**IJSCET**

International Journal of Sustainable Construction Engineering and Technology

# Factors Considered for Outsourcing Decision of Support Services by the National Health Service, United Kingdom

**Norbaya Ab Rahim[1]\*, David Baldry[2], Muhamad Saiful Alizan Nordin[1], Rohayu Ab Majid[1], Anis Sazira Bakri[1]**

[1]College of Built Environment,
 Universiti Teknologi MARA, Shah Alam, 40450, MALAYSIA

[2]School of the Science, Engineering and Environment,
 University of Salford, Salford, M5 4WT, UNITED KINGDOM

*Corresponding Author

**Abstract:** Outsourcing of support services has been in practice for decades. It was once used as a means of reducing costs and has now evolved and is being considered strategically by organisations. Not only is outsourcing prevalent in the private sector, it is also growing in the public sector including public healthcare. Outsourcing also allows for the implementation of new technologies, processes, and strategies that would not otherwise be available. Despite the increasing prevalence of outsourcing of support services in the National Health Service (NHS) of the United Kingdom, there is a lack of research into the factors that should be considered when evaluating the potential of outsourcing. Therefore, this research seeks to evaluate the factors to be considered in the decision to outsource the support services in the NHS. This research has taken a qualitative approach with a multiple-case study concept adopted as the research strategy. Three (3) NHS Trusts have been identified with 21 respondents from senior management and middle management levels. The main data collection was through face-to-face semi-structured interviews. The findings revealed the factors to be considered in outsourcing decisions for the NHS Trusts and are grouped into seven (7) themes. These are namely the Environmental Factor, Financial Factor, Legal Factor, Risks Factor, Service Provider Factor, Social Factor, and Trust Factor. This research acknowledges that there is a need for Trusts to understand comprehensively the concept of outsourcing, and the motivation for them to go into outsourcing. In addition, the Trusts also need to acknowledge the factors that they should consider prior to deciding on outsourcing.

**Keywords:** Outsourcing, healthcare, support services, NHS outsourcing

## 1. Introduction

The growing population and the ageing pattern have increased the demand for healthcare, necessitating increased investment in the social sector by governments. This leads to worsening fiscal situations while highlighting the deficiencies and limitations of the public health system (Barik & Rout, 2021). Many strategies have been implemented such as by applying preventive health measures, adopting new technologies as well as outsourcing, to name a few. In terms of national health services management, outsourcing has been used and proposed by almost all healthcare systems globally to counter such problems.

Due to the savings that outsourcing offers, the practice of outsourcing has been increasingly spread into all industries including the healthcare sector. Nevertheless, the scenario in healthcare slightly differs from the other industries due to the nature of healthcare being more critical as it involves high levels of variability (Skipworth et al., 2020). Among the characteristics that distinguish healthcare from other business ventures are; (i) the facilities are open 24 hours a day, seven (7) days a week and 365 days a year as healthcare services i.e. hospitals provide particularly complex services; and (ii) a mistake can cost a life (Lennerts, 2009; Lennerts et el., 2005). Hospitals must also regularly update their equipment to meet the highest safety standards. Therefore, these characteristics require exceptional operating conditions.

The critical function of a hospital is to provide medical care in terms of diagnosis and treatment to inpatients and outpatients. Additionally, it entails ensuring patient satisfaction is high even though it is relatively subjective when evaluating the care provided (Osman et al., 2022). Rechel et al. (2009) argued that compared with other services such as airports, railway stations, and shopping malls, hospitals provide extensive research and development (R&D), education, and training besides healthcare. Furthermore, the range of people moving through hospitals is exceptionally complex, as a number of them require some degree of assistance due to mental or physical difficulties (Rechel et al., 2009). Given the diverse and complex range of services that hospitals offer, outsourcing certain services can be beneficial to ensure the best quality of care for patients while simultaneously making the most efficient use of hospital resources and staff.

Despite the advantages of outsourcing, there are circumstances whereby organisations terminate outsourcing even before the end of the outsourcing contract. This has resulted in additional costs incurred by the organisations as they must compensate the service providers due to early termination. In addition, according to Perlekar and Thakkar (2019), the failures of outsourcing are due to the vendor's weak financial standing, poor management practices, and inadequate inventory management practices. Therefore, clients and service providers must be aware of the potential pitfalls thus understanding the factors that can lead to failure to avoid such outcomes. The research problem investigated is the need for more appropriate analysis in outsourcing decisions, particularly in the healthcare sector. Therefore, this research evaluates the factors to consider when deciding whether to outsource support services in the NHS.

## 2. Literature Review

The literature review discusses the definitions of outsourcing, outsourcing practices in the healthcare sector, particularly NHS, and factors considered in outsourcing NHS support services.

### 2.1 Definition of Outsourcing

According to Edvardsson et al. (2021), outsourcing can be considered as a strategic move that involves transferring a part or the whole of the internal activities or functions to agreed third parties. Chase et al. (2004) define outsourcing as "an act of moving some of a firm's internal activities and decision responsibilities to outside providers". In the same vein, Barrett and Baldry (2003) describe outsourcing as "the process by which a user employs the supplier, under a contract, to perform a function, which had previously been carried out in-house; and transfers to that supplier assets, including people and management responsibilities". From the literature, there are numerous definitions of outsourcing. Some of them define outsourcing as a "process" (Damanpour et al., 2020; Dekker et al., 2020; Barrett & Baldry, 2003) or a "strategy" (Edvardsson at al., 2021; Rebernik & Bradac, 2006: Steane & Walker, 2000). Gilley et al. (2004) argued that merely defining outsourcing in terms of procurement activities needs to reflect its true strategic nature.

From the literature, the term "outsourcing" has been used interchangeably with the term "make-or-buy" (Longauer et al., 2023; Moda et al., 2023; Hsiao et al., 2010; Van de Water & Van Peet, 2006; McIvor & Humphreys, 2000). Make-or-buy is defined as "outsourcing the production process or parts of it" (Van de Water & Van Peet, 2006). According to Jenster and Pedersen (2000), outsourcing is a make-or-buy decision whereby organisations decide whether to continue the in-house provisions or to purchase them from external service providers. Varadarajan (2008) highlights that outsourcing is a wide range of actions using terms like "vertical integration versus vertical disintegration" and "make versus buy" which relates to the choice of performing the activities outside or inside the organisations. Russell and Taylor (2003) opine that the type of decision that outsourcing represents is similar to the make-or-buy decision. Outsourcing is widespread because organisations lack competence and prefer to outsource their non-core activities (Olanrewaju et al., 2021).

Drawing from the definitions identified in the review of the literature and also from the data collected, this study defines outsourcing in the healthcare sector as the transferring of internal activities to the service providers, under a contract, aiming to gain efficiency and value to offer the best services for the benefit of the patients.

### 2.2 Outsourcing in National Health Service

The healthcare building has many crucial access points to the healthcare system, which experiences high patient demand and contains complicated equipment. This was supported by Maniatopoulos et al. (2020) where in the United Kingdom (UK), the health and social care sector is under immense pressure to deliver better results and reduce disparities in the face of tight fiscal constraints and instability. Hence, to effectively manage the medical services a healthcare organisation provides, it is necessary to outsource facilities management to maintain specific property, equipment, instruments, and tools. In order to do that, managers must take into consideration the quality, demand, complexity of

equipment, and mission when deciding to outsource building operations and maintenance services to support the treatment and care mission of a healthcare (Suweero et al., 2017).

Barik and Rout (2021) support this by asserting that in order to remain competitive in the current economy, organisations have to rethink their management strategies and employ new approaches, such as outsourcing, to cope with rising costs and shrinking budgets. This is because inefficiency is increasingly observed in the financing and delivery of both public and private health services. Therefore, outsourcing is the main alternative as its activities focus on production costs reduction and improved quality of products by possessing good materials or services that the home organisation cannot provide (Rashid et al., 2023).

Generally, outsourcing support services in public healthcare is a global practice. In Australia, the government instructs service providers to benchmark, and market-test the clinical and non-clinical services with the possibility of outsourcing. The services include linen, laundry, car parking, catering, domestics, radiology, pharmacy, computing, engineering, and general practice (Young, 2003). Meanwhile, in Malaysia, the government outsources five (5) support services nationally for 15 years, which is compulsory for all public hospitals. The support services involved are waste management, domestics, linen and laundry, facility engineering maintenance, and bio-medical engineering maintenance services (New Straits Times, 1996). In India, for instance, central bio-medical waste treatment facilities collect and dispose of healthcare wastes from different healthcare facilities (Chauhan & Singh, 2018).

In the UK, the NHS has long bought some operations from the private sector (Timmins, 2005). Similar to the situation in Australia, the then ruling government i.e., The Conservatives, commenced Compulsory Competitive Tendering (CCT) for laundry, catering, and domestic services in 1983, as it was argued to be a cost-saving and more efficient use of resources. Thus, this cost saving could be used as an additional fund for patient care (Davies, 2009). The then Secretary of State for Social Services had issued a circular referencing NHS (HC (83)18) calling health authorities to put these three (3) support services out to competitive tender. External service providers were invited to tender against the existing NHS in-house service provision and the tender will be won by the party that offers the lowest bid (British Medical Journal, 1983). After that, in 1992, other support services such as portering, non-emergency ambulance services, and maintenance joined the group (Kerr and Radford, 1994). The CCT was abolished in 1997 and was replaced with Best Value. The NHS Trusts were not asked to outsource these support services but must demonstrate that they are providing them efficiently. The NHS Trusts now have autonomous power and work independently in deciding whether to outsource or not; and, if so, which support services will be outsourced. Therefore, it depends on the drivers and factors to be considered by NHS in implementing outsourcing for their support services.

## 2.3 Factors Considered in Outsourcing Decisions

Financial factors have been widely cited as an essential driver of outsourcing due to its potential to generate cost savings and efficiencies. Outsourcing provides access to specialist expertise and resources, reduces overhead costs, and helps improve the bottom line. Outsourcing the reprocessing service allows healthcare services to save money on material management. The external company providing the service can form a network of suppliers for the materials used in the surgical instruments or devices (Paltriccia & Tiacci, 2016). However, Magenzi et al. (2006) conclude that the decision-makers emphasise the quality of medical services more than costs. Outsourcing also contributes to operational efficiency. A private hospital recently established in southern Finland has implemented a modern, efficient approach to material logistics and support services, taking advantage of external services to maximise operational efficiency (Pohjosenperä et al., 2019). Guimarães and de Carvalho (2013) also stated that the alignment between Supply Chain Management (SCM) and Lean Thinking in healthcare shows that outsourcing can serve strategic and operational efficiency objectives.

McIvor (2000) highlights that besides costs, organisations must consider associated risks, the service providers, and the strategic perspective. For instance, Ikediashi and Ogunlana (2015) studied the significant risk factors associated with facilities management (FM) outsourcing in Nigeria's public hospitals. As a result, the study found that the top five (5) critical risk factors are: inexperience and lack of requisite skills; the possibility of fraud by vendors; financial failure of the chosen vendor; vendor opportunism; and decreasing employees' morale. Besides considering the internal factors in the organisations, the external environment factors should also be considered. Similarly, Marshall et al. (2005) postulate that factors external to the organisations are viewed as influencing the outsourcing decision process. These external factors could be the political and regulatory environments, changes or issues surrounding technology, and influences from the social environment.

Yang and Huang (2000) divide the factors to be considered in outsourcing decisions into two (2) groups i.e., tangible and intangible. Tangible factors are costs, facilities, and human resources, while intangible factors are strategy and quality. They further recommend that organisations consider all factors by following the five (5) themes: management, strategy, economics, technology, and quality. Udo (2000) suggests that the principal decision factors for outsourcing are the strategic importance of the activities rendered, service provider factors, and customer and employee interests. On the other hand, research findings of Ancarani and Capaldo (2005) identify four (4) main factors, namely (i) political involvement and employment policy, (ii) the external competitive pressure and pressure on costs reduction, (iii) the complexity of services provided, and the dimension of the parties involved as well as (iv) the operational advantages and disadvantages derived from in-house delivery or outsourcing strategies applied. Contextually, Khan et al. (2022) argue that flexibility is an essential factor of outsourcing as it allows organisations to quickly replace employees in unexpected

circumstances, such as illness or injury. This ability to rapidly adapt to changing circumstances allows businesses to maintain operations and meet deadlines without disruption (Khan et al., 2022).

According to Pohjosenperä et al. (2019), even though many healthcare support services have been traditionally performed in-house and partly by the care personnel, the initiatives towards modularised and standardised solutions are now being taken, including ideas about outsourcing some of the services. Moreover, in times of workforce shortage and a dynamic environment, healthcare organisations can compensate by employing external staff on sub-contracts for specific tasks, such as fee-based physicians. These are done apart from outsourcing services to external contractors, thereby transferring the responsibility for assuring the necessary resources (Ansmann et al., 2021). Different attributes such as cultural differences, the health status of the population, and other factors may affect the outcomes of the factors studied. The literature review suggests that outsourcing is critical in national healthcare services, hence it is essential to carefully consider which services should be outsourced and what factors to consider in outsourcing decision-making.

## 3.  Methodology

This research employs a qualitative approach, using a case study research strategy to uncover insight into the research problem. Data collection is through semi-structured interviews and analysed using the NVivo software. The following sections elaborate on the adopted research strategy, data collection, and data analysis techniques.

### 3.1  Research Strategy: Case Study

According to Yin (2014) and Robson (2002), a case study strategy encompasses a comprehensive analysis of a person, a group, a setting, or an organisation. Stake (1995) asserts that a case study permits the researcher to maximise the opportunity to learn and allows the researcher to have more understanding. Eisenhardt (1989) points out that a case study is employed to develop a good understanding of the issues. One of the strengths of a case study is that it enables the researcher to capture the complex reality under scrutiny (Saunders et al., 2019). Furthermore, the case study approach permits a researcher to evaluate relationships and social processes that are impossible under a quantitative approach alone (Miles & Huberman, 1994). In addition, a case study enables the contribution towards understanding a phenomenon by comparing cases (Yin, 2014). Given the complex nature of outsourcing decisions, it is difficult to analyse using the traditional positivist approach common in much social science research (Tranfield & Starkey, 1998). In light of the complexity and context of the specific nature of outsourcing decisions, a case study strategy approach was conclusively deemed the most appropriate strategy to adopt.

The use of multiple-case sampling adds to the validity and generalisability of the findings (Wu et al., 2022) through replication logic (Yin, 2014). Through multiple-case study design, the results are reinforced by replicating the pattern matching. The findings derived from two (2) case studies (or two experiments) are stronger than those that are derived from a single case (or single experiment) only. Therefore, a multiple-case study design is selected in this study with three NHS Trusts as three (3) case studies.

### 3.2  Data Collection Technique

Interviews are essential to case study evidence because most case studies are about human affairs (Yin, 2014). Thus, the primary data is collected from semi-structured interviews for this research. By conducting semi-structured interviews, the interviewer is free to explore emergent issues and to discuss whatever she feels is appropriate in the broader topic of the interview (Saunders et al., 2019; Robson, 2002).

**Table 1 - List of respondents**

| Management Level | Post / Designation | No of Respondents |
|---|---|---|
| Senior | 1.   Director of Estates and Facilities | 2 |
|  | 2.   Associate Director of Estates and Facilities | 2 |
| Middle | 1.   Supplies / Purchasing Manager / Head of Procurement | 3 |
|  | 2.   Transport and Waste Manager | 1 |
|  | 3.   Accommodation Manager | 1 |
|  | 4.   Domestics Monitoring Manager | 1 |
|  | 5.   Operations Manager | 1 |
|  | 6.   Hotel and Site Service Manager | 1 |
|  | 7.   Contract Manager | 1 |
|  | 8.   Facilities Manager / Facilities Service Manager | 3 |
|  | 9.   Assistant Hotel Service Manager | 1 |
|  | 10.  Catering Manager | 1 |
|  | 11.  Head of Estate Development / Operations | 2 |
|  | 12.  Assistant Director of PFI and Special Project | 1 |

| | *Total no. of interviews* | *21* |
|---|---|---|

A purposive sampling method is adopted for the selection of the respondents. This method, also known as judgemental sampling, allows the authors to select respondents according to predetermined criteria, enabling the research questions to be answered and, thus, to meet the research objectives (Saunders et al., 2019). This sample is often used in case study research that uses small samples (Neuman, 2013).

Letters for the invitation to participate and the case study brief were sent to Estates and Facilities Department of seven (7) NHS Trusts. Follow-up telephone calls and e-mails were made subsequently. Three (3) of the NHS Trusts agreed to participate in this study, with the majority of the personnel under the Estates and Facilities Department and also from the Procurement / Supplies Department. The senior and middle management level staff with various posts under the said departments were chosen as participants. In addition, snowball sampling was also adopted to ascertain the participants. This is a method whereby the follow-up respondents are acquired from information given by the initial respondents (Saunders et al., 2019).

The respondents include senior management, namely the Director and Associate Director of the Estate and Facilities Department, and middle management, such as the Head of Supplies / Procurement, Accommodation Manager, Domestic Monitoring Manager, Hotel and Site Service Manager, and Facilities Manager, to name a few. Appointments with the respondents were arranged through the Personal Assistants of the Directors. The personnel involved are mainly under the Estates and Facilities Department and Procurement / Supplies Department of the respective Trusts. A total of 21 semi-structured interviews were carried out (refer to Table 1).

## 3.3  Data Analysis Technique

The data is analysed within the individual cases themselves (within-case analysis) and subsequently across the three (3) cases (cross-case analysis). In within-case analysis, empirical evidence is gathered to support the variables identified in the literature review, which involves detailed write-ups for each case. As a result, this will enhance the familiarity of each case as a stand-alone entity. A unique pattern will appear from this process, which can be generalised across cases (Amaratunga & Baldry, 2001). The cross-case analysis compares the findings from all three (3) case studies, and the authors identify and understand the differences and similarities of each case. These form the basis for the establishment of both literal replication and theoretical replication.

In deciphering the meaning from the interviews, content analysis is used to scrutinise the transcribed data. The content analysis is done on the data to establish a response pattern. Content analysis has been described as a deductive analytical approach in which codes (or constructs) are predetermined and systematically sought within the collected data. The data is categorised and coded into themes to bring meaning to the data. This step can be laborious as it necessitates reading and re-reading the text in the coding process to ensure the data are categorised correctly.

Nevertheless, this process is the crux of qualitative analysis (Yadav, 2022). Hence, the NVivo content analysis tool assists in data analysis. This software allows the authors to manage the code and model the data (Allsop et al., 2022). It also reduces bias through systematic analysis of large volumes of data.

## 3.4  Quality Control for Research Data

The issue of quality in the conduct of research is always a concern. According to Graneheim and Lundman (2003), research findings should be as trustworthy as possible, and every research study must evaluate data in relation to the procedures used to generate the findings. Any research must be sound, as the failure to assess the worthiness of the study in terms of the soundness of its methodology and the accuracy of the findings could be detrimental to the said research (Long & Johnson, 2000). Quality control for research data is undertaken using validity tests, reliability tests, and triangulation.

Three (3) types of validity tests have been implemented throughout the research: construct, internal, and external. Construct validity involves the authors' ability to establish correct operational measures for the studied concept. In ensuring construct validity, the authors used multiple sources of evidence in the case study, namely semi-structured interviews and document reviews. During the interviews, the authors performed a document check of the organisations' information and made inquiries for further clarification and verification. Additionally, the authors established a chain of evidence between the documents and the interview data. The interviews were recorded and transcribed in real-time. In the meantime, internal validity is used in explanatory studies by identifying causal relationships. The authors employed pattern-matching techniques in the data analysis whereby patterns are identified across cases. External validity means establishing the domain to which a study's findings can be generalised using replication logic and being tested during the research design state. The findings from one case study will be replicated by conducting subsequent case studies. As such, using replication logic in multiple-case studies satisfies the external validity by using literal and theoretical replication to achieve a more robust result.

Meanwhile, to increase reliability, all procedures were applied consistently across all cases, including interview preparation and data collection. Triangulation leads to more reliable and valid findings. Yin (2014) asserts that triangulation is achieved using multiple data sources in case studies. This research deploys two (2) types of triangulations,

which are data source triangulation (multiple sources of origin where data was collected from multiple case studies), and methodological triangulation (Data Collection Method: semi-structured interviews and document reviews; Data Analysis Method: content analysis and cognitive mapping).

## 4. Findings

The factors to be considered in outsourcing decisions can be grouped into seven (7) categorical themes: Environmental, Financial, Legal, Risk, Service Provider, Social, and Trust. The cognitive mapping presents the findings for easy reference (Figure 1). Meanwhile, the explanation of each factor and sub-factor mentioned by all Trusts is presented in Table 2.

### 4.1 Environmental Factor

The environmental factor is a new finding derived from case studies. This particular factor has yet to be mentioned earlier in the literature. However, it was highlighted in Case Studies 2 and 3 that there has been a rising concern about the degradation of the environment, and there is a need for NHS hospitals to reduce their carbon footprint. NHS is considered the most significant public sector contributor to climate change. The carbon footprint for NHS in England has risen to 21 million tonnes per year (NHS Sustainable Development Unit, 2010a). As a result, the NHS Trusts should not take the environmental issue lightly.

Consequently, the NHS has placed the issue of sustainability on its agenda, and Trusts now have to report their carbon emissions. In 2009, the first NHS England carbon footprint report was published, where the greenhouse emission was 18 million tonnes. Approximately 60% of the total carbon footprint of the NHS is related to the procurement of goods and services, with 2% coming from food and catering; and 1% from waste products and recycling (NHS Sustainable Development Unit, 2009; NHS Sustainable Development Unit, 2010b).

### 4.2 Financial Factor

The most cited factor to consider in outsourcing decisions from the case studies is the financial factor. It is found that costs are usually the most significant factor and has to be a strong consideration albeit not the total factor or the exclusive factor. In all cases, Trusts must consider the cost of operating the support services internally and then consider the cost of undertaking them externally; before deciding to outsource that particular support service to the said service providers. If the cost of providing the in-house services is higher than the cost of outsourcing them, outsourcing that support service is an option. Amos et al. (2021) and Kavosi et al. (2018) highlight the role of the financial factor, where public healthcare is embracing outsourcing to get quality services at the optimum cost.

In addition, it is also essential for the Trusts to consider the total acquisition costs in outsourcing decisions (El Mokrini & Aouam, 2022; Damanpour et al., 2020; Smithson & Dickey 2020; Jenster & Pedersen, 2000). Case study 3 indicates that knowing how the service provider works is far more critical and deciding on outsourcing does not necessarily have to be the cheapest. Trusts have tread with caution that lower costs may indicate lower quality. Although the Trusts are looking into reducing costs, the services' quality needs to be maintained. The Trusts want to seek the best services for the patients and obtain value for money.

### 4.3 Legal Factor

As NHS Trusts are classified as public bodies, they must maintain rules and regulations that bind these public sectors. The Trusts highlight the need to follow the correct channel for procuring goods and services in all cases. In outsourcing the support services, the Trusts need to know what the current legislation on procurement is or whether any related legislation has changed. On top of that, Trusts need to know what the correct procurement routes for outsourcing support services are. Choosing the correct procurement route depends on the contract's size and value and whether a Contract / Framework Agreement has already existed. The procurement route in the public sector can be either through quotations, tenders, Public Procurement Regulations such as advertising through OJEU, or even through an existing Contract or Framework Agreement. The Contract or Framework Agreement exists when the procurement has already been undertaken, and service providers have already been appointed. Other public bodies may already procure this type of Contract or Framework Agreement.

As for the Public Procurement Regulations, when the total life cycle of a contract is above the EU threshold, the complete procurement regulations apply, i.e., Trusts will have to advertise through OJEU. The UK is a member of the European Union (EU) (at the time research was carried out) and therefore is subjected to the EU law. As a result, Trusts need to have substantial knowledge of public procurement before embarking on one to ensure that the procurement to be made is in line with the legal requirements. It was highlighted that failure of the Trusts to follow the regulations could have negative consequences for them.

Another perspective is that in providing residential accommodations for doctors, Trusts need to know the requirements of the British Medical Association (BMA). Therefore, in looking into outsourcing, Trusts need to know the minimum standards as stipulated in the HSC 2000/036: Living and working conditions for hospital doctors in training;

and the subsequently revised guidelines. It will enable them to provide the correct specifications when outsourcing. It is to be noted that there are stricter penalties on hospital trusts who offer sub-standard residential accommodations. Examples of the minimum standards required in providing a bedroom are as follows: -

- Bedroom: to have adequate light and soundproofing, ventilation, temperature adjustment and security
- Desk, chair, wardrobe, drawers, bookcase, easy chair, reading light;
- Lined curtains;
- Wash basin with hot and cold taps;
- Telephone for external phone calls charged at no more than BT rates; and
- A safe 5–10-minute walk to relevant wards and departments.

Another scenario is on outsourcing the domestic services. The Trusts also need to be in the know about what the latest National Cleaning Standards are. This will assist Trusts in putting on the specifications for the tender. Therefore, the understanding of what are the current legislation governing the support services is one of the factors that need to be considered by the Trusts. This is because, as a public body, they must stay within the governing rules and legislations. This legal factor was previously highlighted by Khosravizadeh et al. (2022); Ayaad et al. (2022); Marshall et al. (2005) and Lorence and Spink (2004).

## 4.4  Risk Factor

It is of note that the aims of the Trusts and the service providers are different. Trusts have to bear in mind that when outsourcing, the interests of the patients are at stake. In all cases, the Trusts emphasised transferring risks to the service providers when outsourcing the support services. Nevertheless, Trusts must consider the associated risks when support services are outsourced. For instance, risks include the service providers being unable to perform the outsourced services or not getting the appropriate service providers for the outsourced services. In addition, Trusts must also consider whether outsourcing will lead to the drop in the quality provided by the Transfer of Undertakings (Protection of Employment) (TUPEd) staff as there is no more feeling of belonging from these staff. As the staff has been transferred, Trusts also highlighted the possibility of losing the expertise and knowledge to the outsourced services. Risk factors have been identified before by El Mokrini and Aouam (2022), Kulkarni and Jenamani (2008), Yang et al. (2007), and McIvor (2000). Meanwhile, Kavosi et al. (2018) declared that risk sharing between Trusts and service providers is one of the most important strategic factors for healthcare service outsourcing.

## 4.5  Service Provider Factor

In outsourcing, all Trusts mentioned the consideration of the service provider factor. The Trusts raised concerns about whether the service providers can work and integrate with them. The Trusts consider whether the service providers have the necessary healthcare experience in undertaking the relevant support services. It also includes whether the service providers know about working within the healthcare environment and the requirements for each NHS Trust. As Trust C is a combination of several hospitals, they must consider whether the service providers have experience managing multi-cleaning contracts in multiple-hospital sites. They should also be able to provide consistent services across all sites. It must be noted that all hospitals are different with regard to their siting and patient population.

Besides considering the above, Trusts A and B highlighted whether the potential service providers are able to bring efficiency compared with the in-house team. On top of that, Trust B indicated that they also need to consider whether these service providers can stay above healthcare-associated infections; which is a sensitive issue in healthcare (Ramli et al., 2018; Ramli et al., 2023). This factor has been highlighted before by Kulkarni and Jenamani (2008); and Tayles and Drury (2001). In addition, all Trusts also consider whether the service providers are able to provide quality services to the Trusts. Trust A highlights that cutting-edge service providers can also fail to perform better services. All Trusts agreed that the quality provided is a factor as important as cost. The issues of quality were previously highlighted by Yang and Huang (2000); Yang et al. (2007); Wang and Yang (2007); Tayles and Drury (2001) and Wang et al. (2008).

Furthermore, it was found that all Trusts pointed out considering whether there are reliable service providers. These are the service providers that can perform as expected by the Trusts and perform timely delivery. Trust A emphasised the importance of reliability; since some of the Trusts' data is confidential, having reliable service providers is crucial. These findings are hitherto mentioned by Gambal et al. (2022) and Tayles and Drury (2001).

All Trusts emphasised whether the service providers for that particular support service exist and are available in the market to be outsourced. One typical instance they gave is the linen and laundry service, whereby the number of service providers in the market has declined. It is to be noted that in this niche market, the service providers are in a better position than the Trusts. This finding has been acknowledged earlier by Ball (2003) and Gambal et al. (2022).

## 4.6  Social Factor

All Trusts underlined the nature of the Trusts, a public body that is spending public money. Hence, their action must be transparent, as the public can challenge them on any suspected misconduct. As such, outsourcing needs to be in line with the regulations. Therefore, in outsourcing decisions, Trusts have to consider that they are public bodies and any decisions made need to be geared around patients' comfort and safety. The social factor was highlighted by Bachar et al. (2022) and Udo (2000), whereby customer interest is one factor to be considered in outsourcing decisions.

## 4.7 Trust Factor

One of the factors these Trusts consider in outsourcing decisions is the capability of the in-house team to perform the support services. Besides the workforce, the availability of the real estate, such as the buildings, to perform the support services such as linen and laundry and waste management are also considered. The Trusts also consider the availability of the expertise of the in-house team. The trust factor was earlier claimed by Alhassan et al. (2023) and Lorence and Spink (2004).

All the Trusts considered the nature of the services. Some support services are specialised in nature thus it is better to be performed by the service providers. This matter has been identified previously by Ball (2003). In the case of outsourcing residential accommodations, the proximity and location of the residential accommodation has been considered. This issue of proximity is a new finding from the case studies.

Another issue to be considered under the Trust Factor is specifications. All Trusts stated consideration of whether they have suitable specifications for support services in outsourcing decisions. Indeed, Trusts must take extra precautions in putting down the specifications to avoid gearing to one particular service provider when calling for tender. It is noteworthy that each hospital is different; thus, the specifications to be written down will follow the needs of that particular hospital. Therefore, it is vital for Trusts to have comprehensive specifications to avoid any gap that will cost the Trusts more in the future. This particular issue on specifications is a new finding from the case studies.

The Trusts also consider the issue of the management of the affected staff. Trust A and C pointed out the well-being of the TUPEd staff. It entails the implications on the transferred staff and how the appointed service providers will treat them. Also, this includes the terms offered by the service providers, such as wages and other benefits. On top of that, Trusts also consider the working conditions of the TUPEd staff, such as the Health and Safety, and the training that will be given to the staff. In addition, Trusts also consider that the Union will be involved and will fight for the right of the affected staff when it comes to outsourcing. The issues on human resources and the affected staff were previously highlighted by Udo (2000) and Yang and Huang (2000).
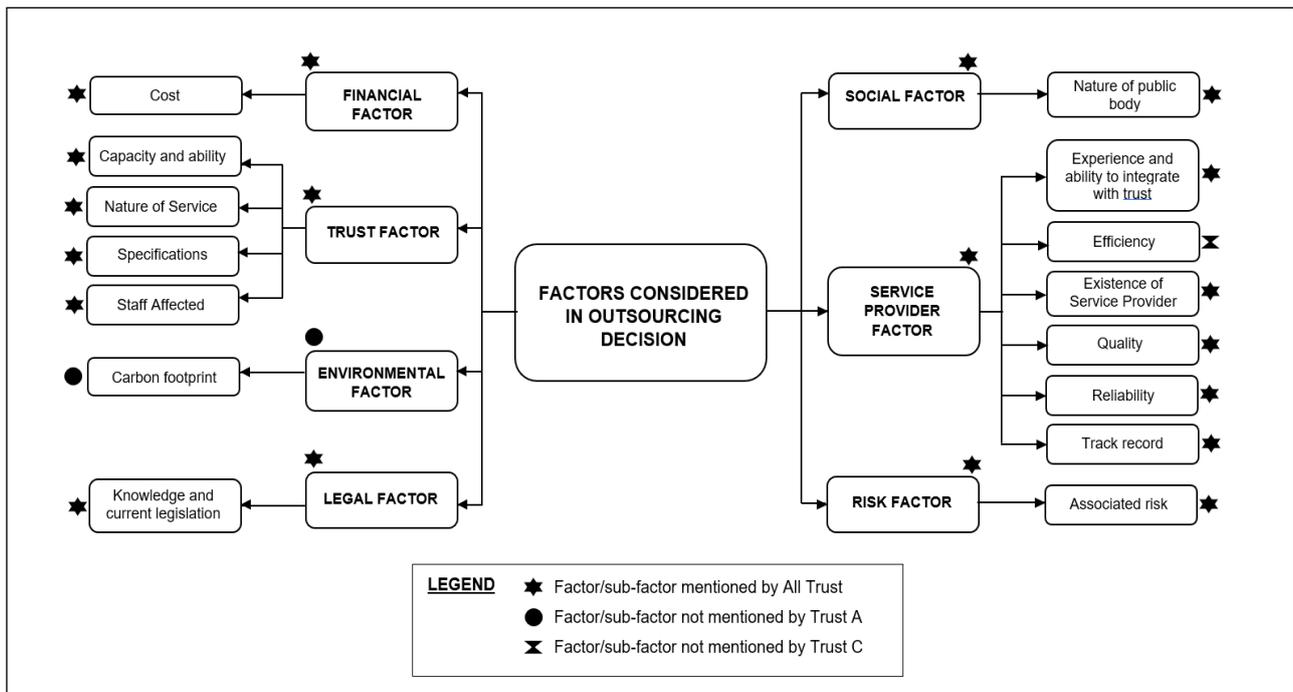


**Fig. 1 - Cognitive mapping of factors considered in outsourcing decision by all trusts**

**Table 2 - Cross-case analysis for factors considered in outsourcing decisions**

| Themes | Case Study 1 | Case Study 2 | Case Study 3 |
|---|---|---|---|
| **Environmental Factor**<br>*Carbon footprint* | -None- | • Raising awareness of sustainability<br>• Reducing the carbon footprint | • Raising awareness of sustainability<br>• Reducing the carbon footprint<br>• Trust needs to report on their $CO_2$ emissions |
| **Financial Factor**<br>*Cost* | • Finance is usually the biggest factor<br>• Trust needs to compare the cost of providing the services internally; and also, the cost of providing them externally<br>• Outsourcing is an option if the cost of performing internally is higher<br>• Consider the whole total acquisition costs<br>• The quality of the support services is not to be compromised<br>• Cost is not to be seen as an exclusive factor<br>• Trust wants value for money | • Cost is not the total factor, but it has to be a strong consideration<br>• Trust needs to compare the cost of providing the services internally; and also, the cost of providing them externally<br>• Seeking the best service for the patients<br>• Trust wants value for money | • Trust needs to compare the cost of providing the services internally; and also, the cost of providing them externally<br>• Low cost may indicate low quality<br>• Knowing how the service providers work is far more important<br>• Do not have to be the cheapest<br>• Trust wants value for money |
| **Legal Factor**<br>*Knowledge of current legislation* | • The whole life cycle cost of the support services to be outsourced<br>• Different financial thresholds of the support services will have different procurement routes<br>• Trust is required to advertise through OJEU if the financial threshold of the support service is above the limit<br>• The correct procurement route in outsourcing the support services<br>• Have to go to the NHS approved service providers<br>• The NHS has a more stringent set of procurement rules<br>• The current BMA's guidelines | • Abide by the European legislation<br>• Procurement has to be open, fair and follow the legislation<br>• Every action done by the Trust is publicly accountable because they are spending public money<br>• The effect of non-compliance can be detrimental<br>• Need to be aware of the law that is always changing<br>• Trust is required to advertise through OJEU if the financial threshold of the support service is above the limit | • The current National Cleaning Standards applicable for domestic services<br>• The correct procurement route for outsourcing the support services<br>• Trust is required to advertise through OJEU if the financial threshold of the support service is above the limit<br>• Different financial thresholds of the support services will have different procurement routes |
| **Risk Factor** | • Trust and service | • The capability of the | • Transferring the risk of |

| Themes | Case Study 1 | Case Study 2 | Case Study 3 |
|---|---|---|---|
| *Associated risks* | providers have different aims<br>• When outsourcing the interest of the patients are not jeopardised<br>• Transferring the risk of running the support services to the service providers<br>• Risk of the quality provided declined as no sense of belonging from the TUPEd staff<br>• Risks of losing expertise and knowledge due to outsourcing | Trust to hold the risk if the Trust can control the risk better<br>• Transferring the riskof running the support services to the service providers | running the support services to the service providers<br>• The risks of recruiting service providers that are unable to perform tothe expected quality standard<br>• The risk of having one or multiple service providers<br>• The risk of not recreating the appropriate service providers |
| **Service Provider Factor**<br>*Experience and Ability to integrate with Trust* | • Ability of the service providers to work within the hospital environment<br>• Knowledge of special requirementsrelated to the NHS<br>• Service providers have the necessary healthcare experience to undertake the task | • Service providers have the knowledge and experience in healthcare<br>• Providing similar support service in different sectors will be different, for example, security in hospital and shopping mall are different<br>• Every hospital is different in terms of site, patient population etc.<br>• Service providers have the necessary healthcare experience to undertake the task | • Service providers have knowledge of the hospital site<br>• Service providers are able to give consistent services across all sites<br>• Service providers are able to work with the Trust<br>• Service providers have the necessary healthcare experience to undertake the task<br>• Experience in managing multi-cleaning contracts in several hospitals |
| *Efficiency* | • Service providers are able to bring efficiencies as a result of outsourcing the support services | • Service providers are able to stay at the top of healthcare infection and understand them<br>• Trust needs to reflect whether it is more efficient to do the task in-house or externally | -None- |
| *Existence of service provider* | • The number of the potential service providers of linen and laundry has been declining over the years<br>In this niche market the service providers will be in a better market position than the Trust | • The number of the potential service providers of linen and laundry has been declining over the years | • The number of the potential service providers of linen and laundry has been declining over the years<br>• There is a market for the service that is going to beoutsourced |
| *Quality* | • Obtaining quality services from the service providers<br>• Cutting edge service | • Cost has to come hand in hand with quality<br>• Obtaining quality services from theservice | • Obtaining quality services from the service providers<br>• Cost has to come hand |

| Themes | Case Study 1 | Case Study 2 | Case Study 3 |
|---|---|---|---|
| | provider may also fail to bring better and more productive approach<br>• Quality is as important as cost | providers<br>• Quality is critical especially on cleanliness | in hand with quality<br>• Low cost may indicate low quality<br>• Service providers able to deliver consistent quality services for all sites<br>• Quality of services provided is more important than cost |
| *Reliability* | • Service providers are able to perform as expected by the Trust<br>• Willingness of the service providers to come at certain intervals and do the task, as required<br>• Some of the Trust's data is confidential | • Service providers are able to respond quickly<br>• Service providers are able to deliver the service on time<br>• Receiving the services regularly<br>• Service providers are able to comply and do that safely | • Service providers are capable to undertake the service as required<br>• Service provider are able to perform and fulfilling the duties as promised and has been paid<br>• Service providers are able to respond quickly |
| *Track record* | • Reputable service providers that have history of developing and delivering services in NHS hospitals<br>• Service provider's past years audited account<br>• Bona fide service providers<br>• Good reputation<br>• Financially sound service providers | • Good track record<br>• Reputable service providers that have a history of developing and delivering services inNHS hospitals<br>• Credible service providers<br>• Provide good references<br>• Financially soundservice providers | • Reputable service providers that have a history of developing and delivering services in NHS hospitals<br>• Good track record<br>• Positive recommendations from other users<br>• Financially sound service providers |
| **Social Factor**<br>*Nature of public body* | • The Trust is a public body which is spending public money<br>• Trust's transparency can be challenged atany time for fairnessand probity | • The Trust is a public body which is spending public money<br>• Outsourcing needs tobe in line with regulations<br>• Unique operation of Trust has to be geared around patients' comfort and safety | • The Trust is a public body which is spending public money<br>• Unique operation of Trust has to be geared around patient comfort and safety<br>• Different scope of work required suchas cleaning in healthcare |
| **Trust Factor**<br>*Capacity and Ability* | • Availability of real estate or space to run the support services<br>• In-house capabilityto undertake the support services<br>• Availability of in-house expertise | • In-house capabilityto undertake the support services<br>• In-house staff skills<br>• Manpower<br>• Availability of real estate or space to runthe support services<br>• Availability of in-house expertise | • In-house capabilityto undertake the support services<br>• Availability of in-house expertise |
| *Nature of service* | • Delicate instruments that require specialist care<br>• High requirement of conditions for certain | • Specialised services require a certain amount of expertise and knowledge from the service providers | • Specialised services require a certain amount of expertise and knowledge from the service providers |

| Themes | Case Study 1 | Case Study 2 | Case Study 3 |
|---|---|---|---|
| *Specifications* | support services<br>• Proximity and location of accommodation<br>• Suitable specifications for the support services to beoutsourced | • Have to take extra precautions in preparing the specifications to avoid gearing to one particular service provider<br>• Each hospital is different, so specifications will follow the need of each hospital | • Specifications have to be comprehensive to avoid any gap that will incur additional costs<br>• The appropriate stakeholders involved in putting down the specifications for the support services |
| *Staff affected* | • The well-being of the TUPEd staff<br>• How the service provider will treat the TUPEd staff<br>• The TUPEd implication on the staff transfer issue<br>• Working conditions of staff<br>• Wages<br>• Health and safety | • Number of holidays given<br>• Equal opportunities<br>• Look after the staff<br>• Staff training<br>• Composition of staff | • The well-being of the TUPEd staff<br>• Redundancy costs<br>• Ability of the Trust staff to be transferred on the TUPEd to other organisation<br>• The terms of NHS staff are superior than commercial service providers<br>• Union will fight for the right of the Trusts' staff |

## 5. Conclusion

Although there are various advantages of outsourcing that may motivate the Trusts to pursue outsourcing, it is crucial for the Trusts to understand the concept of outsourcing. In conclusion, it is recommended that NHS Trusts should consider all the factors mentioned when making outsourcing decisions. This means evaluating and assessing the Environmental, Financial, Legal, Risks, Service Provider, Social, and Trust Factors to ensure that the decision-making process is done systematically, thus leading to an effective outcome. Furthermore, it is recommended that the decision-making process should be undertaken in a transparent and consultative manner, engaging all stakeholders. This will ensure that all perspectives are considered and that the best decision is taken. Future research should explore the impact of outsourcing decisions on the NHS Trusts and their stakeholders, especially regarding the financial, social, and environmental outcomes. Moreover, further research should explore the strategies and techniques for effective outsourcing decision-making for the NHS Trusts. Finally, it would be useful to investigate the implications of outsourcing decisions on the performance of the NHS, particularly in the United Kingdom.

## Acknowledgement

## References

Alhassan, T., Kidido, J. K., & Tannor, O. (2023). Assessment of facilities management sourcing approaches in hotels in Ghana: a study of selected hotels in Wa. *Property Management.*

Allsop, D. B., Chelladurai, J. M., Kimball, E. R., Marks, L. D., & Hendricks, J. J. (2022). Qualitative methods with Nvivo software: A practical guide for analyzing qualitative data. *Psych, 4*(2), 142-159.

Amaratunga, D. and Baldry, D. (2001) Case study methodology as a means of theory building: performance measurement in facilities management organisations. *Work Study, 50*(3) pp. 95-104

Amos, D., Au-Yong, C. P., & Musa, Z. N. (2021). The mediating effects of finance on the performance of hospital facilities management services. *Journal of Building Engineering, 34*, 101899.

Ancarani, A and Capaldo, G. (2005) Supporting decision-making process in facilities management services procurement: a methodological approach. *Journal of Purchasing & Supply Management, 11*(5-6) pp. 232-241

Ansmann, L., Vennedey, V., Hillen, H. A., Stock, S., Kuntz, L., Pfaff, H., ... & Hower, K. I. (2021). Resource dependency and strategy in healthcare organizations during a time of scarce resources: evidence from the metropolitan area of cologne. *Journal of Health Organization and Management, 35*(9), pp. 211-227

Ayaad, O., Al-Ruzzieh, M. A., Qaddumi, B., Al Hroub, A., Ayyad, M., Abuseif, S., & Çelik, Y. (2022). Outsourcing services in the healthcare sector: balancing risks and benefits. *British Journal of Healthcare Management, 28*(3), pp. 96-103.

Bachar, R. K., Bhuniya, S., Ghosh, S. K., & Sarkar, B. (2022). Sustainable green production model considering variable demand, partial outsourcing, and rework. *AIMS Environmental Science, 9*, pp. 325-353.

Ball, D. (2003) A weighted decision matrix for outsourcing library services. *The Bottom Line: Managing Library Finances, 16*(1) pp. 25-30

Barik, S. K., & Rout, H. S. (2021). Outsourcing of healthcare services in a smart city of Eastern India. Journal of *Facilities Management, 19*(4), pp. 458-478.

Barrett, P. and Baldry, D. (2003) Facilities Management: Towards Best Practice, 2nd ed., Blackwell Science, Oxford

British Medical Journal (1983) Government wants action on competitive tendering for NHS‟s support services, 287 pp. 850

Chase, R.B., Jacobs, F.R. and Aquilano, N.J. (2004) Operations Management for Competitive Advantage, 10th ed., Irwin/McGraw-Hill, Boston, MA

Chauhan, A., & Singh, A. (2018). Modelling the drivers of healthcare waste management in India: a policy perspective. *Management of Environmental Quality: An International Journal. 29*(3), pp. 456-471

Damanpour, F., Magelssen, C., & Walker, R. M. (2020). Outsourcing and insourcing of organizational activities: the role of outsourcing process mechanisms. *Public Management Review, 22*(6), pp. 767-790.

Davies, S. (2009) Making The Connections Contract Cleaning and Infection Control, UNISON, London

Dekker, H. C., Mooi, E., & Visser, A. (2020). Firm enablement through outsourcing: A longitudinal analysis of how outsourcing enables process improvement under financial and competence constraints. *Industrial Marketing Management, 90*, pp. 124-132.

Edvardsson, I. R., Óskarsson, G. K., & Durst, S. (2021). The outsourcing practice among small knowledge-intensive service firms. *VINE Journal of Information and Knowledge Management Systems, 51*(1), pp. 177-191.

Eisenhardt, K. (1989) Building theories from case study research, *Academy of Management Review, 14*(4) pp. 532-550

El Mokrini, A., & Aouam, T. (2022). A decision-support tool for policy makers in healthcare supply chains to balance between perceived risk in logistics outsourcing and cost-efficiency. Expert Systems with Applications, 201, 116999.

Gambal, M. J., Asatiani, A., & Kotlarsky, J. (2022). Strategic innovation through outsourcing–A theoretical review. *The Journal of Strategic Information Systems, 31*(2), 101718.

Gilley, K.M., Greer, C.R., and Rasheed, A. (2004) Human resource outsourcing and organizational performance in manufacturing firms. *Journal of Business Research, 57*(3) pp. 232–240.

Graneheim, U.H. and Lundman, B. (2003) Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today, 24*(2) pp. 105-112

Guimarães, M. C., & de Carvalho, C. J. (2013). Strategic outsourcing: a lean tool of healthcare supply chain management. *Strategic Outsourcing: An International Journal, 6*(2), pp. 138-166.

Hsiao, H.I., Van der Vorst, J.G.A.J, Kemp, R.G.M. and Omta, S.W.F. (2010) Developing a decision-making framework for levels of logistics outsourcing in food supply chain networks. *International Journal of Physical Distribution & Logistics Management, 40*(5) pp. 395-414

Ikediashi, D. I., & Ogunlana, S. O. (2015). Significant risk factors associated with facilities management (FM) outsourcing: A study on Nigeria's public hospitals. *Engineering, Construction and Architectural Management. 22*(6), pp. 771-796

Jenster, P. and Pedersen, H.S. (2000) Outsourcing – facts and fictions. *Strategic Change, 9*(3) pp. 147-154

Kavosi, Z., Rahimi, H., Khanian, S., Farhadi, P., & Kharazmi, E. (2018). Factors influencing decision making for healthcare services outsourcing: A review and Delphi study. *Medical Journal of the Islamic Republic of Iran, 32*, pp. 56.

Kerr, A. and Radford, M. (1994) TUPE or not TUPE: competitive tendering and the transfer laws. *Public Money and Management*, October-December, pp. 37-45

Khan, S. A., Alkhatib, S., Ammar, Z., Moktadir, M. A., & Kumar, A. (2022). Benchmarking the outsourcing factors of third-party logistics services selection: analysing influential strength and building a sustainable decision model. *Benchmarking: An International Journal, 29*(6), pp. 1797-1825

Khosravizadeh, O., Maleki, A., Ahadinezhad, B., Shahsavari, S., Amerzadeh, M., & Tazekand, N. M. (2022). Developing decision model for the outsourcing of medical service delivery in the public hospitals. *BMC Health Services Research, 22*(1), pp. 135.

Kulkarni, S.V. and Jenamani, M. (2008) Make-or-buy: a case study at an Indian automobile company. *Supply Chain Management: An International Journal 15*(4) pp. 320-331

Lennerts, K, Abel, J., Pfrunder, U. and Sharma, V. (2005) Step-by-step process analysis for hospital facility management: an insight into the OPIK research project. *Facilities, 23*(3/4) pp. 164-175

Lennerts, K. (2009) Facility management of hospitals. In Investing in Hospitals of The Future, Observatory Studies Series No 16, World Health Organisation, pp. 167-186

Long, T. and Johnson, M (2000) Rigour, reliability and validity in qualitative research. *Clinical Effectiveness in Nursing, 4*(1) pp. 30-37

Longauer, D., Hauck, Z., & Vasvári, T. (2023). Make-or-buy strategies in a multi-stage manufacturing process and the role of learning effect in relocation decisions. *Computers & Industrial Engineering, 180*, 109259.

Lorence, D.P. and Spink, A. (2004) Healthcare information systems outsourcing. *International Journal of Information Management, 24*(2) pp. 131-145

Magnezi, R., Dankner, R.S., Kedem, R. and Reuveni, H. (2006) Outsourcing primary medical care in Israeli defence forces: decision-makers" versus clients" perspective. *Health Policy, 78*(1) pp. 1-7

Maniatopoulos, G., Hunter, D. J., Erskine, J., & Hudson, B. (2020). Large-scale health system transformation in the United Kingdom: Implementing the new care models in the NHS. *Journal of Health Organization and Management, 34*(3), pp. 325-344.

Marshall, D., Lamming, R., Fynes, B. and De Burca, S. (2005) The development of an outsourcing process model. *International Journal of Logistics: Research and Applications, 8*(4) pp. 347-359

McIvor, R.T. (2000) A practical framework for understanding the outsourcing process. *Supply Chain Management: An International Journal, 5*(1) pp. 22-36

McIvor, R.T. and Humphreys, P.K. (2000) A case-based reasoning approach to make or buy decision. *Integrated Manufacturing Systems, 11*(5) pp. 295-310

Miles, M. and Huberman, A. (1994) Qualitative Data Analysis: An Expanded Source Book, 2nd ed., Sage Publications, Beverly Hills, CA

Moda, M., Ghosh, K. K., & Pathak, K. (2023). Value chain and core competency-based approach to outsourcing decision: a case of the Indian coal mining organisation. *International Journal of Value Chain Management, 14*(2), pp. 168-194.

Narashiman, R. and Das, A. (1999) An empirical investigation of the contribution of strategic sourcing to manufacturing flexibilities and performance. *Decision Sciences, 30*(3) pp. 683-718

Neuman, W.L. (2013) Social Research Methods: Qualitative and Quantitative Approaches, 7th ed., Pearson Allyn and Bacon, London

New Straits Times (1996) RM7.5 billion medical services deals signed

NHS Sustainable Development Unit (2009) NHS Carbon Reduction Strategy for England, Cambridge

NHS Sustainable Development Unit (2010a) NHS Carbon Reduction Strategy Update, Cambridge

NHS Sustainable Development Unit (2010b) Procuring for Carbon Reduction, Department of Health

Osman, N. S., Nor, N. M., Md Sharif, M. S., Rahamat, S., & Abdul Hamid, S. B. (2022). Barriers and challenges of an outsource hospital foodservice operation: a narrative thematic analysis. *Malaysian Journal of Medicine & Health Sciences*, 18.

Olanrewaju, A., Akbar, A. R. N., Azmi, N. A., & Hong, T. R. (2021). Procurement of maintenance management for public high rise residential buildings. *Environment-Behaviour Proceedings Journal, 6*(17), pp. 235-240.

Paltriccia, C., & Tiacci, L. (2016). Supplying networks in the healthcare sector: a new outsourcing model for materials management. *Industrial Management & Data Systems. 116*(8), pp. 1493-1519

Perlekar, N., & Thakkar, J. J. (2019). Risk management framework for outsourcing in the defence sector: a case from India. *International Journal of Production Research, 57*(18), pp. 5892-5919.

Pohjosenperä, T., Kekkonen, P., Pekkarinen, S., & Juga, J. (2019). Service modularity in managing healthcare logistics. *The International Journal of Logistics Management, 30*(1), pp. 174-194.

Ramli, N. A., Zawawi, E. M., Arif, N. R. M., Mahbob, N. S., Sulaiman, Z., & Zainol, N. N. (2018, February). A perspective study on green cleaning for Malaysian public hospital. *In IOP Conference Series: Earth and Environmental Science*, *117*(1), pp. 012017. IOP Publishing.

Ramli, N. A., Ahmad Zawawi, E. M., Muhamad Ariff, N. R., & Zainol, N. N. (2023). Environmental cleaning battling against Covid-19 infection in health-care facilities. *Facilities*.

Rashid, R. M., Ma'in, M., Isa, S. S. M., Nasir, N. N. E., & Mohamad, N. H. S. (2023). Factors Influence on Export: Evidence from Malaysia. *Journal of Islamic, 8*(53), pp. 25-32.

Rebernik, M. and Bradac, B. (2006) Cooperation and opportunistic behaviour in transformational outsourcing. *Kybernetes, 35*(7/8) pp. 1005-1013

Rechel, B., Wright, S. and McKee, M. (2009) Translating hospital services into capital asset solutions. In Investing In Hospitals of The Future, Observatory Studies Series No 16, World Health Organisation, pp. 167-186

Robson, C. (2002) Real World Research, 2nd ed., Blackwell Publishers, Oxford

Russell, R.S and Taylor, B.W. (2003) Operations Management, 4th ed., Prentice-Hall, Upper Saddle River, NJ

Saunders, M., Lewis, P. and Thornhill, A. (2019) Research Methods for Business Students, 8th ed., Prentice-Hall, London

Skipworth, H., Delbufalo, E., & Mena, C. (2020). Logistics and procurement outsourcing in the healthcare sector: A comparative analysis. *European Management Journal, 38*(3), pp. 518-532.

Smithson, P., & Dickey, D. (2020). Outsourcing clinical engineering service. In Clinical Engineering Handbook (pp. 222-226). Academic Press.

Stake, R.E. (1995) The Art of Case Study Research, Sage Publications, Thousand Oaks, CA

Steane, P.D and Walker, D.T.H (2000) Competitive tendering and contracting public sector services in Australia – a facilities management issue. *Facilities, 18*(5/6) pp. 245-255

Suweero, K., Moungnoi, W., & Charoenngam, C. (2017). Outsourcing decision factors of building operation and maintenance services in the commercial sector. *Property management. 35*(3), pp. 254-274

Tayles, M. and Drury, C. (2001) Moving from make/buy to strategic sourcing: the outsource decision process. *Long Range Planning 34*(5) pp. 605-622

Timmins, N. (2005) Challenges of private provision in the NHS. *British Medical Journal, 331*(7526) pp. 1193-1195

Tranfield, D. and Starkey, K. (1998) The nature, social organization and promotion of management research: towards policy, British Journal of Management, 9(4) p341-353

Udo, G.G. (2000) Using analytic hierarchy process to analyse the information technology outsourcing decision. *Industrial Management & Data Systems, 100*(9) pp. 421-429

Van de Water, H. and Van Peet, H.P. (2006) A decision support model based on the Analytic Hierarchy Process for the make or buy decision in manufacturing. *Journal of Purchasing & Supply Management,12*(5) pp. 258-271

Varadarajan, R. (2008) Outsourcing: think more expansively. *Journal of Business Research, 62*(11) pp. 1165-1172

Wang, J. and Yang, D. (2007) Using a hybrid multi-criteria decision aid method for information system outsourcing, *Computers & Operations Research*, 34(12) pp. 3691-3700

Wang, J., Lin, Z. and Huang, H. (2008) A decision model for information systems outsourcing: using a multicriteria method. *Journal of Service Science and Management, 1*(1) pp. 1-9

Wu, L., Sun, L., Chang, Q., Zhang, D., & Qi, P. (2022). How do digitalization capabilities enable open innovation in manufacturing enterprises? A multiple case study based on resource integration perspective. *Technological Forecasting and Social Change, 184*, 122019.

Yang, D-H., Kim S., Nam, C. and Min, J-W. (2007) Developing a decision model for business process outsourcing. *Computers & Operations Research, 34*(12) pp. 3769-3778

Yang, C. and Huang, J.B. (2000) A decision model for IS outsourcing. *International Journal of Information Management, 20*(3) pp. 225-239

Yin, R.K. (2014) Case Study Research: Design and Methods, 5th ed., Sage Publications, Thousand Oaks, CA

Young, S.H. (2003) Outsourcing and benchmarking in a rural public hospital: does economic theory provide the complete answer? *Rural Remote Health, 3*(1) pp. 1-14