J. Adv. Res. in Alternative Energy, Environment and Ecology
Volume 9, Issue 3&4 - 2022, Pg. No. 10-20
Peer Reviewed Journal

Article

To Outsource or Not to Outsource: Resource Decision-Making in the Project Management Environment

Garry Blair[1], Helen Woodcock[2], Rosane Pagano[3]

[1]Assessor, INPD, Blackthorn House, Appley Bridge, Greater Manchester, United Kingdom.
[2]Associate Lecturer, Operations, Technology, Events and Hospitality Management Business School, All Saints Campus, Manchester Metropolitan University, Manchester, United Kingdom.
[3]Principal Lecturer, Operations, Technology, Events and Hospitality Management Business School, All Saints Campus, Manchester Metropolitan University, Manchester, United Kingdom.

I N F O

Corresponding Author:
Garry Blair. INPD, Blackthorn House, Appley Bridge, Greater Manchester, United Kingdom.
E-mail Id:
drgblair@outlook.com
Orcid Id:
https://orcid.org/0000-0003-0861-3429
How to cite this article:
Blair G, Woodcock H, Pagano R. To Outsource or Not to Outsource: Resource Decision-Making in the Project Management Environment. *J Adv Res Alt Energ Env Eco* 2022; 9(3&4): 10-20.

Date of Submission: 2022-12-14
Date of Acceptance: 2023-01-16

A B S T R A C T

Every organisation engages in some form of outsourcing in order to sustain their operations. The decision to outsource certain functions and the selection of the optimum providers is an important aspect of organisational strategy. Failure in respect of outsourcing could have a critical effect on an organisation, leading to losses and ultimately its termination. Failure to utilise the most efficient and effective option can also lead to problems, as competitors may improve their relative position and remove business from the organisation. The key factors in making decisions to outsource activities are discussed. The importance of the features of the organisation and its context are emphasised. The rationale behind outsourcing is mentioned, principally this concerns the supply of products or services that the organisation would prefer not to make or perform, for various reasons. The form of the contract between the provider and client is also studied, in order to discern the key features. The option of global sourcing is considered. Organisations can move all or some of their activities overseas, termed offshoring. This paper considers outsourcing in respect of technology. The area of cloud computing is discussed, as both an illustration and a key mechanism for the provision of outsourced IT services. A thematic analysis of selected, key literatures is undertaken. A summary of factors related to outsourcing decision-making and contract formulation is provided, in order to assist practice and constitute a focus for further research. The principal facets of an outsourcing contract are identified, utilising an empirical study.

Keywords: Outsourcing, Offshoring, Global Sourcing, Cloud Computing, Cloud Migration, Contract Clauses, Contract Termination

Introduction

Outsourcing is a critical activity for organisations, comprising a vital element of their business strategy. Organisations will choose to outsource aspects of their operations for a number of different reasons. This will, hopefully, provide them with advantages in delivering their core objectives by reducing the time and other resources allocated to non-core activities, that can be performed more efficiently by other organisations. Technology management forms an important activity for outsourcing, as it is a prime area for such contracts.[1]

A definition of outsourcing (provided by Wetherly and Otter, 2018:486)[2] is "the buying in of components, subassemblies, finished products and services from outside suppliers rather than by supplying them internally." The rationale for this action may be lack of expertise, capital, space or access to cheaper products, components and services. This provides the justification for using external suppliers, rather than performing these activities within the organisation. The act of outsourcing can have a 'knowledge transfer' effect, from the original client to the provider. The latter, for example, is likely to require specialist knowledge of the former, in order to fulfil the contract. The transfer of the IT function, for instance, leads to the migration of knowledge workers, who possess the specialist skills to deliver the required services. The transfer of these personnel from the original company means that the latter will lack this technical knowledge, in respect of future decisions in this sphere. There is also a potential 'power shift' in that the original company relies heavily on the outsourcing provider in this area, thus permitting the negotiation of improved commercial terms, if allowed. This advantage is limited by the contract or the time it would take the original organisation to replace the outsource provider, either with another company or recruitment of in-house IT personnel.

Offshoring can be defined as "involves moving a process to another country where a firm not only locates an activity in another country but also contracts this activity to another firm, it is referred to as offshore outsourcing" (Needle, 2015: 590).[3]

The objective is to gain advantage from moving those operations to another country. This could be in terms of taxation, labour or materials generating cost gains. It may be for strategic reasons, such as obtaining entry to an overseas market. It could also be motivated by the lack of expertise, staff, capital or space in the contracting organisation, together with access to specialist resources in the provider organisation.

A multinational company could move operations to an overseas branch without engaging in outsourcing activities, for example. The movement of operations overseas to another company is "offshoring outsourcing", where the activities are performed by another company, on behalf of the original organisation.

Outsourcing usually requires a contract between the two organisations, with a knowledge exchange (possibly also a transfer of personnel). The original organisation retains responsibility for the outsourced service, which includes liability for failures by the contractor, especially in respect of the customers and investors. It is therefore important that the contract contains the required level of security and ensures the necessary service levels are defined and agreed. There are also technology implications, irrespective of the activities that are included in the outsourcing agreement. It is important to guarantee the communications facilities between the two organisations. Technology is thus required in a coordinating role, with information being exchanged in an efficient manner. The fulfilment of service and goods requirements should therefore be readily enabled by the appropriate technology.

Methodology

A review of the principal literatures on this topic was undertaken and the key themes identified, using an inductive approach. An empirical study was also enacted, in the form of a semi-structured interview with an expert in this topic area. The main themes were then discerned from the interview text, using inductive methods in an 'open coding' technique, without predetermined themes [4]. These findings were then related to themes from the literature to inform this analysis by providing an academic context. A framework was compiled in order to summarise the research findings, from an academic and practice perspective[5]

Literature Review

Important literature sources were identified, regarding this topic, and reviewed in order to discern the key factors for this research. These were then organised and presented. The objective was to enhance understanding of outsourcing in the project management environment.

Global Sourcing

The aim of global sourcing is to maximise the benefits to the organisation, removing the constraints of location. The organisation can, in principle, thus access the optimum resources for the task. There is no requirement to select only local resources, although transport and communications should be considered as potential overheads, in making the final resourcing decision.

The motivation for global sourcing is improved resource status, thus enhancing the business position.

The global market for outsourced services is a significant value, with IT service forming a high proportion of this

total. The predictions for this market continue to show strong growth.

The global market size of outsourced services was around $92.5 billion in 2019 with IT outsourcing comprising $66.5 billion of this total. The global IT outsourcing market is expected to grow by $98 billion from 2020 to 2024.[6]

The indications are therefore that the global market for outsourced services will continue to be important in the future.

Global sourcing can be initiated via the creation of a strategy for outsourcing, which embodies good communications between the principal stakeholders. The operations that are to be outsourced should be identified and collaboration to create a specification should occur. This will define the outsourcing parameters and, ideally, ascertain the requisite service levels. The specification should, ideally, establish part of the outsourcing contract.

The project to outsource the specified activities should be monitored via controls (such as budgeted expenditure), as should the ongoing operations. There is also the requirement to overcome cultural and language differences, if the activities are to be delivered by an overseas branch or company.

Penetration of overseas markets can occur through a variety of different mechanisms, for example: Exporting, where products are sold in another country's market; Licencing, where the product is produced under licence from the original organisation; Franchising, where the business model is licenced (for example the McDonald's company, selling food); a Joint Venture, where partner companies form a new firm; Creation of a wholly-owned subsidiary; Offshore outsourcing, where part of the business is delivered by another company in another country (Needle, 2015: 41[3]). These activities can all lead to outsourcing and offshoring, either via direct or indirect means.

Assessment of Outsourcing and Offshoring

The requirement is for the organisation to consider the various factors internally and external to the business, in order to decide on whether to outsource, offshore or maintain the current position, in respect of the selected operations. The overall position, accounting for these factors, will facilitate the decision-making process. The need is for information to be accumulated from different areas, to assist the decision-makers. The current business performance together with the key environmental factors, in respect of the organisation, need to be studied. A model of the assessment method has been identified.[7]

The first step is suggested as the performance of an assessment of the present situation, embracing the factors within and exterior to the organisation. The requirement is to identify the threats and opportunities in the prevailing environment, also considering the internal processes of the enterprise. The objective is to determine the core business, sustained by the core activities. This will permit the non-core activities to be identified. These are the potential candidates for outsourcing. The organisation's value chain should be checked to verify the status of these specified activities. It may be deemed necessary to retain these in-house for strategic reasons (for example, retaining systems or data to prevent exposure to external view). The activities designated as 'non-core' can potentially be outsourced. This could lead to gains in terms of finance and strategy, due to the specialism of the external provider.

The next step is the undertaking of an efficiency assessment, considering the current state of the market. A cost comparison should be enacted, comparing those of the organisation to sector benchmarks and standards. This assessment should therefore consider the organisation's operating environment, including competitors and any similar organisations. The potential for economies of scale via outsourcing and current cost inefficiencies in the organisation, caused by attempting to deliver non-core activities in-house, should be identified. There needs to be an assessment of whether to deliver the activity in-house or purchase via an external supplier in an outsourcing arrangement. Once this decision has been made then the options for the delivery of this outsourced activity can be reviewed. The alternative providers and the delivery options for the latter can thus be considered. The type of partnership arrangements with the outsourcing company can also be examined.

The feasibility of the various options should then be studied. The potential risks and rewards of the viable options can be assessed.[8] The drivers to outsource the activities can be appraised, as well as the drivers for not outsourcing them. A rational review of the options can then be undertaken to contribute to a decision on outsourcing. This may be not to proceed with this option and thus retain the activities within the organisation.

If the decision to outsource is taken then the selection of options can be enacted. A suitable business partner can be identified, together with the preferred mechanism for engaging in outsourcing. The option to offshore the activities can be evaluated, with the most suitable country being identified via an assessment of the advantages and disadvantages. The preferred method can be selected and both the terms of the contract together with the required service standards can be negotiated.

The rationale for the outsourcing and offshoring choice needs to be understood. Key elements such as competition and price should be considered. The preferred option can be selected, based on requirements and the available

choices. Suitable partners, suppliers and countries will need to be reviewed and final selection made, possibly after a tender process. The costs, profits, risks and prevailing opportunities need to be quantified, via the value chain. The performance of a feasibility study may be required, in order to determine the appropriate options. The business case for selecting the preferred option should be made, from the feasible alternatives.

Cloud Computing

The use of cloud computing, comprising the commercial provision of cloud services is an important example of outsourcing, assisting in the generation of revenue in this, the IT segment of the world economy.

The cloud provider companies give access to IT facilities via the internet. The client's staff could, for example, have access to their applications via a web browser link. A range of different services can be provided via the cloud, for example, giving access to the server, so the operating software and applications can be run by the client's staff and giving access to the server and operating system software so the client loads and runs the application. These IT facilities are thus delivered as a service by the cloud provider.

Data centres are used to support this service and the flexible use of parallel processing should facilitate the clients' workload variations. The hardware and software in the data centres enable these cloud outsourcing services. This provides economies of scale, thus maximising the use of facilities. Parallel processing enables large data sets to be processed and permits intensive processing required by client applications. This should generate cost savings in the work cycles, as a temporary increase in processing requirements, for example due to year-end procedures, can be accommodated. The additional capacity can be purchased and will be available, 'on demand' for the client. This scalability of processing power saves the client the expense of purchasing and maintaining a server to process this peak load then running the system at lower capacities for the rest of the year. The principle of 'payment for usage' therefore makes cloud computing attractive to many organisations, together with the freedom from hardware considerations. The latter means that clients do not have the overhead of purchasing and maintaining servers, including the employment of dedicated staff for this purpose.

There are potential issues with this form of outsourcing, though, in respect of security and privacy, as well as service availability and provision issues. The former originate from the outsourcing company running the clients' systems and therefore being privy to confidential information. The latter is about ensuring that the range of facilities and processing power are available, as dictated by the clients' needs. The contract is therefore paramount in guaranteeing these requirements. The global nature of this business can engender problems, in respect of the validity of contracts across international boundaries. The contract should also contain a service level agreement, incorporating the requisite range of facilities, standards and processing capacity.[8] The form of the contract is further investigated in the empirical work (detailed in the section on 'Findings').

Environmental considerations should also be a factor in the outsourcing decision. Regulation, stakeholder choice and the role of technology may influence this appraisal. The effect on the environment should be a key criterion, in respect of the final outcome.[10]

Cloud Migration

The principal factors motivating a client to change to a cloud provider are outlined by Venters and Whitley [11] in their article. The technology aspects are considered, namely: the equivalence to the traditional systems, in respect of functionality; sufficient variety to cover the range of usage; the removal of complexity (enabled by the cloud provider); the service is scalable to meet demand. The service benefits are also reviewed, as: the users are more efficient in cost terms; aids innovation due to removal of non-core activities; simplifies usage (as complexity of the technology is delegated to the outsourcing provider).

The contributory factors concerning the decision-making for migration to cloud systems are also covered by Bhattacherjee and Park.[12] Their research mentions the positive aspects of relative usefulness and expected availability. The negative aspects are also covered, regarding dissatisfaction with the current, pre-cloud IT provision. The constraints are mentioned, such as security concerns and the switching costs of conversion to cloud systems, including setup and costs of learning the new arrangements, in respect of both parties. Motivation was highlighted, identifying the experience of the decision-maker and influential individuals in the former's sphere. The outcome of these factors will create an intention to migrate to cloud systems and, ultimately, a decision to outsource (or not to outsource).

A survey of IT managers was undertaken,[13] to discern the principal concerns of this group in moving systems to the cloud. The drivers were mainly focussed on efficiency, with cloud services perceived as shortening delivery timelines, reducing costs and also optimising the scope of the projects. The dilemmas from such moves were centred on potential problems with data privacy, security, IT governance and local regulation (being problematic for global outsourcing). The requirement was viewed as the necessity for change and risk management plans to fully address these concerns, in managing the transition of systems to the cloud.

A generic model for the cloud migration process was created, based on case studies from different countries

[14]. This provides a sequence of key activities for planning and implementing cloud systems. The main steps comprise: recover the required knowledge from the legacy system; choose the cloud platform, service option and provider; design the cloud system solution (or map to a standard solution); identify potential incompatibilities, thus establishing the differences between the local and cloud systems that need to be addressed; plan the migration with contingencies; test the cloud solution and then deploy in a live environment. This provides a scheme for delivering the cloud migration project.

Sociomaterial Framework

The boundaries defining outsourcing decisions were examined via case studies of government organisations.[15] The approach utilised here was to construct a 'sociomaterial' framework, thus examining the topic focussing on the social and material aspects. The premise was that the information systems defined current, valid knowledge in this area. This then created 'imbalances of knowledge', where repositories of systems' expertise exist in organisations. This leads to prescribed inclusion and exclusion, as the current systems arrangements determine the holders of valid knowledge. This shapes the boundaries between organisations, in practice. The determinants of valid knowledge can be executives who make outsourcing decisions, for example, and IT personnel, who write the IT systems. The latter may lead to reliance on this group, either by accident or design. This will then delineate inter-organisational boundaries, empowering outsourcing providers and groups of IT personnel, for example.

Contract Choice

The range of contract choice is considered [16], via research that analyses the contract database of a software development company. This provides an insight into outsourcing models. The broad categories of outsourcing types are: occasional contracts, purchasing standard IT products; recurrent contracts, in respect of standard IT products, such as periodic licence fees for operating and maintaining leased, standard IT products; short-term contracts for developing bespoke IT products, such as a company website or system; long-term contracts for providing a bespoke service to an organisation, such as outsourcing the IT department or maintaining customised IT systems. This gives a useful perspective on classifying such transactions and the potential choices for an organisation.

IT Outsourcing Vendors Develop Capabilities

A case study of IT outsourcing vendors[17] examines how these organisations develop capabilities, that is extend their provision of service to their clients. This enhancement can be created by design or in an unplanned, reactive manner. Both approaches can be configured with existing business units maintaining current service facilities and new business units created to develop the additional functions or, alternatively, existing business units having both a maintenance and a development role. This research outlined various approaches for encouraging outsourcing providers to develop new capabilities, in order to improve customer service and extend the range of service offered.

IT Outsourcing and Organisational Agility

The strategic nature of outsourcing is emphasised by a qualitative study.[18] The core principles underpinning successful outsourcing are: discrete, repeatable processes; and ability (leveraged via the IT department structure, skills, rules and communications). Outsourcing permits reconfiguration of IT solutions, to remove the resource requirement from the organisation and thus enable a focus on core activities. Thus, it is proposed, leads to 'organisational agility', so a rapid business response can occur, as the organisation can prioritise the implementation of the requisite change and the corresponding IT requirements can be delivered by the outsourcing provider. The necessity for continuous internal and external sensing is mentioned, as supported by the hybrid structure of the outsourced IT department and internal staff. The need for 'dynamic capability' is mentioned, defined as the improvement of current resources, the addition of new resources and their combinations.

Contract Equilibrium

The relationships between the parties to resourcing contracts are addressed by several authors. The objective is to obtain an equilibrium position, so that the contracts can be delivered as specified.

A new approach to contract negotiations is proposed[19], in terms of the division of co-created value. The authors suggest that the parties to the agreement should equally divide the additional value created. This occurs when the co-created incremental value would not occur if one of the parties withdraws, hence does not participate in the agreement. This is irrespective of the initial investment, value or power of the parties. The premise is that the value created is an equal result of the agreement of all of the participating organisations. The final terms, utilising this perspective, should comprise the original return to each of the organisations, without the agreement, plus an equal share of the additional value created by the agreement. The notion is to encourage contracts that permit the co-creation of value and facilitate agreement between the contracting parties, based on an equitable distribution of gains. The perspective, experience, relative power of and consideration of reputation by the parties to the contract will affect the ultimate form of this agreement.

An empirical study of construction contracts[20] examined

uncertainty in these arrangements, hence considered how risk may be reduced in terms of pressure on the contract terms. The point was to study 'opportunistic behaviour', which allow one party to make gains from other parties to the contract. This behaviour was more probable in an uncertain environment, namely one containing both behavioural and environmental uncertainty. The former is stated to be more likely when the latter condition exists. The scope for opportunistic behaviour is curtailed by the contract having defined terms, such as penalty clauses, and a means to accurately measure the performance of the contractor. The existence of such terms and clear definition of the contract arrangements, as communicated to and understood by all of the parties, should also assist in removing uncertainty and the potential for manipulation of the contract in favour of one party and to the disadvantage of the others. Different categories of projects were identified as exhibiting variations on this theme. Public sector infrastructure projects, for example, are more subject to governance, in respect of bureaucratic control and publicly accountable social and environmental outputs. IT projects are often characterised by information uncertainty, in respect of defining the intended outcome and the method to achieve these results. This also allows scope for opportunistic behaviour, thus increasing the requirement for appropriate control mechanisms.

The issue of equitable contracts is considered in a quantitative study.[21] This analyses the scenario of the client transferring their IT facilities to the contractor, as part of the outsourcing arrangements. The aim is to suggest how the contract can be formulated so that it is fair to all parties. The use of contract penalties and incentives is proposed for contracts where the service provision standard of quality can be measured. The latter require defined terms, such as an agreed specification of work, in order to permit contract appraisal The option of retaining IT services in-house is suggested where there may be issues over quality and value for the cost. The transfer of IT assets can also be used to ensure both parties have an equitable arrangement, utilising finance and timing of the transfer. Situations where organisations are seeking access to enhanced knowledge to aid their development are mentioned. The importance of cost is, therefore, secondary to the acquisition of knowledge. The use of deferred payment terms was suggested, in cases where quality could not be measured. The experience of the first period can be used to assess the contractor performance. Failure to deliver the expected standard leads to the cancellation of the contract.

It is noted that after the transfer of IT assets and initiation of the outsourced services it may mean that the client needs significant investment to end the contract and either take the services back in house or find another provider. This could affect the decision to end the arrangements.

The element of knowledge transfer is also indicated. The outsourcing contract represents a transfer of knowledge from the client to the provider. This may be primarily motivated by a desire to access the provider's technical knowledge to enhance the client's business, rather than purely a cost rationale, as suggested. The knowledge transfer factor is thus a consideration for the contract decision.

The composition and operation of the 'project-based firm' is considered.[22] These are studied in respect of performing megaprojects, usually large-scale projects involving considerable resources which are leveraged to achieve a significant outcome, for example infrastructure developments. The project-based firms perform their business via projects, in this case by running the megaprojects for private and public sector clients who do not have the capacity to deliver the outcomes. This entails the coordination of in house and external elements in a temporary association, in order to deliver the requisite results. An example of this was provided, comprising the operation of a megaproject for a public sector organisation to deliver a major infrastructure change. The project-based firm thus requires the operation of formal and informal agreements, in order to achieve the prescribed outcomes. The objective is to work with the client in a flexible manner in order to deliver the project. Knowledge can be acquired from performing the megaprojects in series and parallel. This will build the capability to deliver such projects in the future. The uncertain nature of megaprojects, due to size, complexity and multiple stakeholder requirements, means that flexible contracts are required between the network of suppliers, in order to accommodate changes and problem-solving, due to the nature of the work. These linkages between organisations, including suppliers, are critical. A high degree of trust is therefore required between the project partners [23]. A flexible network of trusted suppliers is thus developed to deliver the megaproject, utilising contractual arrangements that provide for variations to accommodate project problems and changes. These networks need to build the capacity to manage such projects as well as the resilience to attain successful completion. The network can be reconfigured to deliver different megaprojects or multiples of such projects. Different partners can therefore be utilised in a varied set of arrangements, as dictated by the project requirements. The core set of partners can be maintained in order to coordinate these projects and help to accumulate and retain knowledge from the accompanying activities.

Findings

An experienced legal practitioner, who has worked in both the private and public sectors, was interviewed, in order to seek his opinion on the components of an effective

contract. A semi-structured interview was held, discussing this topic. A thematic analysis of the interview text was then constructed, using an inductive approach. The key themes were considered with the literature, to assist in analysing this area.

Specification

The respondent stated that, 'you need to define what it is you are looking for'. A clear specification of the contract requirements needs to be compiled. This should state all of the goods and services to be provided by the outsourcing company. The requisite training and documentation should be included. Errors and omissions here can be very costly and can result in contract failure. The project's key stakeholders should all be represented in the process of constructing this document. It is vital that the main internal stakeholders and stakeholder groups comprehend and agree to these requirements. The outsourcing provider should agree to deliver the specification and this may be a formal statement in the contract, to that effect. Stakeholder communication and agreement are of paramount importance during this phase of the outsourcing project.

This theme is mentioned in the literature, in respect of the technology life cycle, for example.[24]

Company Checks

The parties to the contract should perform the required checks, in respect of the other companies. 'The financial checks should minimise the risk of problems later on'. These should comprise the verification of financial affairs, including the credit history and annual report and accounts. The quality of personnel in the firm is a key criterion. Statements of experience, career history and qualifications should be checked for the staff who will work on the contract. A reference should be sought from another client of the contractor company, in order to ascertain the standard of work and degree of satisfaction engendered. This should, ideally, be an independent view, with the reference site contacted directly. An opinion can thus be sought on the quality of the outsourcing work and services, as supplied to a comparable organisation. The reaction to problems, in terms of providing solutions, can be ascertained. 'Methods of working and trust are more important than the price', according to the respondent.

The issue of trust is cited in academic sources[25] as well as that of reduction of risk[8], for instance.

Delivery Schedule

A clear delivery schedule is needed to facilitate the contract fulfilment. 'It is important to specify the products and services to be delivered.' The resources required by all parties should be understood. The timing of specific deliveries needs to be detailed, along with an acceptance procedure. The latter will be linked to the provision of payment for the contracted items.

Penalty Clauses

The inclusion of penalty clauses, where compensation arises from failure to perform a contractual requirement, should be carefully considered. These clauses need to be mutually agreed and comprise a reasonable compensation, considering the context of the contract. 'Both sides should be comfortable - the agreement has to be fair'. Such penalties are typically used for late delivery of the requisite items or in the case of incomplete deliveries and flawed products or services.

The main point is that all parties should accept such clauses and the proposed compensation is reasonable. The conditions to trigger such payments should be clearly defined. The inclusion of such clauses can also reflect a power differential between the parties. This can be evident in the potential number of customers and suppliers, in respect of the outsourcing work. If there exists considerable competition for outsourcing work, for example, then it should be easier for a customer to apply penalty clauses in the contract.

These clauses should accommodate a degree of 'slack', namely an additional time allowance for project tasks, in case of delays. The extent that innovation is required in the contract introduce the potential for delays into the contract delivery and this should be reflected in the proposed timescales and any associated penalties.

These points are reflected in the literature as important factors.[19, 20, 5]

Modular Delivery and Payments

Large contracts should, ideally, have a phased delivery, in order to reduce the risk and simplify the project. This can also be termed as modular delivery, for example where separate parts or modules of a system are delivered over time. These modules will have separate implementations, in an agreed sequence. This reduces the risk in terms of scale, commitment of resources (including finance) and strategic exposure, encompassing the key parts of the system that are affected. This will comprise a phased delivery of system conversions, in an outsourcing contract for a large system, for instance.

Payments should be, similarly, scheduled. The delivery and acceptance of each phase of the contract should trigger an agreed remuneration. This should allow cashflow considerations to be accommodated as the 'payment profile' is more evenly distributed over time. The provider is, therefore, remunerated for goods and services that are delivered and the customer pays for work completed and items received. 'The stages of delivery should be linked to

payment and penalties', as per the respondent.

The modular delivery is considered in several key texts.[5]

Compatibility

The issue of compatibility with current systems must be considered, as part of the outsourcing transfer. 'The provider should have systems and procedures that are compatible with those of the customer organisation.' This will ensure that operations proceed seamlessly, once the outsourcing transfer has occurred. This may entail a review and recommendations, for example in respect of training staff and amending procedures. Formal standards can be used in order to ensure compatibility, for example those of the International Standards Organisation, professional bodies and technical specifications. Requirements in terms of compatibility can be agreed in the contract, as a guarantee to the parties involved. This should provide the requisite insurance against the provision of incompatible goods or services in the outsourcing project.

It is also important to ensure that the contract is compatible with the prevailing legislation and organisational regulations. This should include government and in-house procedures. Compliance could include data protection, environmental and social considerations, which may be the subject of internal and external reporting. The specification and resulting contract should reflect these compulsory and discretionary requirements.

This aspect should be considered as part of the renewal phase of the product lifecycle, as per the literature.[24]

Schedule of Items

The contract should have a schedule of items and services to be delivered. This should, ideally, be engineered to permit additions to and exclusions from the outsourcing contract. This can invest the contractual arrangements with a degree of flexibility, permitting mutually acceptable amendments to resources to be made. The schedule must clearly specify the requisite contract items and services and be agreed by all of the parties. The main contract terms will apply to all of these goods and services, including the agreed amendments. This will facilitate an increase in the scope of the contract, in respect of supplied items and services, for example. This will remove the need for additional contracts or lengthy alterations to the existing contract, when amendments to scope are required, providing the terms remain the same.

The scope in outsourcing projects will need to be reviewed, as the implementation proceeds and during operations. The original contract may, therefore, be subject to revisions in respect of the outsourced areas and the accompanying components and services.

The importance of managing the scope of a project is highlighted as a critical issue in the literature.[24]

Closure of Contract

An outsourcing contract can end for several reasons, within its legal framework. The standard reason is normal closure, in that the obligations under the contact have all been met by the relevant parties, namely the contract has been fulfilled.

The contract can be terminated if any of the parties breach their agreement under its parameters. This could, for example, comprise a failure to deliver the specified goods, services or payment.

End of Organisation

The contract will end when one of the parties is no longer in the form that is on the document. This is usually due to the organisation being dissolved or declared insolvent, so ceasing to operate as a business entity. This means that one of signatories no longer exists, in law, so cannot form such an agreement. The outsourcing contract is, therefore, invalid and its terms are not applicable to the parties. This status could be adjusted if the other parties are amenable. The contract terms could be transferred to another company, for example, via a new or amended contract, suitably revised.

The cessation of a contract and replacement of the service, for example due to a culture change or lifecycle movement, is noted by several literature sources (for instance, termination due to culture change[25] and replacement of technology.[24]

Arbitration

The contract can have 'an arbitration clause to provide for conflict resolution'. This should facilitate agreement in the case of a difference of opinion by the parties to the contract, without the need for litigation. This clause will state the procedure to be enacted in the case of a dispute that cannot be resolved by the contract parties. This usually involves referral of this dispute to an independent party, for example the head of a professional body. The latter will rule on the dispute, forming a solution for the parties to accept. This can save costly recourse to legal personnel. The acceptance of this procedure will depend on the status of the parties to the contract, in terms of their relative power.

The resolution of conflict in contracts is noted by several academic authors.[24]

Teamworking

The formulation and successful operation of the outsourcing contract will entail teamwork, probably across several organisations. Coordination and communication, utilising several skills, will be required. Teamwork will probably be virtual, to some extent, in the post pandemic environment. The negotiation of the contract and its operation will, therefore, need to accommodate the use of virtual teams.

The requirement is to recruit and lead a virtual team to execute the outsourcing project. The same team or a different one may be employed to maintain and operate the outsourced systems. Virtual working is more common and, hence, the use of virtual teams is more prevalent, due to the pandemic and the restrictions on movement to inhibit the spread of infection.

The outsourcing contract will require a blend of skills, in order to deliver the project. Legal, Finance, IT, Human Resources personnel, for example, may all be needed to finalise the agreement. An essential component of this team is trust, as the virtual team members rely on each to deliver the project. The team members will need to have the skills and motivation to contribute to the project, without the direct access and supervision of co-located teams. This may necessitate training for prospective team members to assist their skills development in respect of virtual working.

The importance of such training is emphasised in several sources.[26]

'The preparatory stages are more important than the implementation', according to the respondent, as they set the parameters for the project.

The use of virtual teams in such projects and requirement for project leaders to be able to manage such teams is reflected in the literature.[25,27]

Discussion

A framework of the principal decision factors, including contract format, is suggested. This should provide a summary for the topic and assist practitioners in their decision-making and contract formulation process, regarding outsourcing activities. These can be categorised as internal or external to the organisation. The key internal factors comprise: the level of maturity of the organisation, in respect of project management and production capabilities; the degree of specialism in the product or service value chain; the company's experience in contracting; financial and risk considerations. These determine the ease with which the organisation can identify activities to outsource and implement such projects, given the prevailing constraints. The key external factors comprise: the perception of suppliers and the available options, in respect of products, services and outsourcing, assessment of the competition and current and potential partnerships; the organisation's operating environment, including the requirement for agility and meeting customer demands. These provide the context for the outsourcing decision, facilitating or impeding this activity depending on the circumstances. Partnership with an outsourcing provider is likely to require a long-term, strategic collaboration[23] so the element of trust is prevalent here, in respect of the decision-making. The contract format factors are outlined as: defining the requirements (including payment and closure terms); verifying the partners; and facilitating the requisite teamwork.

Outsourcing – Decision Factors and Contract Format

Internal

- Level of maturity of organisation – in terms of project management and production capability
- Degree of specialism – in the value chain
- Experience in contracting
- Financial and Risk considerations

External

- Perception of Suppliers/ Available Options (in terms of product, service and outsourcing)
- Consideration of competition/ Partnerships
- Operating Environment–requirement for agility/ customer demands

Contract Format

- Clear definition of requirements
- Verify the contract partners
- Agree payment terms and penalties/ bonuses
- Agree contract termination/ closure
- Facilitate contract teamworking

Implication of Research in Asian Context

Asia being under the process of rapid development, the decision of outsources or not outsources are vital as it possess huge risk which distinguishes success or failure of the project through safe and quality material management.[30, 31] Still, we are in the process of identifying storing conditions of different materials which made it more relevant.[28, 29] Material management has not been focused yet for creating safety during different projects might inspire for further ecological research in the area.[32-34]

Conclusion

A thematic analysis of key literatures on outsourcing was undertaken and a framework, illustrating the main elements in the outsourcing decision, was constructed, in order to summarise this area. The principal elements of an outsourcing contract were identified and added to the framework. The importance of the outsourcing decision, as being critical to the successful delivery of organisational objectives, was emphasised. This research could be further developed with future empirical studies in a range of sectors, analysing the outsourcing decision.

Acknowledgments

The authors gratefully acknowledge the United Technical College, Chitwan, Nepal for the excellent opportunity to present this research in an International Conference. The authors also gratefully acknowledge the support of Dr. Anjay

Mishra in publishing this work, and Alan Ellison for his assistance with this research.

References

1. Blair G, Barratt S, Pagano R. Strategic Choices for the Post Pandemic Playbook. *The Journal of Innovative Research In Social Sciences & Humanities* 2021; 4(3): 15-20. Retrieved from http://ijirhsc.com/
2. Wetherly P, Otter D. The Business Environment (4/e), Oxford University Press, Oxford, England 2018.
3. Needle D. Business in Context: An Introduction to Business and Its Environment (6/e). *Cengage Learning EMEA* 2015.
4. Blair G, Pagano R. A Guide for Researchers to Negotiate the Research Process. *Journal of Innovative Research in Education & Management* 2021; 4(3): 1-5. Retrieved from http://ijirem.com/
5. Blair G, Pagano R, Burns B. Contingency Framework for Addressing Failure in Information Systems. *Journal of Innovative Research in IT & Computer Science* 2019; 3(2): 1-4.
6. Dautovic G. "15 Crucial Outsourcing Statistics to Know in 2022 ." *Fortunly* 2022. [Online] [Accessed on 25th January 2022] https://fortunly.com/statistics/outsourcing-statistics
7. Aron R, Singh J."Getting offshoring right", Harvard Business Review 2005; 83(12): 135-43
8. Blair G, Woodcock H, Pagano R. Risk Management in the Post Pandemic Business Environment. J*ournal of Advanced Research in Alternative Energy, Environment and Ecology* 2021; 8(3&4): 15-21.
9. Duncan P, Wiggins A, Wright J et al. "Strategic IS/IM in Context", in Grant K, Hackney R, Edgar, D. (eds) (2010), *Strategic Information Systems Management*. Hampshire, UK: Cengage Learning 2010; 139-190.
10. Blair G, Pagano R. Technology and the Environment - a Framework for a Symbiotic Relationship. *Journal of Advanced Research in Alternative Energy, Environment and Ecology* 2021; 8(2): 4-8.
11. Venters W, Whitley EA."A Critical Review of Cloud Computing". *Journal of Information Technology* 2012; 27: 179-197
12. Bhattacherjee A, Park S. "Why end-users move to the cloud: A Migration-Theoretic Analysis", *European Journal of Information Systems* 2013; 1-16.
13. Wang C, Wood L, Abdul-Rahman H et al."When traditional information technology project managers encounter the cloud: Opportunities and Dilemmas in the Transition to Cloud Services", *International Journal of Project Management* 2016; 34: 371-388.
14. Fahmideh M, Daneshgar F, Rabhi F et al. "A Generic Cloud Migration Process Model". *European Journal of Information Systems* 2019; 28(3): 233-255.
15. Pelizza A."Towards a sociomaterial approach to inter-organizational boundaries: How information systems elicit relevant knowledge in government outsourcing", *Journal of Information Technology* 2021; 36(2): 94-108.
16. Gaebert C, Kautz K."The contract-type choice for short-term software development outsourcing: The Role of Behaviour-Based Formal Control", *Journal of Information Technology* 2021; 36(3): 241-257.
17. Du W, Pan SL, Wu J."How do IT outsourcing vendors develop capabilities? An organizational ambidexterity perspective on a multi-case study". *Journal of Information Technology* 2020; 35(1): 49-65.
18. Karimi-Alaghehband F, Rivard S."Information Technology Outsourcing and Architecture Dynamic Capabilities as Enablers of Organizational Agility". *Journal of Information Technology* 2019; 34(2): 129-159.
19. Nalebuff B, Brandenburger A. "Rethinking Negotiation: a smarter way to split the pie", *Harvard Business Review* 2021: 110-119
20. You J, Chen Y, Wang W et al. "Uncertainty, opportunistic behavior, and governance in construction projects: The Efficacy of Contracts". *International Journal of Project Management* 2018; 36: 795-807.
21. Shivendu S, Zeng D, Gurbaxani V. "Optimal Asset Transfer in IT Outsourcing Contracts", *MIS Quarterly* 2020; 44(2): 857-905
22. Denicol J, Davies A. "The Megaproject-Based Firm: Building Programme Management Capability to Deliver Megaprojects." I*nternational Journal of Project Management* 2022; 1-12. https://doi.org/10.1016/j.ijproman.2022.06.002
23. Frydlinger D, Hart O, Vitasec K. "A New Approach to Contracts: How to Build Better Long-Term Strategic Partnerships". *Harvard Business Review* 2019; 97(5): 116-129.
24. Blair G, Grant V, Woodcock H. Managing the Technology Life Cycle - A Contextual Approach to Analysis. *Journal of Advanced Research In Engineering & Technology* 2020; 4(1): 1-5. Retrieved from http://sijiret.com/
25. Blair G, Barratt S, Pagano R. 'Serving the Public in the Post Pandemic World': A Study of Project Management in the Public Sector. *Journal of Advanced Research in Alternative Energy, Environment and Ecology* 2022; 9(1&2): 11-18
26. Blair G, Pagano R. Virtual Cells for Collaborative and Experiential Learning in Distance Education, LTSE 2021 Conference Proceedings. *Virtual* 2021; 29: 23-26.
27. Blair G, Pagano R. Leadership and Context to Create the New Technological Society. *Journal of Innovative Research in Education & Management* 2020; 4(1): 6-9. Retrieved from http://ijirem.com/wp-content/uploads/2020/07/ICEM-2020-Dr.-Garry.pdf
28. Mishra AK, Chaudhary U. Assessment of Cement HandlingBehaviour for Selected Construction Sites

of Bhat Bhateni Supermarket. *J Adv Res Const Urban Arch* 2018; 3(3): 1-11.
29. Mishra AK, Chaudhary U. Cost Effectiveness Assessment of Different Nepalese Cement Brands for Selected Sites of Supermarket. *J Adv Res Const Urban Arch* 2018; 3(3): 12-33.
30. Mishra AK, Chaudhary U. Assessment of Cement Handling Behaviour For Selected Construction Sites of Bhatbhateni Supermarket. *J Adv Res Const Urban Arch* 2018; 3(3): 1-11.
31. Mishra AK, Jha A. Quality Assessment of Sarbottam Cement of Nepal. *International Journal of Operations Management and Services* 2019: 9(1): 1-22.
32. Sah DP, Chaudhary S, Shakya R et al. Occupational Accidents in Cement Industries of Nepal. *J Adv Res Alt Energ Env Eco* 2019; 6(3&4): 22-28. DOI: https://doi.org/10.24321/2455.3093.201904
33. Mishra AK, Shrestha A. Assessment of Exit Requirements for Fire Safety of Commercial Buildings, Kathmandu, Nepal. *International Journal of Emerging Technologies and Innovative Research* 2017; 4(10): 248-255.
34. Mishra AK, Shrestha A. Fire Safety Preparedness among Occupants of Selected Commercial Buildings, Kathmandu, Nepal. *International Journal of Creative Research Thoughts* 2017; 5(4): 195-207. DOI: http://ijcrt.org/viewfull.php?&_id=IJCRT1704025.