

Anticipated ROI Methods for the Quantification of Servicescape Upgrading based on Intangible Values: A Literature Analysis

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Abstract: *One of the biggest challenges faced by facilities managers is justifying the need for servicescape upgrades in monetary terms. Servicescape upgrades are often viewed as benefitting intangible aspects of business performance, such as improved levels of comfort, happiness, aesthetics, confidence, and health. This makes it difficult for facilities managers to convince upper management, particularly the finance department, that a proposed servicescape upgrade will benefit the business as there are no existing methods to anticipate a return on investment (ROI) of servicescape upgrades based on the quantification of intangible values in monetary terms. In other words, how can we determine if an improved level of comfort, happiness, pleasure, aesthetics, confidence, and health will result in profit in monetary terms? Currently, a research study is being carried out to construct a methodological framework for anticipating the ROI of servicescape upgrading based on the quantification of intangible values. The first objective of the research is to identify ROI calculation methods that can be used to anticipate the ROI of servicescape upgrade based on the quantification of intangible values. This paper reports the preliminary findings. Fifty-three literary sources, including journals, scholarly articles, website, blog posts, and books, were reviewed. Content analysis was carried out using Nvivo, and the results revealed that willingness to pay (WTP) or willingness to accept (WTA), information economic (IE), capital investment appraisal technique (CIAT), contingent valuation method (CVM), cost-benefit analysis (CBA), hedonic price method, travel cost method, comparative analysis, process of elimination, quantification technique, revealed preference, stated preference, and scenario analysis are the methods for anticipated ROI of servicescape upgrades based on the quantification of intangible values. The findings from this preliminary analysis help to identify possible methods that can be adopted in anticipating ROI based on the quantification of intangible values of servicescape upgrading.*

Keywords: Servicescape, Intangible Values, Return on Investment (ROI)

1. Introduction

Facilities management (FM) enables the core business of an organisation. Thus, facilities managers have the responsibility of creating an environment that is most conducive, ensuring the facilities are safe, efficient, functional, and meet the needs of their users to support the overall goals of the core business. In order to provide facilities that can support the business operation, the physical environment or better known as servicescape should be able to accommodate and be appropriate for the business operation and the needs of the end-users. Servicescape refers to the physical environment in which the organisation provides business

services for customers (Bitner, 1992). Servicescape plays a significant role in shaping the customer's overall experience and satisfaction with the service and involves elements of the physical facility along with other tangible elements of the service setting (Zeithaml, Bitner, & Gremler, 2009). Servicescape is defined as a man-made controlled space where physical facilities may have a substantial effect on consumers' satisfaction, and various ways are manipulated and designed in order to facilitate business services (Fredman et al., 2012). Servicescape encompasses several different elements that greatly impact customers' and employees' emotions and behavior. The servicescape elements consist of three elements. Firstly, ambient conditions that include air quality, temperature, noise, music, color, lighting, and scent. Secondly, spatial layout and functionality that refer to the arrangement of space, ergonomic design, and functionality of equipment and furnishings. Thirdly, signs, symbols, and artifacts that connect, communicate and convey information to the customers through graphic symbols, photos and images, floor coverings, and corporate artworks (Ahmed et al., 2020; Ambarwati et al., 2022; Juhari et al., 2014; Rashid et al., 2015; Weerasinghe, 2019). Servicescape renders various intangible values that impact people with different combinations of pleasure, arousal, and dominance leading to different emotional states (Jhamb & Kampani, 2021; Kim & Noh, 2018; Michael & Rody, 2009). These servicescape intangible values stimulate various psychological aspects that include happy, enjoyment, satisfaction, excitement, the sense of being in control, the state of feeling comfortable and at ease, etc which leads to behavioural responses involving willingness to spend more, intention to visit again, and stay longer in a store (Donovan et al., 1994; Lin, 2016; Moon et al., 2017; Zhou et al., 2021).

It is widely acknowledged that investing in high-quality servicescape can have a positive impact on business performance. A well-designed servicescape can enhance customer satisfaction, happiness, pleasure, comfort, etc, and lead to a willingness to return, revisit intention, stay longer, and spread positive word-of-mouth (recommendation to friends and family), boosting employee morale and motivation, leading to improved performance and productivity which eventually result in increased business profit. Anh & Thao (2021); Koay et al. (2019); Kwong (2017); Zeithaml & Bitner (2013) have all acknowledged the positive impact rendered by well-performing servicescape on business profit and performance. Definitely, a good business environment will positively impact customers and employees, hence elevating the possibility of increased performance that in the end leads to improved reputation of the business organisation, thus attracting more customers, leading to increased income and profit.

Anticipating return on investment (ROI) based on tangible values is comparatively easier than anticipating ROI based on intangible values that are very difficult to quantify and measure. The anticipated outcome of replacing all light bulbs with energy-efficient ones is easy to determine. If changing the light bulbs could lead to 25% reduction of energy consumption, then simple mathematics could determine the ROI. Generally speaking, tangible values are very clear and direct, and ROI based on tangible values can be readily quantified and anticipated. However, quantifying and anticipating ROI based on the quantification of intangible values is not easy. How do facilities managers and decision makers anticipate the ROI of replacing the furniture such as all existing chairs in an office meeting room with those that are more ergonomic (in order to improve employees' comfort, motivation, healthier, etc, hence elevating the possibility of increased performance and productivity that in the end leads to increased income and profit)? How can intangible values equate to profit or revenue? Ahlin (2019); Ahmad et al. (2022); Gerber et al. (2022); Gibson et al. (2004); Gyorgy et al. (2014); Kim et al. (2010); Mendes et al. (2017); Mendes (2011); Murphy & Simon (2002); Oliver et al. (2009); Purwita & Subriadi (2019); Rajurkar (2021); Schroeder-Strong et al. (2022) are all in agreement that intangible

values are extremely difficult and challenging to quantify or be anticipated. Yet, intangible values can have a significant impact on the financial performance of a business organisation. While they may not have direct financial value, they can indirectly contribute to a profitability and revenue. Research has shown a strong link between employee satisfaction and financial performance. When employees are satisfied and engaged in their work, they are more likely to be productive, committed to the organisation, and willing to go above and beyond to achieve its goals (Ferdaous & Rahman, 2019; Harter et al., 2002; Judge et al., 2001). Unlike tangible values, which are easily quantifiable, such as revenue, cost, or inventory (Gerber et al., 2022; Kim et al., 2010; Marr, 2007; Schroeder-Strong et al., 2022), intangible values are difficult to measure in monetary terms but can still play a critical role in an organisation’s success.

A review of various past studies related to servicescape and return on investment (ROI), from the year 2017 until 2023 revealed that none of these studies focused on how to anticipate the ROI of servicescape upgrades based on the quantification of intangible values. Table 1 provides a summary of the past studies related to servicescape and ROIs, which primarily focussed on examining the impact and significance of servicescape on businesses. Meanwhile, studies on ROI mainly focused on benefit of intangible assets investment in information systems (IS). Thus far, no studies have been encountered that explore how to anticipate the ROI of servicescape upgrades based on the quantification of intangible values. While there are existing ROI methods that can be used for intangible values, it is still not entirely accurate to anticipate the ROI of servicescape upgrades based on the quantification of intangible values in monetary form. For instance, cost-benefit analysis (CBA) methods were originally developed for tangible values, but they can also be adapted to calculate the ROI of intangible values. Cost-benefit analysis is widely used to evaluate the potential costs and benefits of a particular project or decision in many different contexts. However, cost-benefit analysis (CBA) is generally not considered accurate for measuring intangible values (Gibson et al., 2004; Purwita & Subriadi, 2019). This is because cost-benefit analysis (CBA) is primarily designed to evaluate the costs and benefits associated with tangible goods and services, which can be assigned a monetary value. Intangible values, on the other hand, are often difficult to quantify in financial terms, such as increased employee morale, customer satisfaction, happiness, or comfort (Mendes, 2011). Therefore, using cost-benefit analysis (CBA) to measure intangible values may result in inaccurate or incomplete result. Anticipating the ROI based on the quantification of intangible values will require the integration of multiple methods and layers of processes.

Table 1: Summary of Previous Studies

No	Title & Authors	Summaries
1	Title: Building Consumers Loyalty Through Servicescape in Shopping Malls Authors: Narsaiah (2023)	This paper discusses the shopping mall’s servicescape elements (ambient, aesthetic, layout, cleanliness, sign, symbols and artifacts, and social factors) that are very important for customer loyalty.
2	Title: Servicescape in Delivering Values to Customers to Enhance Service Quality and Behavioural Intention Authors: Anh & Thao (2021)	This paper discusses the coffee shop’s servicescape elements give an impact on the business premise such as the quality of the service, thus leading to behavioral responses.
3	Title: Guests’ Perception of the Hotel Image: The Impact of Servicescape Authors: Ahmed et al. (2020)	This paper has studied the impact of hotel servicescape (ambient condition, layout and function, signs, symbols, and artifacts) on guests’ perception. Servicescape is essential in a business operation which leads to a positive image of the hotel.

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- 4 Title: The impact of servicescape and employee service quality in the KTV Industry
Authors: Koay et al. (2019)
This paper discusses that servicescape is important for the karaoke entertainment business (employee service quality, functionality, spatial layout, sign and symbols, etc) and impacts customer satisfaction, thus influencing the image of the business, revisiting intention, and word-of-mouth.
 - 5 Title: How Emotional Response Mediate Servicescape Impact on Post Consumption Outcomes: An Application to Opera Events
Authors: Tubillejas-Andres et al. (2020)
This paper discusses the importance of customers' emotions towards servicescape. Servicescape influences the customers' emotions (happy, energetic, excitement, satisfaction, loyalty, etc) which contributes to enhance post consumption behavior.
 - 6 Title: The Importance of Quantifying Financial Returns on Information System (IS) Investment for Organisations: An Analysis
Authors: Ahmad et al. (2022)
This paper discusses the importance of quantifying the financial return on investment (ROI) in information systems (IS). The authors argue that while IS investments are essential for organisations to stay competitive, they can also be costly, and it is crucial to determine the return on investment. This article suggests that measuring the financial benefits of IS investments can help organisation make informed decisions and prioritise their investment. The authors also analyse the existing literature on the topic and propose a framework for measuring the financial returns on IS investment. Overall, this article emphasises the need for organisations to quantify the financial benefits of IS investment and use this information to guide their decision making.
 - 7 Title: Quantifying intangible benefit of water sensitive urban systems and practices. An overview of non-market valuation studies.
Authors: Gunawardena et al. (2020)
This paper studied techniques to monetary value the intangible benefits for water sensitive urban systems investment. This paper provides an overview of various non-market valuation techniques that have been used to measure the intangible benefits of water sensitive urban systems and practices. This paper highlights the importance of considering non-market benefits, which are often overlooked in traditional cost-benefit analysis.
 - 8 Title: Return on Service Amenities
Authors: Hamilton et al. (2017)
This paper discusses and explores the return on investment (ROI) for offering free amenities in hotel business services such as Wi-Fi, bottled water in the rooms, free luggage pickup, etc. Return on service amenities refers to the concept of investing in amenities and services that can improve the customer experience, satisfaction, loyalty, etc, and lead to increased revenue and profit for businesses. Calculating the ROI for service amenities can be challenging, but it is important for businesses to carefully evaluate the money return of these investment.
 - 9 Title: Measuring the Immeasurable? The Intangible Benefits of Digital Information.
Authors: Ahlin (2019)
This paper discusses the intangible benefits that digital information provides and how they can be measured. The article argues that digital information can provide benefits such as increased efficiency, better decision making, and improved communication that are difficult to measure in financial terms. This article reviews existing literature on the subject and presents different methods for measuring the intangible benefit of digital information, such as cost benefit analysis, information economic (IE), balanced scorecard, etc. The article suggests that while the intangible benefit of digital information may be difficult to measure, they are still important to consider when evaluating the impact of digital information on an organisation.
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10	<p>Title: Creating Intangible Value through a Corporate Employee Portal Authors: Mendes et al. (2017)</p>	<p>This paper has focused on intangible values of information systems (IS) that categories as intangible assets. This paper explores the benefits and challenges of implementing a corporate employee portal. The authors argue that employee portals can create intangible value for organisations, including increase engagement, improved communication, and enhanced knowledge sharing.</p>
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The researcher conducted a preliminary survey from October 2022 to December 2022, which involved interviewing facilities managers and decision-makers in various business industries including hotels, shopping complexes, food and beverages (fast food company and coffee shop), and healthcare services. The purpose of the survey was to determine if their businesses had any specific approaches or methods for anticipating ROI of servicescape upgrading projects based on the quantification of intangible values. The survey involved fifty-eight respondents from across Malaysia who participated in interview sessions and questionnaires. As shown in Figure 1, the result of the survey indicates that 71% of respondents do not know how to anticipate the ROI of servicescape upgrading based on the quantification of intangible values, while 29% were unaware that ROI of servicescape upgrading needs to be anticipated.

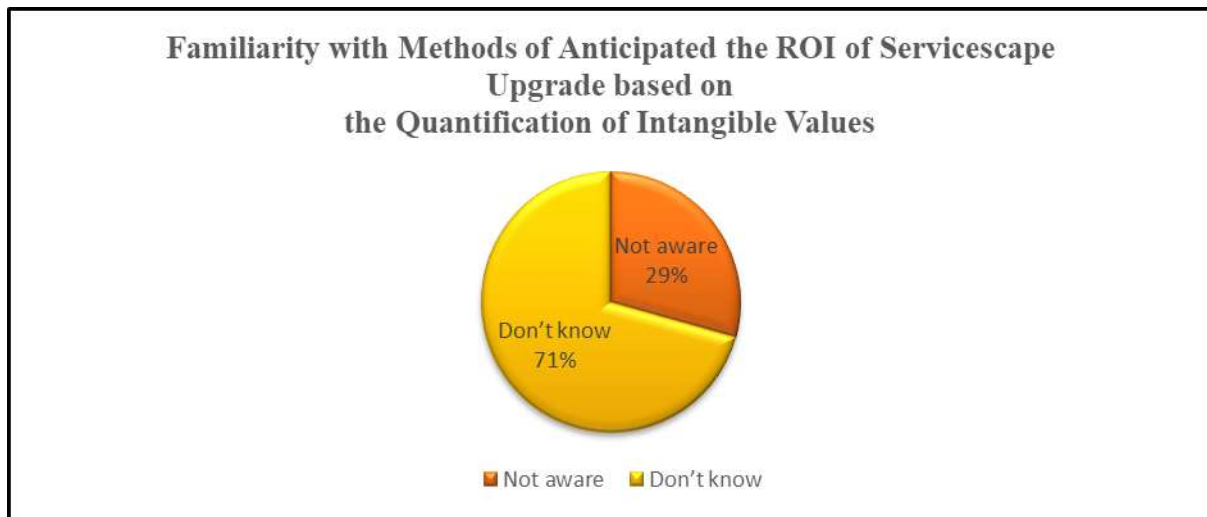


Figure 1: Familiarity with Methods of Anticipated the ROI of Servicescape Upgrades based on the Quantification of Intangible Values

However, intangible values should be considered as part of important drivers in decision-making and indirectly impact ROI. Intangible values are indispensable and valuable in the business organisation. Therefore, this paper is required to identify possible methods that can be adopted in anticipating return on investment (ROI) of servicescape upgrading based on the quantification of intangible values. This paper reports the preliminary findings.

2. Literature Review

Facilities management (FM)

Facilities management (FM) plays a crucial role in the success of a business operation for all business organisations large and small, public as well as private. FM is considered as supporting people where they live, work, shop, and play. The Internal Facilities Management Association (IFMA), which is a professional membership association for facility management, defines FM is an integrated approach to maintaining, improving, and adapting the buildings of an organisation to create an environment that strongly supports the key

objectives of that organisation. FM is also responsible for managing and maintaining the physical environment and facilities of an organisation to make up a conducive environment. One of the critical roles of FM is achieving the goals of the organisation with required physical environment to support the core business (Karna et al., 2013). In conclusion, FM is responsible to create a conducive environment that encompasses the physical environment or well-known as servicescape in a building that includes various elements such as lighting, temperature, ventilation, acoustics, air quality, and spatial organisation (Adnan & Baharum, 2020; Gadzekpo et al., 2022; Juhari et al., 2012; Asiyai, 2011; Nworgu, 2006). Servicescape is considered complement and essential part of a building, as it enhances the overall experience of customers and employees who use the services.

Servicescape

Servicescape concept was first introduced in the 1980s and has since become an essential area of research in the field of service marketing. Bitner (1992) was a person who coined the term “servicescape”. Bitner’s initial research on this topic addressed how the servicescape influences both employees and customers. Since then, the concept of servicescape has been widely used and studied in the service marketing and management literature. Servicescape was referred to as the atmospheric (Kotler, 1973; Turley & Milliman, 2000), physical environment (Jeon & Kim, 2012; Juhari et al., 2014; Weerasinghe, 2019), economic environment (Arnold et al., 1996), and store environment (Bindu et al., 2021; Giang Nguyen & Nham, 2022; Rizwan & Ahmad, 2019).

Servicescape provides the basis for creating the environment in which customers and employees experience business services. It encompasses various perspectives of servicescape elements from researchers with different types of service settings. In the 1980s Bitner and Booms developed a model of servicescape to show a way of understanding the impact of the physical environment that is an individual’s internal responses to the environment influence the behavior of humans in a service setting. The model consists of three elements:

- i. Ambient; (temperature, air quality, noise, music, and scent)
- ii. Arrangement and function; (layout, equipment, and furnishing)
- iii. Sign, symbol, and artifacts. (signage, personal artifacts, and style of decor)

However, many researchers have adopted these servicescape elements and tried to expand them by developing their own environment based on the original framework to suit different types of business service settings. Hamzah et al. (2020) recognises four servicescape elements which are the ambience, spatial layout and functionality, signage, symbols, and artifacts, and cleanliness for shopping complexes. Upadhyaya et al. (2018) identify five servicescape elements which are ambient condition, spatial layout, functionality, spatial signs, symbols and artifacts, and cleanliness for the retail industry. Whilst Siddiqui & Tripathi (2011) consider servicescape elements to be exterior facilities, general interior, interior displays, and social dimension (attitude or staff behavior) for the shopping complexes or retail store service environments. Jeon & Kim (2012) conduct a study on international airport servicescape and identifies five elements of servicescape which were as follows: ambient factor, functional factor, aesthetic factor, safety factor, and social factors. Anh & Thao (2020) divide the elements of servicescape in a coffee shop into two categories which are physical elements and social elements. Physical elements refer to the ambient conditions, spatial layout and functionality, and aesthetic appeal, while social elements are viewed from the perspective of interactions between employees and customers. Han et al. (2018) classify six elements of servicescape in the healthcare environment, which are external variables, interior variables, ambient variables, functional variables, products, furniture or displays, and social variables.

The authors above provide suggestions for servicescape elements in different types of business service settings. The specific servicescape elements depend on the type of business service and the requirements of its customers. Jeon & Kim (2012) have acknowledged that there are no specified servicescape determinants for all service organisations. The servicescape is very important for business services and can have intangible values that impact on individual's thought and emotions, ultimately leading them to either approach or avoid the services.

Intangible Values of Servicescape

Servicescape forms an emotional response from customers and employees. The servicescape elements have the potential to foster an individual's emotions, which are also considered intangible values. Servicescape renders various intangible values that impact people with different combinations of pleasure, arousal, and dominance, leading to different emotional states (Jhamb & Kampani, 2021; Kim & Noh, 2018; Michael & Rody, 2009). The three emotional responses are the characteristics of a person's feelings, whereby customers perceive the servicescape (Mehrabian & Russell, 1974).

Pleasure refers to the affective state of feeling good, happy, cheerful, delighted, pleased, joyful, relaxed, comfortable, or satisfied that customers experience when they interact with the environment, whereas arousal denotes the degree to which people feel stimulated, excited, surprised, or active and dominance is a feeling state that is based on the extent to which an individual has control over their actions or the degree to which an individual feels influential (Bohl, 2012; Mehrabian & Russell, 1974; Othman & Goodarzirad, 2013; Ryu et al., 2021). Usually, a dominance emotion will occur in gambling environments such as casino services, and dominance is an important emotion whereby people feel that they can win by "beating the house" (Ho et al., 2019; Lam et al., 2011; Lucas, 2003; Michael & Rody, 2009).

The intangible values of servicescape are important factors to consider because they can influence customer behaviour to either approach or avoid the services. All positive behaviours are approach behaviour, such as the desire to stay, explore, work, and affiliate, whereas avoidance behaviours are a desire not to stay, not to explore, not to work, and not to affiliate (Shashikala & Suresh, 2018; Siu et al., 2012; Upadhyaya et al., 2018). Customers may approach a business service that elicits a feeling of excitement, comfort, or happiness, while they may avoid a business service that elicits fear, disgust, or danger. The intangible values of the investment contribute to the overall return on investment (ROI). Return on investment (ROI) helps access and estimate the future profitability and effectiveness of an investment.

Return on Investment (ROI)

Return on investment (ROI) is a financial performance measure used to evaluate the efficiency and profitability of an investment project. It is typically expressed as a percentage or a ratio and calculated ROI, the benefit (return) of an investment is divided by the cost of the investment. The formula of ROI:

$$\text{ROI} = \frac{\text{Gain from Investment} - \text{Cost of Investment}}{\text{Cost of Investment}}$$

Sources: Botchkarev & Andru (2011)

The result of the ROI can be concluded, a positive ROI indicates that the investment has generated profit, while a negative ROI indicates that the investment has resulted in a loss (Zamfir et al., 2016). However, special methods are required to measure the anticipated ROI

based on the quantification of intangible values. There are a variety of methods explained in the sub-section below.

Methods to anticipate return on investment (ROI) based on the quantification of intangible values

- a. **Process of Elimination:** The business organisations use the process of elimination to evaluate intangible values by assigning them quantitative values. This process begins with finding a balance between required payback period and tangible values, and by eliminating the tangible values, the balance is justified as intangible values (Granta Automation, 2019).
- b. **Weight of Estimation:** To use this method, the business organisation first creates a list of intangible values and estimates their cost in dollar or number (\$). Then, a percentage likelihood is assigned to each item on the list. Finally, the estimated cost is multiplied by the percentage likelihood to determine the monetary value of each intangible value.
- c. **Comparative Analysis:** The comparative analysis is a method used to evaluate intangible values by comparing to similar or comparable values in the same industry or market. For instance, improved health and safety resulting in fewer staff sick days can be compared to the number of staff sick days prior to upgrading servicescape, or with another business that upgraded their servicescape. Similarly, increased profit due to improved product quality can be compared to the sales increase of a similar product when improved, or to the sales decrease caused by a competitor improving their product quality (Granta Automation, 2019).
- d. **Scenario analysis:** Scenario analysis is technique to evaluate potential outcomes of an action by determining the likelihood of achieving each intangible values, assigning estimated value based on the total intangible values of a project, and comparing options. For example, a business may compare investing in employee training with a 10% chance of improving customer satisfaction to investing in a new product return policy with 50% chance of achieving the same satisfaction level (Hartman, 2014).
- e. **Cost-benefit Analysis (CBA):** Usually, the use of cost-benefit analysis (CBA) measurement is to make an investment decision. CBA compares costs and benefits mathematically and provides benefits financial reports directly (Tomazin & Gradisar, 2009).
- f. **Revealed Preference:** The revealed preference technique uses comparisons of consumer or product behavior in a sample, often through hedonic pricing or travel cost method, to uncover values for intangible goods that are complemented by market goods and services (Pearce et al., 2006)
- g. **Hedonic Price Method:** The hedonic price method can be used to estimate the value that consumers place on non-physical or intangible values of a product or service (Gyorgy et al., 2014; Pearce et al., 2006).
- h. **Travel Cost Method (TCM):** The travel cost method estimates the intangible value of natural or cultural resources, such as beaches or museums, based on the time and travel costs associated with visiting them. The method assumes that the these costs reflect the values that visitors place on the resources, treating them as “price” of access to the service (Pearce et al., 2006; Shilpa et al., 2022).

- i. Stated Preference: The stated preference technique used to estimate willingness to pay for changes in non-market good (Hubbard, 2010).
- j. Willingness to Pay (WTP): Willingness to pay (WTP) refers to the maximum amount an individual would spend on a product or service (Pan American Health Organization, 2017).
- k. Contingent Valuation Method (CVM): The contingent valuation method (CVM) is a tool for estimating the economic value of non-market goods and services, and helps in decision-making about allocation and investment (Kim, Kim & Kang, 2010).
- l. Information Economic (IE): The information economic is used to account the intangible values by categorising benefits into five specific values items which are direct benefits, value acceleration, value linkage, value restructuring, and innovation valuation (Kim et al., 2011; Muftikhali & Pribadi, 2018).
- m. Quantification Technique: Hares & Royle (1994) introduced a quantification technique to convert intangible values into cash flow for cost-benefit analysis. This involves four steps: identifying values, establishing measurable criteria, predicting physical outcomes, and evaluating cash flow.
- n. Multi-Objective Multi Criteria (MOMC): Multi-objectives and multi-criteria (MOMC) is a decision-making approach that measures the utility of IT within a business (Gibson et al., 2004). It is used in situations where are multiple objectives or criteria that cannot be easily measured.
- o. Process Model with 6 critical factors: The six factors are technique that addresses the limitations of traditional evaluation techniques by considering intangible values in capital budgeting. It aims to overcome the challenges of identifying and incorporating these benefits, as discussed by Chapman in 1988.
- p. Return on Management (ROM): Strassman (1990) developed the method of Return on Management (ROM), which is a performance measure based on the value added to the organisation provided by management.
- q. Cost Approach: The cost approach estimates the benefits and costs of achieving the same functionality with alternative technologies, processes, or human resources. Surveys can be used to implement this approach, align perceptions of the company and customers, and agree on monetary equivalence. Surveys can also be forward-looking and enable proactive actions to increase the project value.
- r. Income Approach: In the income approach, the goal is to determine the additional income or cost savings resulting from the implementation of new technology. To apply this method, estimates of the costs and benefits expected to be realised must be obtained from management.
- s. Market Approach: The market approach involves investigating the benefits and costs of comparable projects in other organizations. The advantage of this method is that the firm gains from the lessons learned from the past exercise. The disadvantage is that past projects are conducted in alternative business environments, and the method uses backward-looking methodology (Murphy & Simon, 2002).

- t. Value Analysis: In 1981, Keen introduced the Value Analysis (VA) as an alternative approach to traditional cost-benefit methods. VA is a methodology for planning and evaluating decision support system (DSS) proposals. Keen identifies the key issues as: (i) a reliance on prototypes; (ii) the absence of cost-benefit analysis; (iii) the evolutionary nature of DSS development; and (iv) the nature of perceived benefits.
- u. Total Cost Analysis: Total cost analysis is a method used to evaluate the total cost of a project or product. The purpose of total cost analysis is to provide decision-makers with a comprehensive understanding of the financial implications of their choices.
- v. Capital Investment Appraisal Technique (CIAT): CIAT is a financial method used to evaluate the profitability of potential investments. It involves techniques such as net present value (NPV), internal rate of return (IRR), and payback period, which provide different insight into the potential profitability of an investment. The goal of CIAT is to determine whether a proposed investment is financially feasible and whether it will generate sufficient returns to justify the initial investment.
- w. Negotiation and Imputation: Negotiation and imputation are methods of evaluating intangible benefits according to Remenyi (2000). The method involves asking managers using a particular resource to place a value on it. For example, “would this report be worth \$100 to you?”, if yes then they are asked “would it be worth \$1,000 to you?” This binary search is continued until a value of the report is agreed on, and it is this value which may be considered the value of the intangible benefit.

3. Methodology

This paper is specifically devoted to identifying and reviewing the literature on methods for anticipating return on investment (ROI) based on the quantification of intangible values. The primary data were generated through content analysis, which is a scholarly methodology in the humanities that involves examining texts to determine their authorship, authenticity, or meaning (Joubish & Khurram, 2011). It is commonly utilised as a research technique to provide an objective and systematic depiction of communication content.

Figure 2 illustrates the methodology used to achieve the objective. Qualitative content analysis was applied to review published material related to anticipating return on investment (ROI) based on the quantification of intangible values. Following the method used by Miskon et al. (2011) and Levy & Ellis (2006), three steps were employed to extract, analyse, and report the literature-based findings. The first step was to identify the articles to be included in this review. The second step involved designing and executing detailed rules of conduct that prescribed how to capture and analyse the literature. The third step entailed synthesising the analysed details and deriving the research findings.

For the first step of the content analysis, all articles related to servicescape, intangible values of servicescape, and methods for anticipating return on investment (ROI) based on the quantification of intangible values, published in journals, academic conferences, website, blog posts, google scholar, and books were gathered. The literature sample comprises English-speaking journals, peer-reviewed papers; proceedings from academic conferences and books on methods for anticipating return on investment (ROI) based on the quantification of intangible values, covering the twenty-four-year period from 2009 to 2023. To compile the literature sample, a search was conducted based on a pair of keywords “servicescape”, “impact

of servicescape”, “measurement of intangible ROI”, “ROIs intangible values”, “return on intangible values”, to be jointly found in title, keywords, or abstract. The structure keywords search was conducted in major database subscribed to by the UTM library (UTM online databases, e-journals, and e-books): *Emerald, SAGE Journals, Scopus, Wiley, SpringerLink, Web of Science, Taylor & Francis Online, and ScienceDirect*. Through these processes, a total of 53 qualitative research articles related to anticipating ROI based on the quantification of intangible values were identified. Henceforth, these 53 papers are referred to as the ‘primary’ set of papers.

Nvivo was used to code and analyse the literature. Nvivo had previously been effectively employed in this way by Bandara et al. (2011) and Miskon et al. (2011). A detailed rule of conduct was devised to store (file), code, and analyse the extracted papers in the Nvivo database. All fifty-three articles were saved and arranged as “documents” and “nodes”.

Only one level of coding was involved in the analysis. The main areas of interest (return on investment (ROI) intangible values) were plotted at a high level in main tree-level nodes in Nvivo. This is in alignment with the specification of the first rule of conduct. The tree-level node represents a logical location within Nvivo. This allows one to plot and store the content that are logically grouped together during the coding process. Based on the rule of conduct, each paper was manually scanned in Nvivo to inductively identify the key area of interest (return on investment (ROI) based on the quantification of intangible values). The coding process was carried out by mapping relevant sentences or statements to the nodes. The result of the analysis (the coded content) was scrutinised to derive anticipated return on investment (ROI) based on the quantification of intangible values.

This process led to the identification of anticipated return on investment (ROI) based on the quantification of intangible values from the coded literature. The overall research findings will be discussed in the following section.

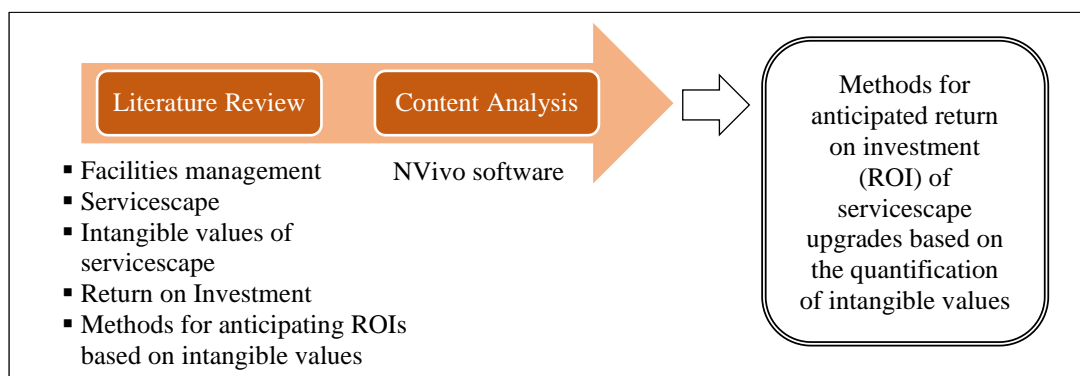


Figure 2: Methodology Process

4. Conclusion

Content analysis was carried out to identify return on investment (ROI) calculation methods that may be used to anticipate the ROI of servicescape upgrade based on the quantification of intangible values. Table 3 presents the preliminary findings of methods anticipated ROIs identified through this effort. In order to ensure that the list of methods was comprehensive, methods that were only cited once were also considered in the list.

Table 2: Summary of results from content analysis

No	Anticipating ROI	Number of coding references	Number of sources	List of sources
1	Willingness to Pay (WTP) or Willingness to Accept (WTA)	22	9	Ahlin (2019), Gunawardena et al. (2020), Gyorgy, Vintilla & Gaman (2014), Kim, Kim & Kang (2010), Mendes (2011), Oliver et al. (2009), Oladunjoye et al. (2022), Thiede (2015), Dolan et al. (2019)
2	Information Economic (IE)	17	6	Ahlin (2019), Gibson, Arnott & Jagielska (2004), Kim et al. (2011), Milis et al. (2009), Muftikhali & Subriadi (2018), Purwita & Subriadi (2019)
3	Capital Investment Appraisal Technique (CIAT)	4	2	Mendes (2011), Milis et al. (2009)
4	Contingent Valuation Method (CVM)	7	3	Gunawardena et al. (2020), Gyorgy, Vintilla & Gaman (2014), Kim, Kim & Kang (2010)
5	Cost Benefit Analysis (CBA)	14	6	Ahlin (2019), Gyorgy, Vintilla & Gaman (2014), Mendes (2011), Oladunjoye et al. (2022), Thiede (2015), Gunawardena et al. (2020)
6	Hedonic Price Method	9	3	Gunawardena et al. (2020), Gyorgy, Vintilla & Gaman (2014), Kim, Kim & Kang (2010)
7	Travel Cost Method	9	3	Gunawardena et al. (2020), Gyorgy, Vintilla & Gaman (2014), Kim, Kim & Kang (2010)
8	Comparative Analysis	3	2	Granta Automation (2019), Hartman (2014)
9	Process of Elimination	3	2	Granta Automation (2019), Hartman (2014)
10	Quantification Technique	4	2	Gibson, Arnott & Jagielska (2004), Myrphy & Simon (2002)
11	Revealed Preference	8	2	Gunawardena et al. (2020), Gyorgy, Vintilla & Gaman (2014)
12	Scenario Analysis	2	2	Glomark (2006), Hartman (2014)
13	Stated Preference	8	2	Gunawardena et al. (2020), Gyorgy, Vintilla & Gaman (2014)

The findings show that there are 13 anticipated ROIs based on the quantification of intangible values identified from this study. The methods that can be used to anticipate ROI based on the quantification of intangible values include willingness to pay (WTP) or willingness to accept (WTA), information economics (IE), capital investment appraisal technique (CIAT), contingent valuation method (CVM), cost-benefit analysis (CBA), hedonic price method, travel cost method, comparative analysis, process of elimination, quantification technique, revealed preference, stated preference, and scenario analysis.

Anticipating the ROI of servicescape upgrading projects based on intangible values requires much more than just knowing what methods can be used. However, the findings in paper provide a basis for further research that may look into the viability, accuracy and reliability of the methods, the data that need to be collected for the methods to produce any meaningful result, or even the possibility of an amalgamation of the methods to simplify the process and produce more accurate results.

Consequently, when it comes to making upgrades to the business's servicescape, it's important to be able to demonstrate the value of the ideas to upper management and the finance department. By quantifying the intangible values of these upgrades, facilities managers can

show the anticipated return on investment (ROI) and help stakeholders see that they are not merely a cost, but rather an investment in the success of the business.

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