction consulting firm in Taiwan. The founder of the company, Willie Tseng and Lin Yeong-



cheng had participated Taipei 101 development project under the employment of Turner International, a world-leading Project Management Consulting Firm. They were inspired to establish their own consultancy firm in Taiwan in 2008. The company offers the following services to clients:

- Professional Construction Management Service
- Tender and Procurement Service
- Contract Administration and Management Service
- Schedule Planning and Monitoring Service
- Quality Assurance (QA) and Quality Control (QC) Planning
- Risk evaluation, advice and administration
- Cost control/ Quantity surveying service and advice
- Construction claim review and advisory service
- Project Management Information System (PMIS) Software Development, Implementation and Training

(Bravo Project Management, Professional Construction Management Company, n.d.)

Since 2008, Bravo has built up a project portfolio of NT\$20 billion. Some of their project references based on the services provided are shown in the following table:

Table 2

Project References of Bravo Management Consulting

Service Provided	Project Type	Project References
Quantity Surveying Service	Commercial Projects	<ul style="list-style-type: none">- Shopee Office Fit-Out Project, 2021- Google Taipei Office Expansion Fit-out Projects, 2017



	Residential Projects	<ul style="list-style-type: none"> - Puyong Taipei Residential Project, 2020 - Hung Kuo Cheng Der Residential Buildings Project, 2017 - Phoenix Her Her Villa, 2013
	Retail & Hospitality Projects	<ul style="list-style-type: none"> - Apple Flagship Store at Xinyi A13, 2017 - ZARA and Other Brands Expansion, 2016 - Grand Hyatt Taipei Renovation Projects, 2010
Project Management Service	Commercial Projects	<ul style="list-style-type: none"> - Continental Taipei Office Relocation Project, 2019
	Retail Projects	<ul style="list-style-type: none"> - IKEA projects, 2019 - Gama Taichung Lamborghini Show Room Building, 2017 - Cathay Pacific Taipei VIP Lounge Renovation Project, 2015

Bravo has developed two competitive advantages which are not the strength of Linesight and Currie & Brown. Firstly, Bravo is a local company and has in-depth knowledge of the local construction market. Unlike Linesight and Currie & Brown who already have a regional framework with some multinational companies, Bravo often needs to partner with foreign consulting firms which have no local presence in Taiwan to bid for multinational companies' projects. Nevertheless, the founders have extensive

local construction experiences and networks which can help the company to win projects from local clients. Therefore, they have many local residential projects in which the project duration is longer and hence able to provide a consistent stream of revenue.

Secondly, instead of growing the conventional project management and quantity surveying business, the founders decided to make a significant move to develop a cloud-based Project Management Information System (PMIS), called BravoPM in 2015. BravoPM has been featured as one of the Top 10 Construction Technology Solution Providers by APAC CIO Outlook in 2019 and APAC CIO Outlook highlighted the following:

The solution allows all members in a project to create, edit, read, share, store, collaborate and search the required project-related information on a single, integrated cloud platform. Further, the lengthy process of the request for information (RFIs), submittals on paper, and the heavy reliance on email leads to a massive waste of time.

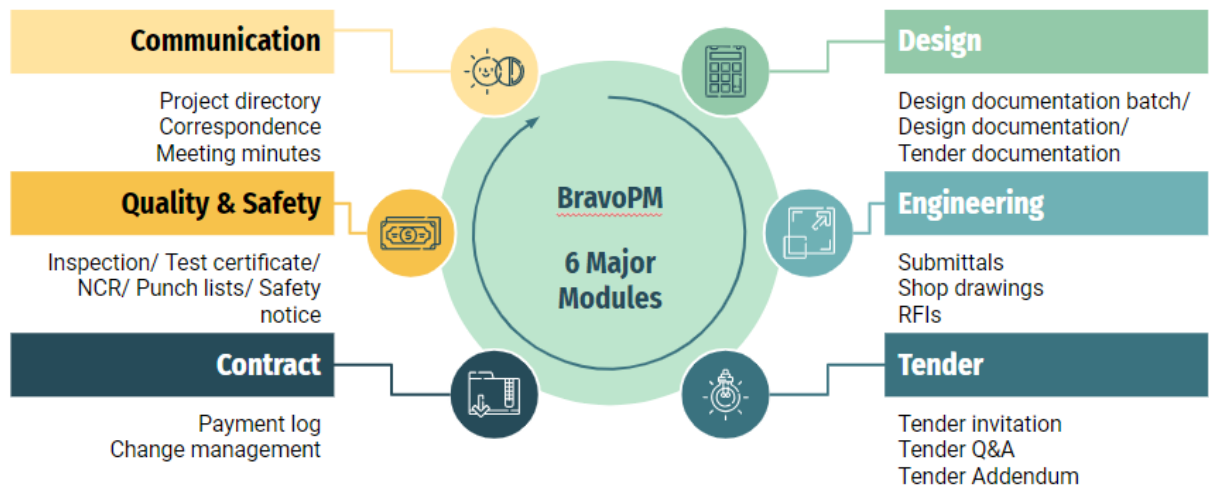
Hosted in a secured Microsoft Azure data center, BravoPM is an effective cloud platform built by experienced construction professionals to consolidate and store project information and documents throughout the project life cycle. Traditionally, clients, project managers, QS, architects, engineers, and contractors held hard copies of construction drawings and specifications. Any amendment would require a separate set of documents while the previous set will need to be archived. Many clients started going paperless and allowing project teams to store documents on Google Drive or Onedrive for ease of sharing and tracking. BravoPM has gone one step further to develop a platform that has the feature of project dashboard, report template, search engine for submittals, Request for Information (RFI) and contracts, auto email notification, etc to

facilitate project team collaboration and communication (*BravoPM Product and Information*, n.d.).



Figure 7

Six Major Modules in BravoPM



(Adopted from *BravoPM Product and Information*. (n.d.). Bravo International 啟登國際. Retrieved March 16, 2023, from <https://www.bravointl.com/products-detail.aspx?id=208> *BravoPM Product and Information*, n.d.)

Among the six modules illustrated in Figure 7, the Tender module and Contract module help to streamline and facilitate QS scope of works. Even though it cannot totally replace QS services as it is just a tool that requires human input, it does give Bravo a competitive advantage to provide QS services to the client with lesser manpower especially when some parts of the tendering and change request management tasks are trivial but time-consuming.

3.4. Competitors Comparison

Comparisons of the three QS firms that have a local presence in Taiwan is summarized below to understand the current market situation and what are the strength demonstrated and limitations possessed by each firm.




Table 3

Competitors Comparison

Company	Currie & Brown	Linesight	Bravo
Multinational Company / Local	Multinational Company	Multinational Company	Local
Office location	Taipei	Taichung	Taipei
Strength	1. First-mover advantage by setting up an MNC branch in Taipei 2. Strong presence in China and Hong Kong and ability to tap on the knowledge and client-based from those operations	1. Focus on the data center industry which is a booming industry for Taiwan and has a higher entry barrier due to high technicality 2. Strong global network and market research team	1. Strong connection with local clients 2. Introduce a cloud-based Project Management Information System (PMIS) to complement their services

	3. Local branch is RICS regulated firm		3. Lower service fee due to lower overhead cost
Limitation	<p>1. No competitive advantage against other MNC QS firms so they might be the first company to be affected if other MNC QS firms venture to the Taiwan market</p> <p>2. Higher fee as MNC has higher overhead cost typically</p>	<p>1. Too reliant on one niche industry. Diversification may be necessary as Taiwan has a volatile economic and political environment</p> <p>2. Other than data center and manufacturing facilities, other MNC projects are mostly in Taipei and Linesight has no office in Taipei.</p> <p>3. Higher fee as MNC has higher</p>	<p>1. Require partnership or joint venture with other MNC firms for certain MNC projects if those clients only procure from panel QS firms or have a master service agreement (MSA)</p> <p>2. Unable to obtain benchmark cost information or report template from overseas counterpart.</p>

		overhead cost typically	
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3.5. Porter's Generic Strategies

Porter's (2001) generic business strategies emphasized on “competitive advantage is at the heart of every strategy”. The generic strategies include (1) cost leadership, where the firm lower the costs of a firm’s product or service to gain market share by offering the most affordable items; (2) differentiation, where the firm outperforms rivals by creating unique products or services; and (3) focus, where the firm offers a specialized service to a specific market segment which can be a particular location, target client group or any niche market. The worst strategic trap is to be stuck in the middle when a company attempts to simultaneously pursue all the strategies. Therefore, it is important to understand what the company’s stance is and what are its competitive advantages.

Linesight is adopting a focus strategy because instead of locating in Taipei, their office is at Taichung to serve data center clients. They have tailored their competencies to meet data center clients’ and foster strong relationships with the clients. According to Porter (2001), the focus strategy is dependent on the existence of extraordinary demand in a specific segment. The fast evolution of the data center industry in Taiwan has given Linesight the opportunity to grow.

Bravo is taking a cost leadership perspective as being a locally founded company, it has lower overheads and margins to achieve. Accompanied by their newly developed software to standardize their service and lower the cost of resources, they can offer QS services with a lower service fee. Currie & Brown has the first-mover advantage in Taipei. The company is inevitably to compete on the basis of

differentiation, by providing high-quality performance with the governance of RICS, the world-leading QS accreditation.

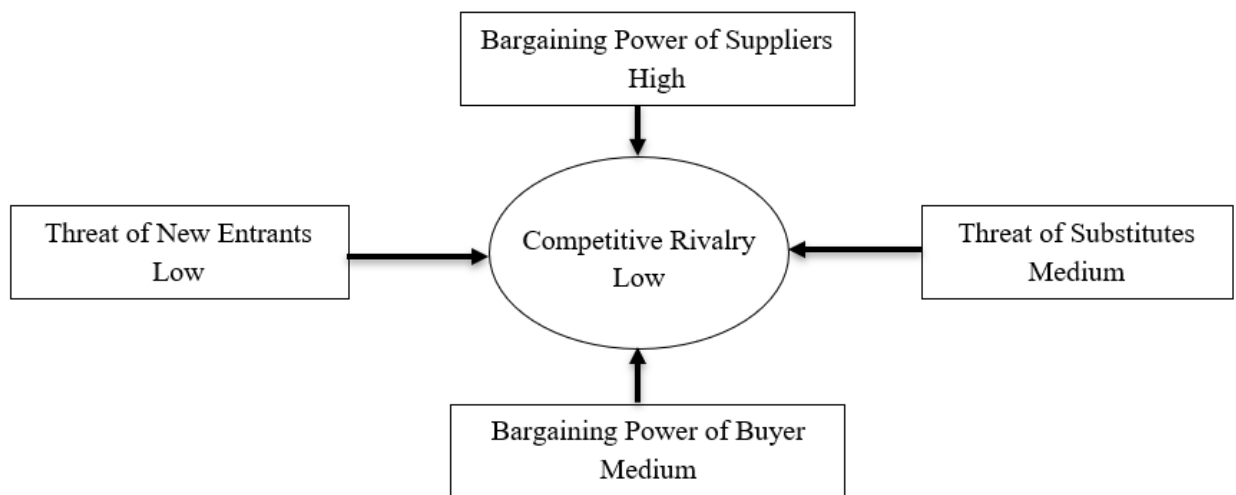


3.6. Porter's Five Forces Analysis

To ensure a better understanding of the Cost Management / Quantity Surveying industry in Taiwan, Porter's five forces analysis is being conducted to analyze the attractiveness of the industry. According to Harvard Business School (2022) which defined Porter's five forces as "the five forces is a framework for understanding the competitive forces at work in an industry, and which drive the way economic value is divided among industry actors". It is crucial to understand the strength and weaknesses of the industry and whether it would create a sustainable return.

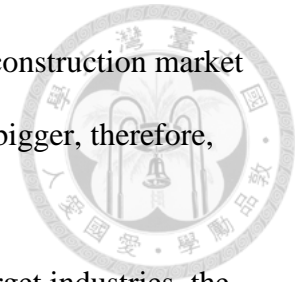
Figure 8

Porter's Five Forces Analysis on QS Industry in Taiwan



Rivalry among existing competitors (Low) – As analyzed in the industry analysis, there are only three existing competitors in the QS industry in Taiwan. As the three companies have different target clients and different competitive advantages, the competition between them is supposed to be low. For example, a local client would look for Bravo, a multi-national financial institution would look for Currie & Brown,

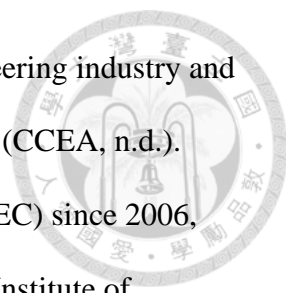
whereas a data center provider would look for Linesight. When the construction market is good and many companies are looking for QS services, the pie is bigger, therefore, there is no need to compete.



However, when there is a downturn that affects any of the target industries, the QS company would want to sustain its business by expanding its services to other sectors. For instance, if the political stability in Taiwan has affected the willingness of MNC to enter the Taiwanese market, Linesight or Currie & Brown would have to get local clients to sustain their business. If the technology downturn has affected the data center market in Taiwan, Linesight would have to expand its service to the commercial or residential industry. Typically, the way to intrude into another market would be to undercut their QS service fee to build up their track record. As such, there is a risk that the competition would be intensified.

The threat of new entrants (Low) – The threat of new entrants to the QS market in Taiwan is low, due to the high barrier of entry. Firstly, the QS market has already been dominated by established players who are specialized in specific areas of expertise. Established players have already built strong relationships with their existing clients, which can make it difficult for new entrants to gain a foothold. Secondly, hiring experienced bilingual QS professionals is very difficult in Taiwan. Local engineers or project managers might not have QS knowledge while QS from other countries might not have the bilingual ability and do not understand the local market. There is a gap in-between and the training cost is high as there is no QS-related degree in the local universities and no QS board in Taiwan to conduct continuing education for local quantity surveyors.

Compared to China which is also a Chinese-speaking country, China Cost Engineering Association (CCEA) was established in 1990. The system of registered



cost engineers is developed to regulate the practice of the cost engineering industry and promote professional standards for QS or cost engineers to adhere to (CCEA, n.d.). CCEA is also part of the International Cost Engineering Council (ICEC) since 2006, together with QS associations from other regions such as Singapore Institute of Surveyors and Valuers (SISV), Institution of Surveyors Malaysia (ISM), Hong Kong Institute of Surveyors (HKIS). Yang (2009) has proposed to adopt quantity surveying system and suggested some practical implementing procedures in Taiwan. Without proper regulation and training of local QS in Taiwan, the QS industry will continue to be dominated by the existing players and thus the threat of new entrants is low.

The threat of substitutes (Medium) – As the QS industry is very new to Taiwan, Taiwanese construction projects are used to run without QS position. The scope of works can be carried out by different construction parties such as project managers, legal or contract advisor, and procurement personnel. Some companies would also rather employ an internal team to take on the role so that they do not require to engage third-party QS consultants. Nevertheless, the value that a third-party QS consultancy firm created such as impartialness, having the latest cost benchmark from multiple projects, and being the sole source of truth for any commercial matters on construction projects, are unique and cannot be completely substituted.

Bargaining power of suppliers (High) – As QS consultancy is a service industry, the only supplier for the product or service is the QS professionals. As discussed under the threat of new entrants, it is difficult to hire QS in Taiwan. Therefore, the bargaining power of the QS is typically high, especially for foreign QS who have working experience in other countries. Salary would typically need to be benchmarked to their home countries or even higher to cater for relocation costs. The cost of switching between suppliers, in this context, meant the cost of turnover is high because it includes

the cost of hiring, training and development, and managing the client's expectations when the role is not filled. Therefore, the QS professionals have the higher bargaining power to ask for higher remuneration.

Bargaining power of buyers (medium) – While there are only three players in the QS market in Taiwan, the switching costs for the buyers, in this case, are the clients are not high. For most of the projects, the clients will ask for fee proposals from QS companies and have their selection criteria, such as price-quality evaluation, or a competitive bidding system. Even though some clients tend to go with the same QS consultancy firms because the consultants are familiar with the internal processes, design criteria, and cost reporting format, if the clients are not satisfied with the performance or there is a cost constraint due to the size or budget allocated to the project, the clients would switch to another consultancy firms.

Based on the analysis of Porter's Five Forces, the QS industry in Taiwan is considered attractive as it is not competitive, compared to other saturated markets like Singapore, Malaysia, Hong Kong and other regions. The main reason is that the entry barrier is high which limited the threat of new entrants. As the QS industry is very new in the Taiwan market, it can be considered as a blue ocean strategy and there are a lot of opportunities to further expand.

Chapter 4 Value Proposition Analysis

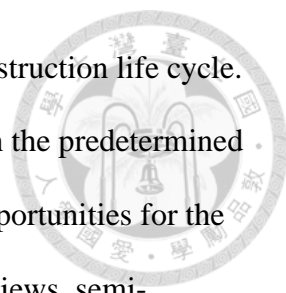


4.1. Research Methodology

The purpose of this study is to discuss what is the business potential of expanding Quantity Surveying services in Taiwan and what are the potential challenges. As this topic is very niche and is a business-to-business (B2B) service, qualitative research of exploration using interviews with open-ended questions is adopted. We gain insights through interviews with industry experts in Taiwan who have experience working with quantity surveyors on construction projects. The Value Proposition Model is used to construct interview questions in order to clarify pains and gains. As a service is only deemed useful if it provides value to the clients or stakeholders, we wish to understand from the industry experts' perspectives, does QS services bring value to the construction industry in Taiwan. Feedback will also be requested on the perceived shortcomings, strengths, and improvements required for the services of quantity surveyors. The fieldwork investigation involves a selected sample group, comprising interviewees who have (i) experience working with QS, (ii) long working experience in the Taiwan construction industry, and (iii) a senior or middle management role within their organization.

4.2. Interview Design

In this study, I have chosen to implement semi-structured interviews in order to foster fresh and unexpected findings from the industrial experts, yet not deviate too much from the topic. An interview guide with open-ended questions has been designed to ensure the entire interview process is on the right track and under control. The interview questions are designed mainly based on the Value Proposition Model which is focused on finding and using value to create meaningful products or services (Osterwalder et al., 2014). Questions are also amended based on the role of the



interviewees to understand more from different perspectives in a construction life cycle. For semi-structured interviews, additional questions which are not on the predetermined list can be added to the interviews whenever necessary to provide opportunities for the interviewees to express their thoughts. Compared to structured interviews, semi-structured interviews typically provide respondents greater room to respond on their own terms and engage in more in-depth conversations. It has also given me the opportunity to identify new ideas and directions for this study. Compared to non-structured interviews, semi-structured interviews nonetheless fulfill some benchmarks for comparison across multiple interviewees. The interview guide and sample questions for each element, namely customer gains, customer pains and customer jobs are shown in the Appendix.

Although the interviews were carried out in either Mandarin Chinese or English, whichever is the interviewees' native language, the interview questions were originally designed in English. The interviewees' views and insights would contribute as the necessary components to complete the Consumer Profile of Alex Osterwalder's Value Proposition Canvas. I have sought permission to record every interview conversation so that I can focus on engaging in conversation with the interviewees without having to be distracted by taking notes of the interviews. Two-way communication has been very effective and a lot of points that I did not consider were discussed.

4.3. Profile of Interviewees

As quantity surveyors are usually engaged with multiple stakeholders while conducting various scope of works as outlined in Table 1, industry experts from different backgrounds have been selected to contribute to the study from different perspectives. It is thought-provoking to have interviews with them because most of

them are very experienced and hold very senior positions in the construction industry in Taiwan.



Table 4

Profile of Interviewees

Order	Name	Current Job Role	Years of experience	Prior experience	Interview Duration
1	C	Project Manager	20	Interior designer, contractor, PM	55 mins
2	V	Client	25	Interior designer, workplace strategy planning	25 mins
3	C2	Contractor	32	Architect, Contractor	49 mins
4	S	Project Manager	16	QS, PM	23 mins
5	F	Quantity Surveyor	10	QS in Singapore and Taipei	22 mins

Note. Due to the anonymous rule, interviewee names are replaced with certain codes.

The first interview was conducted in February 2023 via call. However, the interview topic was easily deviated. Therefore, the rest of the interviews were conducted face-to-face in March 2023, under a conducive environment to ensure that both parties will not be distracted and stay focused on the research topic.

Through the in-depth interviews, we have obtained the necessary materials to complete the Customer Profile of Osterwalder’s Value Proposition Canvas.

4.4. Research Findings

Based on the interviews with the industry experts, here are some key findings:

(1) Quantity Surveyors / Cost Managers create value for the clients by facilitating construction projects from cost and contract perspectives.

Client V: “Cost control, cost and quantity validation, benchmarking exercise, cost reporting and tracking are the most important scope of works for QS. Clients rely on QS, being an impartial third party, to review if the cost submitted by the contractor is reasonable and justifiable.”

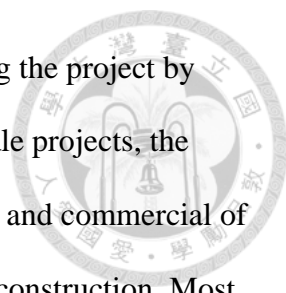
Project Manager C: “Aside from validating unit rates and quantities submitted by the contractors, QS also does contract management. For example, they advise on the liquidated damages and any amendment required for adopting an international form of contract such as FIDIC in Taiwan.”

Project Manager S: “Cost budgeting and contract advice. However, the scope of QS is underestimated by many local PMs or clients.”

Contractor C2: “Unlike designers or engineers who only focus on design and technical aspects, QS are meticulous, and they focus on cost. Thus, QS carry out scope clarification during tender when they suspect there is mispricing or over-specification. This helps to reduce the scope creep during tender and minimize the variation order for any discrepancies in tender submissions.”

(2) Multinational clients rely heavily on Quantity Surveyors / Cost Managers for their large-scale construction projects in Taiwan.

Client V: “For international companies, capital expenditure (CAPEX) budget will be developed via a top-down approach from their headquarters. For capital expansion



projects above a certain threshold, say USD1mil, instead of managing the project by internal employers who do not have the capacity to manage large-scale projects, the companies would engage external QS consultants to manage the cost and commercial of the projects while having PM to manage the overall programme and construction. Most of the MNC clients, especially financial institutions, would require independent PM and QS to avoid collusion and to comply with banking governance.”

Project Manager C: “Multinational companies especially financial institutions and technology companies would require QS services due to the scale and complexity of the projects. The companies would expect to get similar consultancy services they have obtained in other regions and emphasize the ability of contract management and cost reporting from QS.”

Quantity Surveyor F: “Quantity surveyors from global companies like Currie & Brown or Linesight understand the expectations of MNC, in terms of compliance, governance, procurement process and cost reporting. They are also able to help MNC to benchmark across projects in different regions using location factors and make necessary adjustments based on local design.”

(3) It is challenging for the QS industry to expand into local developers and local client markets given how things run all the time and local clients have not been educated about QS services and benefited from having QS.

Project Manager C: “Traditionally, Taiwanese corporations would have different divisions within the company to work on QS-related job scope. They have finance (財務部) to control the project budget, supply chain manager (採購部) to manage the

procurement and tendering, legal department (法務部) to manage the contract and engineering team (工程部) to manage the change request and scope creep. They are used to the segregation of job scope and have not experienced the value created by QS by consolidating the scope of works related to the construction process as well as managing the cost and contracts from a holistic perspective.”

Project Manager S: “Local developers or clients generally do not rely on third-party/outside to manage cost and budget.”

Quantity Surveyor F: “Most of the local real estate developers have their own affiliated general contractor, therefore they would not require competitive tender or procurement process. They also have their own cost data given the scale and quantity of projects that they have developed. QS cost data would not be cutting-edge to those local developers.”

(4) Quantity Surveyors can help to solve the pain point of the current construction industry with regards to procurement and cost control. QS take over the responsibility of budgeting and costing where these are not the strength and competency of Project Managers, Designers and Architect.

Contractor C2: “Local large-scale developments always have problems dividing the pie. They developed a \$/ping budget and start drawing down from the budget from foundation works, structural works, façade works, and so on. The consequences are that the project will be left with an insufficient budget for interior fitting-out works, which is usually the latter part of the project, and hence the quality and specifications of interior design (ID) would have to be lower. Unlike other trades are all covered or concealed, ID is the aesthetical portion of work whereby reflecting the building's look and feel. QS

would use their construction knowledge to split the budget according to appropriate percentages and advise the client to control the tender price upfront to balance between all the trades.”

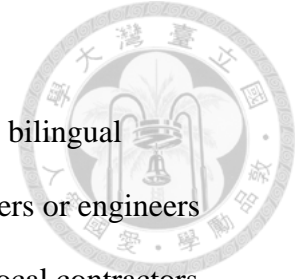


Client V: “Traditionally in Taiwan, the major scope of QS, which is preparing bills of quantity, getting quotations and reviewing tender prices, was carried out by designers or architects. From my experience, having a QS consultant to take over this portion of work are essential as QS is professionally trained to drill into construction cost, prepare cost estimates and control the budget. Designers are usually more artistic and creative, unlike quantity surveyors who are more meticulous and organized.”

Project Manager S: “Without the existence of QS, local architects or designers are asked to provide budget and costing. However, they are not as competent as QS because they are not trained for preparing the budget. Secondly, there is no four-eyes to advise the client whether the design and cost is reasonable. It is more difficult to implement value engineering when the parties who hold the design responsibility also develop the budget.”

(5) Being able to provide bilingual services is a key advantage for the QS industry in Taiwan

Client V: “Project manager and quantity surveyors are expected to be bilingual as the MNC client would expect to receive reports and emails in English. As local contractors typically have low English literacy and most of the quotations provided are in Chinese, the MNC clients would rely on PM and QS to provide summary and justification in English.”



Quantity Surveyor F: “All the projects that I have worked on require bilingual capabilities. Some MNC clients would like to engage foreign designers or engineers from the United States or Singapore. At the same time, most of the local contractors cannot speak English or only have one project lead who can speak English. Therefore, QS would be the bridge between foreign designers/ clients and local contractors.”

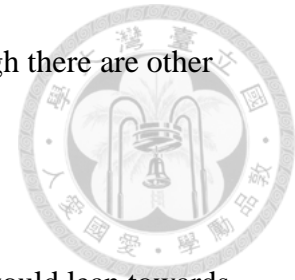
Project Manager S: “QS who cannot speak English can only bid for local projects or be appointed as sub-consultants under PM firms. They can only perform simpler cost verifications where no in-depth studies and detailed English reports are required.”

(6) Some clients are reluctant to engage QS because of the additional service fee.

Quantity Surveyor F: “Most of the local clients have not engaged QS and benefited from having QS before. Some thought QS is just a procurement person, but a typical procurement person will not have construction knowledge and hence, cannot read drawings and attend design clarification meetings. They do not understand how a holistic approach, by having a construction cost expert to investigate construction cost, contract and procurement can create value for them. Therefore, they see engaging QS as an additional cost.”

Contractor C2: “For projects with a smaller scale, the cost savings generated by QS would not be sufficient to fund the QS professional fees. For example, if QS quoted NT\$1.2mil for 6 months of service, would they be able to help the client to save more than NT\$1.2mil from the project construction cost. If the answer is no, adding a QS

consultant to the project team is not economically viable, even though there are other values created such as schedule and headache savings.”



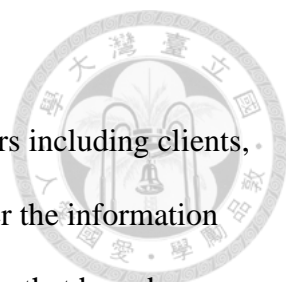
Client V: “For some smaller scale projects, some corporate clients would lean towards having the Project Managers to provide both PM and QS services for better coordination and single point of liability.”

(7) The absence of standard rules of measurement and QS governance in Taiwan has led to the inconsistency of QS deliverables.

Project Manager C: “I have worked with several QS and the problem is the deliverables are inconsistent and very much depend on how capable and meticulous the individual is.”

Project Manager S: “Unlike Singapore, Hong Kong, Malaysia and China, there is no board of QS or authority to provide governance to QS and standardize the QS deliverables. For example, there is no standard method of measurement. When no guideline is given, every bill of quantities is different and makes it more difficult to compare across different projects.”

Quantity Surveyor F: “All contractors quote prices differently. Some include profit and attendance in unit rates, and some exclude and listed separately. Some include wastage in the unit rates, and some do not. Different units were provided for similar items. For example, some quoted metal panels in Tons but some quoted in linear meter. Cost comparison and benchmarking are more complicated, and it requires more time to do equalization.”

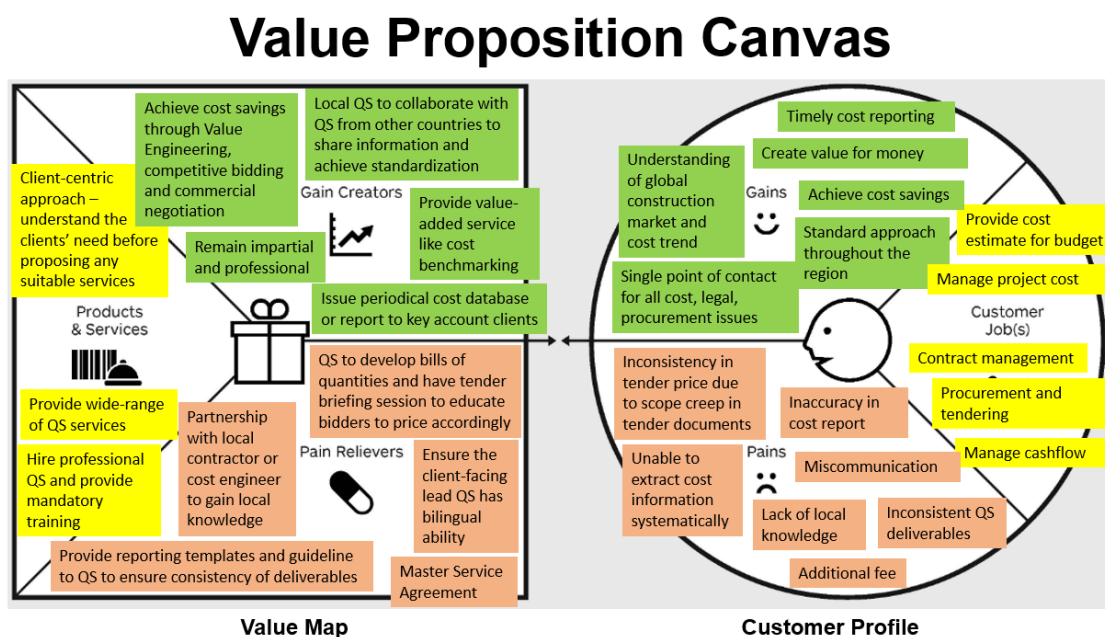


4.5. Value Proposition Canvas

After gathering information from different project stakeholders including clients, project managers, quantity surveyors, and contractors, I begin to enter the information into the value proposition canvas, from right to left. The pain and gain that have been addressed by the interviewees are summarized in the Customer Profile section. By cross-referencing with the Customer Profile, I have determined whether the services offered by the QS companies fulfill the clients' needs, relieve their pains and create value for their business. The result of Value Proposition Canvas is shown in Figure 9. The research findings are described in the Customer Profile (right), and the Value Map (left) shows the inspired innovation and solutions.

Figure 9

Value Proposition Canvas for QS Industry in Taiwan



4.6. Result Analysis

From a macro-perspective, we would consider the targeting client for QS services in Taiwan to be separated into two sections, foreign clients and local clients.

They have different pain points and therefore different solutions shall be proposed to address the differences. Three pain points were identified for foreign clients:



1. Lack of local knowledge
2. Inconsistent QS deliverables
3. Miscommunication due to language barrier or loss in translation

To solve their pain points above, we would suggest a QS firm structure in Taiwan should be a good combination of professional QS with accreditations and locally trained cost engineers. Ideally, all the QS shall have English capabilities to avoid knowledge or information loss in translation. However, if it is unachievable due to limitation of resources, the lead QS who is client-facing would need to be bilingual so that he/she can understand the local contractors or suppliers and convey the message precisely to the client with his/her professional recommendation for any commercial decisions. The QS team would also need to be well-versed in terms of local knowledge. Therefore, partnership with local subcontractors or hiring local cost engineers is important to tap into to their local experience as foreign clients would expect local QS to be their eyes on the ground to ensure the claims are fair and reasonable.

In terms of deliverables, MNC QS firms shall tap against their expertise in other regions to provide standardized and professional cost plan templates and report templates. MNC clients who have engaged their foreign counterparts would expect the same quality of deliverables and consistent reporting format. It will provide a seamless experience and become effortless for foreign clients to engage the local QS team in Taiwan. On another hand, to compete with the MNC QS firms, local QS firms shall encourage their QS to sign up for QS accreditation, such as RICS, to obtain the latest global guideline and understand what the expectations of foreign clients are. Trainings

and workshops are mandatory to keep the QS up to date with recent development in the QS field.

For local clients, the pain point that we have identified is they are unaware of the value of QS and are not convinced to pay additional fees to engage QS. Therefore, the best way to introduce QS or to educate the clients is to show them what has happened and what could have been done better with the presence of QS. Building up good relationships with project management firms, interior design firms and architectural firms does help because those stakeholders are technically experts in their own field but not necessarily in cost and commercial-related works. They would certainly be willing to introduce QS to the clients to help to cover their shortfall if they have gained good experience working with QS.

Chapter 5 Recommendations and Conclusions

Based on the interviews conducted and the Value Proposition Canvas developed, it is quite clear that QS does provide value to the construction industry in Taiwan. However, it is also inevitable that the QS industry relies heavily on foreign investment, which is highly volatile and uncertain, given the diplomatic tension between China and Taiwan. Therefore, recommendations are provided for different parties to nurture the QS industry in Taiwan.

5.1. Recommendation for existing QS firms in Taiwan

Current QS firms in the market have already been granted the first-mover advantage. However, research shows that there are some pain points identified by the client, project managers and contractors who have worked with these QS before. The solutions have been proposed in Section 5.3 include establishing the bilingual capability of the QS team, gaining local knowledge through partnership and adopting standard reporting templates and QS guidelines to ensure consistency in deliverables.

In terms of new projects, it is recommended for existing QS firms to focus on large scale projects whereby QS can create more value and synergy through providing consolidated service on cost, procurement, legal and contracts. It is easier to quantify the value creation and persuade the clients to engage QS. For small scale project, it is more difficult to generate cost efficiency and justify the need of QS services.

To tackle the issue of being too reliant on foreign clients, the existing QS firms shall also take a step further to educate local clients on the value of having QS. As they already have working relationships with existing Project Management companies or Architectural firms, they can seek for introduction to approach local clients. They may also collaborate with construction-related associations such as Taipei Association of Architects, Taipei Association of Interior Designers, and Federation of The Real Estate

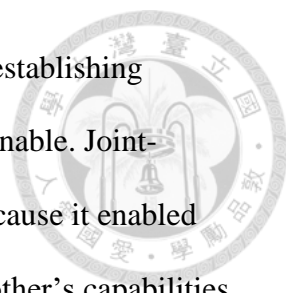
Development Associations of the Republic of China to host seminars or workshops and introduce QS services to the local clients.

Other than that, the existing players in the market should also take initiative to form an association to gather and nurture all QS in Taiwan as it takes a longer period for local government to recognize the QS profession and establish a QS organization regulated by local code and regulations. Training can be provided to local measurement companies or subcontractors who have the intention to be involved in QS industry. Even though there seems to be conflict of interest but engaging local vendors and partners does help to generate the supply of local QS as well as gain local cost benchmark through conference and workshop. Nevertheless, the cutting edge of existing QS firms cannot be easily replicated and replaced.

5.2. Recommendation for MNC QS firms that have no presence in the Taiwan market

The success of the business that can compete internationally is mainly determined by the current market conditions and the firm's capacity to develop successful strategies that can provide it a competitive advantage over its rivals. As the newcomers have lost the first-mover advantage to Currie & Brown, Linesight and Bravo which already have a presence in the market, they must wait patiently for the right time to enter the market. Instead of investing directly and starting with local employment, it is recommended to wait for potential large projects to come by.

Joint ventures, Merger & Acquisitions and localization are the most significant modes of entry for international firms to expand their services to another country. However, given the unique characteristics of the QS industry, which is not well-developed in Taiwan, merger & acquisitions is not feasible as there are no options for merger. Localizations involve opening local branches or subsidiary offices in Taiwan. It



is challenging when it comes to obtaining local market intelligence, establishing relationships with local stakeholders, and keeping the business sustainable. Joint-venture is the most appropriate mode of entry for the QS industry because it enabled firms to pool resources, reduce risk exposure and complement each other's capabilities such as a lack of local knowledge and language capabilities. Bravo has joint-ventured with international firms to bid for large-scale projects in Taiwan. The international QS firms can set foot by partnering with local cost estimating firms or smaller contractor firms to tap into their expertise on local cost data.

These international QS firms can leverage their current master service agreement or panel agreement with their existing clients in other regions to expand their portfolio to Taiwan. Once those clients have the intention to have projects in Taiwan, these QS firms can kick start the bid proposal by using their current QS resources who can speak Chinese from Singapore, Malaysia or Hong Kong to collaborate with their local counterparts in Taiwan and to provide QS services to the existing clients. This will assure the client to receive high-quality deliverables and impartial judgment as well as local knowledge and competencies. With a couple of local project experience, then those international QS firms can then enter the market, grow their resources locally and compete for other projects if they consider this as a good investment.

5.3. Recommendation for the local authority, industry experts and academic providers

Cost, time and quality form the project management triangle. In the construction context, construction schedule control, construction quality control, and construction cost management have been identified as the three key management priorities. The developed nations paid a lot of attention to quantity surveying or cost management to ensure construction projects run smoothly, enhance transparency in construction

procurement and achieve value for money. It has reflected that the development of the QS profession in Taiwan shall not solely be relying on international firms. Recognition of the shortcomings of current industry in terms of procurement transparency and cost efficiency is critical to promote enhance QS industry in Taiwan.



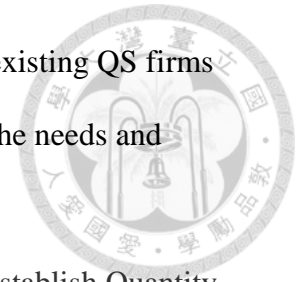
To grow the QS industry and to have locally trained QS, the local construction authority, industry experts and academic providers shall work together on the establishment of the organization of quantity surveying, develop systematic training certification or tertiary education for QS professionals, and drawing up the standard methods of measurement and other QS guideline. Having a QS course or QS diploma studies would be a big step forward to push the industry toward a more localized context and encourage local clients to adopt QS services.

5.4. Conclusions

QS services have a significant presence and impact on the world construction industry. However, due to the difference in segregation of project scope in Taiwan and less connected to the international construction industry, QS services are relatively new and less adopted in Taiwan. At the start of this paper, we took a brief look at the construction project team structure, the role of quantity surveyor and professional construction consultancy service in Taiwan. QS industry analysis in Taiwan has also been conducted to try to better understand the current situation before conducting interviews with industry experts.

Through a series of in-depth interviews, the interviewees who are different project stakeholders shared their experiences and insights of working closely with QS in Taiwan. Alex Osterwalder's Value Proposition Canvas became a guiding principle throughout the interviews to explore the "Gains", "Jobs" and "Pains" of the customers. The valuable personal sharing that each interviewee brought to the table has inspired us

to adopt a client-centric approach and provide recommendations to existing QS firms and potential incoming QS firms to improve their service to satisfy the needs and relieve the pains of customers.



The overall aim of the paper was to explore the potential to establish Quantity Surveying / Cost Management profession in Taiwan. Through the in-depth market studies and interviews, the key finding is the current market is limited to multinational clients as local clients are not aware of or do not appreciate the value created by QS services. Nevertheless, we also see the need of developing the QS industry in Taiwan as the QS scope can solve the problems of construction costs being managed by untrained personnel like supply chain managers or interior designers.

As a result, recommendations have been given to existing QS firms to facilitate their expansion to both MNC clients and local clients. These QS firms must regularly assess their competitive position and develop successful and dynamic strategies since the construction industry is constantly changing. Besides that, an appropriate entry strategy has also been recommended to international QS firms that might consider entering the Taiwan market. Finally, we have also strongly appealed to the Taiwanese government authority to look into developing a conducive environment to grow the QS industry in Taiwan, including establishing local QS organizations, standardizing QS guidelines and developing an education path for QS.

Depending on the economic situation at a specific time, the demand for QS services in Taiwan may increase or may be stagnant. Therefore, future research is recommended to zoom in on any of the three areas of recommendations above to provide deeper and more focused research to encourage the sustainable growth of the QS industry.



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營造業承攬工程造價限額工程規模範圍申報淨值及一定期間承攬總額認定辦法

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7. Appendix

Here are the sample questions prepared for semi-structured interviews:



Basic Questions

- 1 The number of projects that required QS services within these 5 years.
- 2 The ratio of local client's projects versus MNC projects that have adopted QS services.
- 3 Where are the QS consultancy firms you have worked before on local projects?
It may include foreign QS firms.
4. The number local QS consultancy firms that you have worked before or aware of.

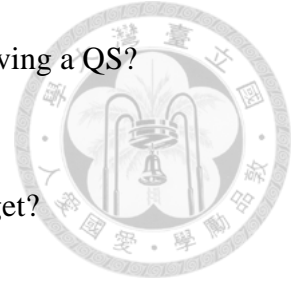
Value Proposition Questions

Customer Jobs

- 1 Would you recommend the client to engage QS? And why?
- 2 From your perspective, what is the scale of project that would require QS services?
- 3 The importance of having QS - named 3 most important scope
Eg. Budget and cost estimation
Tender cost analysis
Variation order with contractor
Payment valuation
Cost reporting

Customer Gains

- 1 From your perspective, how would the client benefit from having a QS?
- 2 What kind of client would need QS service?
- 3 Do you think QS service does help in controlling project budget?



Customer Pains

- 1 Do you have or have you received any complaints about the QS that you have worked with? What are these complaints about?
- 2 Do you think there is a gap in QS services in Taiwan?
- 3 How to improve the QS services in Taiwan?
- 4 Is bilingual an issue for having QS service in Taiwan?