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INFORMATION TECHNOLOGY OUTSOURCING CHAIN: LITERATURE REVIEW AND IMPLICATIONS FOR DEVELOPMENT OF DISTRIBUTED COORDINATION

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ABSTRACT

The paper aims to analyse how the management science literature explains sustainable coordination and management of Information Technology (IT) outsourcing chains. The IT outsourcing theories,that is, transaction cost theory, theory of agency, resource based view, activity based theory, contractual theory, partnership and alliance theory and stakeholder theory—are applied as a background to the analysis. A systematic literature review reveals that IT outsourcing is developed in collaborative networks and chains. There are some mechanisms identified in the literature for outsourcing chains' management, interchain sustainability, coordination and interchain activities' cohesion. The complexity of outsourcing relationships presented among outsourcers and outsourcees stimulate looking for new business models. Furthermore, outsourcing chains research would benefit from considering strategy-based theoretical discussions, relationship modelling and project management. The literature survey aims to present outsourcing chains in different aspects, that is, dynamics and agility, communication in chains, compensation and compliance, contracting, stakeholders, decision making models, governance problems, integration, performance measurement, project management and strategy development. This paper intends to emphasize that interchain coordination can be improved by enterprise architecture modelling as well as by the application of blockchain economy.

KEYWORDS: *Information Technology Outsourcing; Transaction Cost Theory; Resource Based View; Collaborative Networks; Vertical Software Development; Supply Chain; Relationship Management; Blockchain Economy*

1. INTRODUCTION

Mostly, literature reviews are presented at the beginning of empirical research and to support a practical development of any solution. In conference or journals papers, the main purpose is to build a context for the further research problem definition. As such, the literature review is to ensure in-depth and comprehensive description of the earlier research works(1,2). Therefore, in this paper, it would be necessary to start with the presentation of practical problems as well as the theoretical background of the discussed concepts, for example, multisourcing, outsourcing chain, vertical outsourcing or collaborative networks. In this paper, management science

systematic literature review is to focus on evidence-based practices to develop competencies for support of management of relations among outsourcers and outsourcees in supply chains, assuming that sometimes outsourcer can be an outsourcee, as they have a net of subcontractors, who also have their own subcontractors(3)(4)(5)(6).

The objectives of the paper include:

- reviewing and clarifying the terminology describing different forms of outsourcing, off shoring and production fragmentation;
- identification of literature sources on relationship management and coordination in outsourcing chain;
- showing theories and models of cooperative IT sourcing at the business shown in Figure 1.

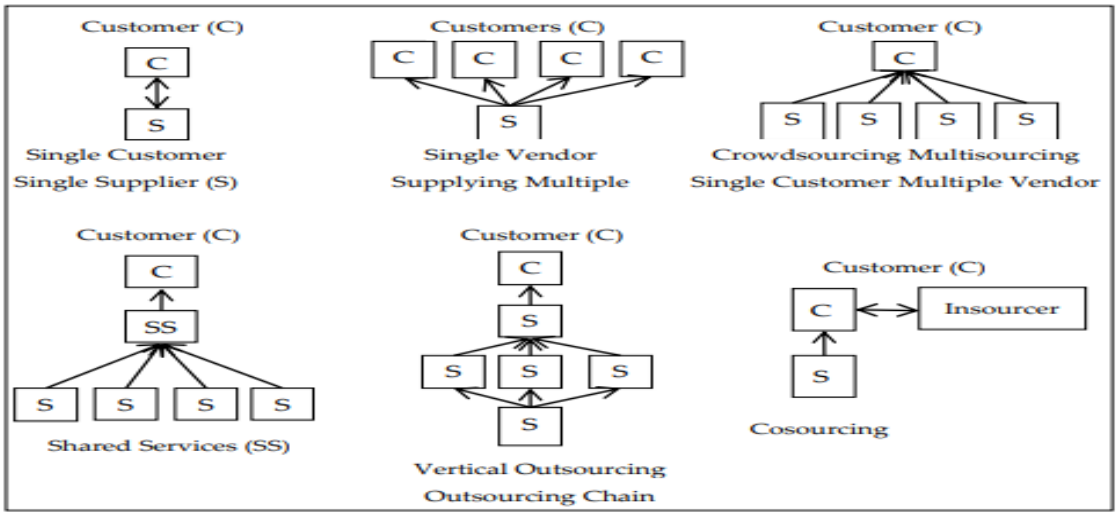

Figure 1:Cooperative Sourcing Models.

The first announcement about outsourcing concerned Eastman Kodak in 1988, when they outsourced information systems to IBM, DEC and Business land and IBM was announced as the IT service outsourcer(7). Probably, the idea of hollow corporation was developed earlier but rapid development of distributed information systems and personal computers in 1980s encouraged companies to IT outsourcing. Since that time, IT outsourcing has developed in each business organization in its idiosyncratic way(8). The hollow corporation is defined as business organization that designs and distributes but it does not produce anything . It is a firm wherein production of all goods and services is outsourced to suppliers with the only remaining corporate functions of planning, coordination and administration. In this paper, outsourcing is defined as the practice of subcontracting service and manufacturing works to external business units. It is identified as the procurement of services and products from an outside supplier or producer in order to reduce costs, to delegate noncore operations to another business unit, to another country, either by hiring local subcontractors or building a facility in a region, where labour cost is lower(9)(10)(11)(12).

Outsourcing as contracting with a third service provider for management and completion of a certain amount of work, for a specified length of time, cost and level of service(13)(14)(15). The

third service provider activities are realized in different ways. For example, the centralized shared services are determined by cost reduction that may be achieved when individually provided services are consolidated and when multiple business units within a firm provide similar types of services. In this case synergies may be realized by means of standardization and consolidation. The cost decrease can be achieved by high economies of scale. Plugge et al. argue that, in this situation, the internal business demands to customize services are often neglected and if internal business departments feel less served, this might affect their perception of the provided performance of the services. Outsourced shared services are realized by an external service provider who will be responsible for the service delivery. Companies make such decisions, because of the absence of firm specific capabilities that are required to provide services. This service delivery way is seen as an alternative for the centralized service delivery mode and in this case an external service provider may provide the centralized outsourced services. The advantage of this approach is that external service results are expected to be more quality-oriented than in-house delivery(16). The next service delivery mode, that is, the collaborative shared service means that organization provides services to both internal departments and other firms.

According to the proponents of this approach, some capabilities can only be developed over periods of time. So, for example standardization of business processes and quality improvement can be achieved in the long term. This option will not focus on the ultimate form of cost reduction. Cost may be increased as a result of the increase of diversification drive by heterogeneous clients' needs. As multiple business organizations are involved in this type of agreements, it is important to understand the dependencies in collaborative shared services as boundaries of individual firms may shift(17). The decentralized shared services delivery approach is perceived as an opposite strategy to the centralized shared services. When a company is characterized as a heterogeneous organization, business units may have different preferences. Firms choose this form of service delivery to meet the idiosyncratic business needs of internal departments and to have a significant degree of flexibility(18)(15)(19).

We propose an economic learning model that helps to formalize the complicated connections between knowledge levels, production costs, and coordination costs in an offshore company. We simulate a domestic firm's adoption of a selective offshore approach (i.e., outsourcing just a part of its information technology operations) to leverage the foreign vendor's vast, scale-driven library of production expertise via IT investments or contractual stipulations. We show how knowledge transfers during offshore may lower a domestic firm's in-house production costs, resulting in overall cost reductions in the short and long run(20). When knowledge transfers are insufficient, certain short-term offshore initiatives may result in significant cost savings for the domestic company; but, long-term offshoring projects may disrupt the knowledge supply chain, resulting in significant losses in the project's latter phases. A company that fails to recognize the consequences of such a disruption early enough in the project's life cycle may find itself trapped in an unfavorable offshore arrangement with no way out. However, a domestic company may be able to overcome a disruption in its knowledge supply chain by using the foreign vendor's economies of scale to create learning-by-doing manufacturing knowledge. Our learning model's managerial implications may aid companies in evaluating the effects of offshore contracts and knowledge management investments on company knowledge, production costs, and coordination costs(21)(22).

As outsourced is risen in importance, outsourcing strategies have become an increasingly essential part of business success. While the stated aim of supply chain outsource is to gain a competitive edge, it is unclear if companies' outsourcing choices are always strategically linked with their overall competitive strategy. Using empirical collected data from manufacturing business units operating in the United States, we evaluate the degree of congruence (fit or alignment) between a firm's outsourcing drivers and its competitive priorities, and assess the impact of congruence on both supply chain and business performance. Outsourcing alignment across all five competitive objectives is positively and substantially linked to supply chain performance, according to our research. We also discovered that a firm's supply chain performance is favorably and substantially related to its business performance(23)(24).

Outsourcing has become a major concern for many businesses. Outsourcing has progressed from ancillary operations like cleaning and catering to essential activities like design and production. However, research suggests that businesses are not reaping the expected advantages from outsourcing. Many companies have a short-term view and are driven mainly by the quest for short-term cost savings, thus outsourcing choices are seldom made with a fully strategic perspective in mind. By providing an outsourcing framework, the goal is to demonstrate that outsourcing should be done from a strategic viewpoint and incorporated into the organization's overall plan. The framework aims to address some of the issues with outsourcing by including a number of important strands into the decision-making process, including a value chain view, core competence thinking, and supplier base impacts(25).

2. DISCUSSION

In this section, we discuss what might be called research ‘dead ends’ and how these can be made productive. In using our findings with ‘mixed results’ to suggest future research, we do not necessarily think that every finding that resulted in mixed results requires more research. Sometimes researchers do not find patterns because there are simply no patterns to find. (Unlike Asset Specificity which is a key construct to a major theory, other variables are not critical constructs of appropriated theories.) Therefore, we suggest that researchers may experience marginal returns if they further study the effects of some ‘mixed results.’ In particular, we think this may be the case with the effects of Client Size, IS Department Size, and Industry on ITO decisions, and the effect of Contract Duration on ITO outcomes. In Appendix C, two client size characteristics that were examined at least five times produced mixed results: Client Size and IS Department Size. We therefore do not have a clear profile of the size of clients that tend to outsource IT. We may draw one of two conclusions from this data. First, no client size profile exists. Second, a client size profile exists but we have not yet carried out enough research to develop a clear understanding of it. We believe the first conclusion is more likely. Some studies find larger clients outsource more, some studies find smaller clients outsource more, and some find no significance of size whatsoever. Across both these size variables, studied 22 times, no pattern is found, perhaps because there is simply no pattern to uncover. In the case of ITO, perhaps, size does not matter.

3. CONCLUSIONS

Taking into account the literature survey, an evolution of considerations on IT outsourcing development and management should be noticed. Although the basic theoretical background, that is, transaction cost theory, agency theory, game theory, incomplete contracts theory,

stakeholder theory, resource dependency views, activity based theory, has dominated for years almost without change, the new viewpoint are arriving, particularly because of IT innovativeness. For years, the basic issues were formulation and management of bilateral agreements and alliances. Currently however, chain management and vertical outsourcing problems arrived. These problems appeared simultaneously with the beginning of multi-sourcing and offshoring and particularly with virtual organizations, cloud computing and Internet economics development. Probably in the future, a lot of research works will be done because of the necessity to develop new business models for outsourcing chain management. Literature survey allowed to notice that outsourcing chains' management is combined with many other issues, that is, dynamics and agility, communication, compensation and compliance, contracting, stakeholders, decision making models, governance, integration, performance measurement, project management and business strategy development. In the literature survey, 146 papers were reviewed, which were published in 2009–2019 years. 50% of that papers were accepted as significant for IT outsourcing chain studying and the research findings are presented in tables. Papers on stakeholders' relationships and behaviours, on governance of chains and on performance measurement are considered as the most valuable for outsourcing chain management. Only one paper concerns strictly vertical outsourcing management. Therefore, there is an opportunity and need to fill the gap and in future work focus on vertical outsourcing management modelling. Since 2015, the blockchain technology has been developed to support financial transaction controlling as well as supply chain management. IT outsourcing chain is slightly different, however, also here for operation and process outsourcing that technology is very promising to support internal balance and sustainability of outsourcing chains.

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