Strategically Flexible Global Operations Network – An Exploratory Research

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Abstract: In a turbulent environment, a global operations network should be strategically flexible, in which transformational outsourcing is prescriptively a major driving force. The link between transformative outsourcing and strategic flexibility is, in this paper, being conceptualised by two structural equations models. In the first model, market orientation, relationships in the supply chain, and value innovation are the antecedents of strategic flexibility (and leading to value creation), where the effect of transformative outsourcing on strategic flexibility is mediated by value innovation. The second model is an expansion of the first model by "breaking down" value innovation into its "building blocks" (dynamic capabilities, absorptive capacities, and organisational transformation or reconfiguration). It is found that knowledge integration or reconfiguration has an important mediating role when transformative outsourcing aims for strategic flexibility and value creation.

This article also attempts to complement and/or improve the model of robust manufacturing network [1] by viewing value network from supply chain perspective and allowing the assumption that a value network may consist of outsourcing (offshoring) provider(s). In order to modify the dimensions in Ferdows' original model (i.e. site competence and strategic reason for location), i) the flexibility of (knowledge) integration, and ii) the strategy of a supply chain network (lean, agile, leagile) may be considered.

Keywords: Strategic flexibility, global operations network, transformational outsourcing

I. Introduction

The robust (manufacturing) network, i.e. a network of factories in upgraded strategic roles with the ability to cope with changes in the competitive environment without resorting to extreme measures [1] seems to explain *global value network* from only one side of the picture due, to the following reasons.

Firstly, developing a site's competencies to upgrade its strategic roles requires security, as the opposite of *turbulent* global environment that causes extreme pressures on global firms to reduce cost and to innovate. In a turbulent environment, the goal of strategy becomes strategic flexibility [2], the capability to relatively quickly and efficiently switch from one competitive priority to another (e.g. from rapid product development to low cost).

Secondly, robust network departs from the intra-firm perspective, which seems to be less reasonable if we look at the *offshoring* phenomenon, where global actors outsource some or most of its business processes. The underlying reason of this practice is that firms may not have the required resources (capital, time, knowledge) to build the capability to develop or to manufacture the products. Hence, actors in a network are not necessarily owned by a single organisation (inter-firm perspective), which is in congruence with the fact that value network can be viewed from two different *angles* [3]: i) manufacturing network and ii) supply chain.

Tough (and obvious transformative effects of) global competition may force global firms to outsource in order to ensure their ability to compete [4]. Transformational outsourcing often involves geographically spread outsourcing providers, which highlight the relevance of global value network and the necessity of managing this kind of outsourcing practice as a part of the network. Hence, this shifts the view on value network, from intra-firm to inter-firm. More research should focus on the impact of outsourcing on the firm's ability to compete and succeed in the globalised economy [4], which thus indicates the relevance of discussing outsourcing and global operations network.

The emergence of supply chain and outsourcing (offshoring) influences how Ferdows' model needs to be interpreted because …" *"access to skills and knowledge" has different implications when the skills and knowledge reside in suppliers rather in the focal firm's own staff*"" [5, p. 32]. Hence, it is the aim of this paper to: i) construct structural equations models that link transformational outsourcing and strategic flexibility (as well as value creation), and ii) reconceptualise Ferdows' concept of robust network in the supply chain and outsourcing (offshoring) contexts – a strategically flexible network.

II. Theoretical Background

Strategic flexibility

Strategic flexibility is an attribute that firms need to survive in a highly competitive environment [6]. The definition of flexibility comprises a wide range of areas, such as organisation, production/operations, marketing, strategy, and

supply chain. The notion of strategic flexibility is usually being discussed in relation to, e.g. resource (assets), process (manufacturing), strategic options, alliance (relationship), and product development (product portfolio). In a general sense, strategic flexibility is about being proactive or responding quickly to various demand or uncertainties from dynamic environment by increasing range/mobility and keeping the options open. It is not the intention of this paper to once again discuss those definitions. Instead, referring to, e.g. [7] and [8] for a more extensive (thorough) description.

The direct implication of strategic flexibility on manufacturing can be found in, e.g. [9], where strategic flexibility, beyond mass customisation, allows the development of future manufacturing strategies to not only react on changing environmental conditions, but also creating desired changes in the environment. Strategic flexibility is obtainable through implementation of Lean Production as both a problem solving system and a means for creating capabilities [7].

The concept of strategic flexibility can be addressed from both intra-firm and inter-firm perspectives [8]. Hence, it is possible to discuss strategic flexibility in the context of [global] value network. From intra-firm perspective, Ferdows' concept of robust manufacturing network provides a useful theory. Strategic flexibility may be formulated as flexibility to modify the alliances and flexibility to exit the alliance relationship when the alliance is performing poorly [10]. This formulation is essentially related to the supply chain view of value network. The fact that strategic flexibility should be built on the right organisational preconditions such as dynamic capabilities [11], value innovation (i.e. redefinition of a firm's business model) may have certain influences on strategic flexibility. This is because the concept of dynamic capabilities is also an important "building block" of value innovation [12]. The conceptualisation of strategic flexibility as: i) the extent of new business that a firm can enter [13], ii) the extent of business diversification [14], and iii) the rapidity of movement from one business to another [15], makes the contribution of value innovation on strategic flexibility non trivial.

P_1: Value innovation has a positive effect on strategic flexibility

Transformational Outsourcing

Transformational [offshore] outsourcing refers to relocating core business processes and value chain activities to partners [in other countries] and coordinating those outsourced activities tightly with the originator's strategic moves in order to realise strategic renewal and corporation transformation [16]. Hence, the purpose of transformational outsourcing is to redefine the business or create a new business model (and management approach), which then enables an organisation to retain leadership position, build sustainable competitive advantage and generate highest value for an organisation ([17], [18], [19], and [20]. Therefore, it can be argued that the creative destruction in value innovation may be triggered by transformational outsourcing.

Offshore outsourcing allows firms to response quickly to changes in the environment without significant increase in costs associated with internal organisation [16], which is why it is regarded as a tool to transform firms towards flexible organisational forms whereby the role of tightly integrated hierarchy is supplanted by loosely coupled networks of organisational actors [4].

P_2: Transformational [offshore] outsourcing positively influences value innovation

Transformational outsourcing relies on the strength of an outsourcing supplier that can take on existing services, implement new technology and business process and bundle these initiatives into a commercially attractive package [20]. Outsourcing vendors must go beyond simple transactions to consider knowledge integration and effective management processes. The success of transformational outsourcing depends on forging strong links between management, system and process functions that make the organisation to cooperate [20].

P_3: Relationship among actors in an inter-firm network has a positive impact on strategic flexibility

Global actors in fashion industry, such as *Zara* and *H&M*, have been successful in effectively and efficiently meeting customer demand as well as gaining financial prosperity by treating and managing outsourcing (offshoring) practice as a part of their global operations network. In the case of *Zara*, the firm both outsources/offshores and owns production facilities (dual sourcing), while *H&M* outsources/offshores its production entirely. *Zara*'s excellence in managing both its market mediating function and physical function enable the firm to create "rapid-fire" supply chain (i.e. rapid fulfilment, extremely responsive supply chain). The dual-sourcing strategy and *rapid-fire* supply chain turns *Zara* into a firm with very high flexibility.

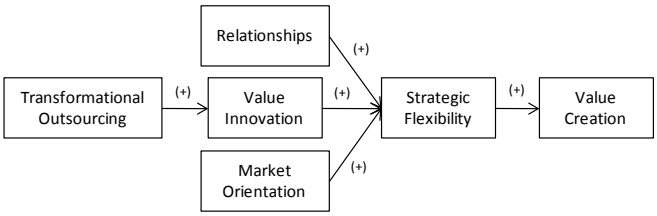
P_4: The impact of strategic flexibility on value creation is positive

Research scholars, e.g. [11], [21], suggest that market orientation significantly influences strategic flexibility, especially when value creation is a part of the equation.

P_5: Being market oriented affects strategic flexibility in a positive way

Based on P_1-P_5, a structural equations model (figure 1) can then be constructed to describe the impact of transformational outsourcing on strategic flexibility mediated by value innovation.

Figure 1. Antecedents and consequences of strategic flexibility



Strategic flexibility as defined by [2] is very much similar to the definition of *organisational ambidexterity*, e.g. a firm's ability to operate complex organisation designs that provide for short-term efficiency and long-term innovation [22], a firm's ability to simultaneously balance different activities in a trade-off situation [23]. Generally, ambidexterity is defined as balancing between exploration and exploitation.

Further in their article, [23] state that *absorptive capacity* allows firms to leverage ambidexterity. This claim seems to be supported due to the fact that absorptive capacity significantly influences both innovation and performance [24], and/or that absorptive capacity affects/determine a firm's or a company's adaptability in changing environment [25] after [26]. Similar argument can also be found in [38].

The importance of dynamic capability in the concept of ambidexterity is difficult to deny. Articles such as [27] and [28] accommodate two seemingly contradictory views: i) ambidexterity is a dynamic capability, or ii) dynamic capability is an antecedent of ambidexterity. There might be no straightforward answer to this debate. However, I tend to agree with a recent description of dynamic capability by, e.g. [29], which indicates dynamic capability as an antecedent of ambidexterity.

Comparing between strategic flexibility and ambidexterity is attractive in the sense that the first proposition (P_1), which was discussed earlier in this paper, seems to be validated. The argument behind this claim is because value innovation is related to both dynamic capability and absorptive capacity [12]. This reasoning thus strengthens the links between dynamic capabilities and absorptive capacities to strategic flexibility, where dynamic capabilities and absorptive capacity are viewed as major *building blocks* of value innovation.

Organisational transformation (reconfiguration) is necessary to achieve the goal of becoming ambidextrous organisations either we take a dynamic view (continuous reconfiguration of organisational activities to meet changing demands in the internal and external environments) or static perspective of ambidexterity (adopting certain configurations). Organisational transformation (reconfiguration) here may also include differentiation and/or integration mechanisms [20], meaning that organisations conduct explorative-exploitative activities in different units or in the same unit.

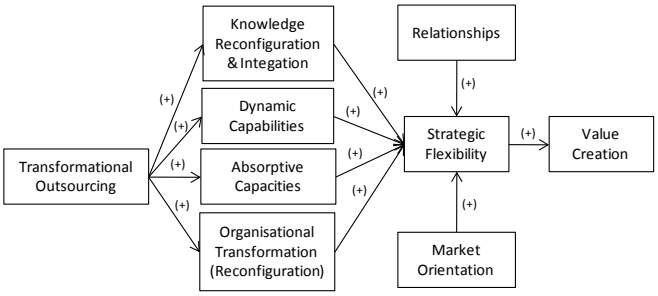
Research on ambidexterity has been very much taking the internal view and little on external view via e.g. alliance, acquisition [28]. Research that explores the link between strategic outsourcing and ambidexterity is perhaps even scarcer. This may be caused by the argument that externalisation of exploration-exploitation may be harmed by the difficulties in realising strategic integration across independent firms [30]. Therefore, there should be an additional component that counterbalances the integration difficulties in the externalisation of exploration-exploitation activities. This additional component is *knowledge reconfiguration and integration* [28], also referred to as *combinative capabilities* or *architectural competence*.

A framework for attaining strategic flexibility suggested by [9] indicates that *manufacturing capabilities*, *skills & knowledge*, and *organisational transformation* are the drivers of strategic flexibility. Although the scope and context may be different, these components are in-alignment with the drivers of organisational ambidexterity (i.e. absorptive capacity, dynamic capabilities, organisational transformation or reconfiguration, and knowledge integration and/or reconfiguration) as described above. The readers need to be well informed in advance that, theoretically, the fore mentioned drivers may not be clearly distinct and they can be used to explain one another, for example: i) dynamic capabilities may be understood through knowledge management (where knowledge integration is included), ii) knowledge integration may involve organisational transformation (reconfiguration), iii) ambidexterity and absorptive capacity can be viewed as dynamic capabilities. Therefore, for the purpose of modelling, it may be necessary to make an assumption that the fore mentioned drivers are separable from one another.

It may be noticeable that dynamic capabilities and absorptive capacity represent the skills and knowledge in [9] framework, while knowledge reconfiguration (integration) is equivalent to manufacturing capabilities. Organisational transformation is an important element in either ambidexterity or strategic flexibility.

Consequently, the structural model in figure 1 can be expanded into an alternative structural model as shown by figure 2, where the *value innovation* construct is conceptualised as its decomposing elements (i.e. different types of capabilities as well as organisational transformation).

Figure 2. Expanded model of strategic flexibility's antecedents & consequences



The co-existence of *market orientation*, *relationship* and *capabilities* in the structural equations model in figure 2 indicates that both the external and internal views of strategic flexibility are accommodated in the model. The external view of strategic flexibility has its orientation on the market, while the internal view of strategic flexibility is closely related to strategy (especially resource-based view).

Modification of Ferdow's model

As appears in figure 3, foreign factories have at least one of the following six strategic roles: *offshore*, *source*, *server*, *contributor*, *outpost*, and *lead* [1]. The underlying assumption of Ferdows' concept is that firms can absorb, transform, transfer, and deploy knowledge [5]. By modifying the dimensions of Ferdows' model, [31] present a framework of strategic roles and evolution of service offshoring (figure 4). One of the dimensions is the *degree/extent of contact*, and the other dimension is the *extent of required knowledge*.

Figure 3. Strategic roles of foreign factories [Robust Manufacturing Network]

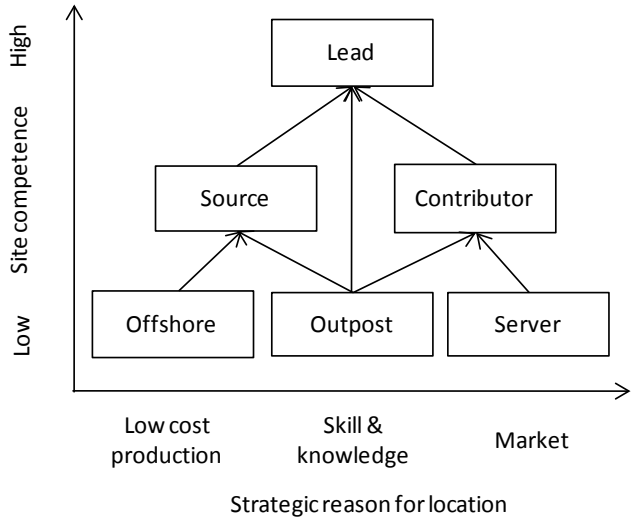
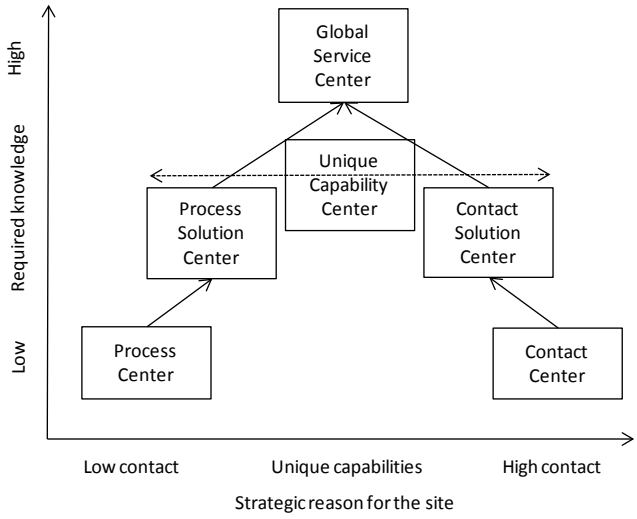


Figure 4. Strategic roles of service offshoring



One of the dimensions in Ferdows model is *site competence*. In the case of service offshoring [31], it seems clear that one dimension is knowledge. A critical question that can be asked is therefore what if the skills and knowledge reside in suppliers [5], for example in the context of outsourcing (offshoring). In order to build the site competence (as if the [business] process is conducted in-house), this knowledge then need to be integrated (reconfigured). The following three characteristics of knowledge integration are associated to the creation and sustenance of competitive advantage: *the efficiency*, *the scope*, and *the flexibility of integration* [32]. It can be argued that the flexibility of integration, i.e. the extent to which an organisation's capacity to access additional knowledge and reconfigure existing knowledge as a means of promoting continuous innovation ([32], [33]), seems to be the most relevant for replacing the site's competence in Ferdows original model because of its link to innovation as well as that the flexibility of integration can be constructed from the efficiency and the scope of integration [33].

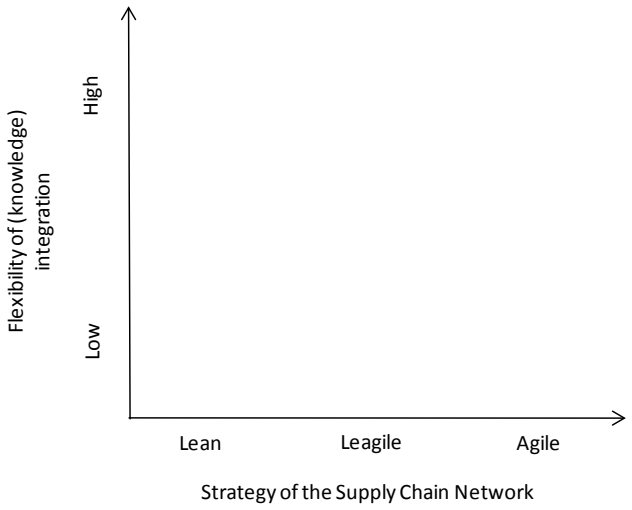
The other dimension of Ferdows model is *strategic reason for location* (i.e. low-cost production, access to skills & knowledge, or access to market). However, in the supply chain context, relations among the nodes are more important than aspects such as plant location, size, etc [34]. Besides, strategic outsourcing can (in theory) provide all the benefits tied with strategic reasons for location. In their paper, [35] argue that fit between supplier characteristics and supply chain structure and strategy is an important criterion in minimising (managing) risk in a supply chain network. Thus, *supply chain structure and strategy* seems to be a more appropriate dimension to use in the [global] supply chain network, although the importance of *location* factor cannot be completely discarded. Supply chain strategies are generally constructed around the concept of leanness and

agility [36], where *lean*, *agile*, and *hybrid* (leagile) classification is the most common (e.g. [37]).

It is interesting to note that "… *a responsive supply chain can minimise the risks associated with unappealing products but cannot overcome poor design and buying decisions which fail to introduce attractive products in the first place*" [36, p. 285], which thus implicitly acknowledge the importance of "infusing" innovation in the supply chain context in order to fulfil customers' latent needs. Strategic (transformative) outsourcing contributes to the introduction of attractive products given that the outsourcing provider(s) posses high capabilities that facilitate (enable) clients to create products that are in alignment with customers' latent needs at the downstream side of supply chain.

Thus, flexibility of (knowledge) integration and the strategy of supply chain network may function as the new dimensions for updating Ferdows' model in order to better portray the supply chain view of a value network. At this point, the strategic roles of supply chain actors in figure 5 are yet to be determined. Therefore, the model needs to be complemented with empirical findings.

Figure 5. Supply chain view of global value network



III. Conclusion

The emergence of supply chain concept implies the need for inter-firm view of value network. This need is even more obvious in a turbulent global economic condition where it may be less realistic to assume that the "nodes" in a network are owned by a single organisation. Considering these aspects, Ferdows' model is arguably less relevant and need to be "updated". According to [2], a turbulent environment requires global value (operations) network to be strategically flexible.

The objective of this paper is twofold. First, it describes the antecedents and the consequences (effects) of strategic flexibility. Then, proposes two new dimensions in order to "replace" the dimensions in Ferdows' model.

In order to describe the antecedents and the effects (consequences) of strategic flexibility, two structural equations models are developed (based on several propositions), where transformative outsourcing is the first-order latent variable in both models. A more "concise" structural model describes *market orientation*, *relationship*, and *value innovation* as the antecedents of *strategic flexibility*, which then leads to *value creation*. In this model, the contribution of *transformative outsourcing* on strategic flexibility is mediated by value innovation. Based on the framework proposed by [9], an expanded model can then be constructed in order to provide a more detailed description regarding the effect of transformative outsourcing on strategic flexibility by "breaking down" value innovation into its building blocks: *dynamic capabilities*, *absorptive capacities*, and *organisational transformation* (*reconfiguration*). It is found that *knowledge integration* (*reconfiguration*) is a critical mediator if transformative outsourcing aims for strategic flexibility.

It is also the intention of this paper to "re-engineer" Ferdows' model to provide a conceptualisation of value network from supply chain perspective based on the premise that, in a turbulent environment, value (operations) network needs to be strategically flexible. Two dimensions (*flexibility of integration* and *strategy/structure of supply chain network*) are then being proposed as the substitute of *site competence* and *strategic reason for location*.

As the next steps, the research will be focused on: i) developing measurement scales to test the structural models empirically, and ii) determining various strategic roles of supply chain actors in the proposed model of strategically flexible global operations network by conducting empirical studies.

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