

## Typology of collaboration based on the collaboration structure

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**Abstract:** This paper aims to set up a collaboration typology framework based on organization structure. Considering initial stage of collaboration foundation and with a view to different features of organization structure, characteristics including ‘financial sharing’ and ‘interdependence degree’ are considered as two basic logics for the distinguishing of collaboration. Collaboration structure is further clustered into Informal Agreement, Legal Entity-Based and Contract-Based. On the basis of this cluster, a four-scale framework is constructed for the better understanding, which is confirmed to fit well with the actual cases. Thus, this work could be used as practical reference for the choosing of collaboration structure.

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### 1. INTRODUCTION

Participating in collaborations is one of the increasing popular strategies for organizations to get access to complementary resources, to share risk and cost, and to promote for better opportunities. And when it comes to collaboration, different terminology can be found in theoretical and practical studies. They are joint venture, R&D consortia, strategic cooperative agreement, license contract, and so on. All these forms are in the scope of collaboration, yet with different kinds of collaboration structure. In this work, based on Chen et al. (2014), collaboration is an arrangement attended by a number of autonomous organizations with a common target. It is based on a special structure (e.g. collaboration agreements or contracts), where partners would still keep their own legal identity during their collaboration activities. Ranges of collaborations exist between direct market transaction and integrated company (e.g. merger and acquisition). And the types of collaboration would vary according to different structures. Here collaboration structure is considered as one of the most logic determinant for the configuration of collaborations (Barnes et al., 2012). Nevertheless, questions arise on ‘what is collaboration structure’, and ‘how to define and classify different collaboration structures when considering different features of collaboration?’. For a better interpretation, typology analysis is suggested for an in-depth view on collaboration characteristics (Baum, 2008).

A typology is a systematic classification of types that have characteristics or traits in common (Afsarmanesh, et al., 2007). And a typology of collaboration consists in distinguishing this special inter-organizational relation by considering different features related to the defined characteristics. The aim of collaboration typology is not only to provide a better understanding, but also to show the potential advantages for further strategic decision support. An

ideal collaboration typology would be the one which can bridge the cognitions between academia and business. Such typology theories come from the real collaboration experience, which could ‘accurately reflect the commercial and practical realities of modern business’ (Barnes et al., 2012). Thus, they are of great use for organizations to gain a precise insight into their collaboration situations and in the end lead to a sound collaboration strategy. However, when looking into antecedents, only sporadic works can be found related to the typology of collaboration. Even there are few, these existing typological frameworks are not enough for the illustration, as these theories are either too general and could not be used for the practical reference (Faulkner, 1995), or too focused on particular single theory for partial analysis (Das and Teng, 2000). Thus, it calls for further works which do not only emphasize the development of typology frameworks, but also focus on the matching of theoretical ideas to practical business.

In this work, when considering the initial stage that organizations would resolve to collaborate with others, the typology of collaboration structure has been highlighted for the consideration, as the ‘up front’ attention to collaboration structure may help to arrest high failure rates and to promote more stable relationship for better performance (Parkhe, 1993). Our general work begins with the definition of collaboration. And with the consideration of multi-theories, two dimensions will be emphasized for the typology of collaboration structure. Based on these two dimensions, and a classification into three main clusters, a four-scale typology framework is also constructed in order to provide better understanding. In the end, cases from actual collaboration projects will be gathered for the explanation and validation of the general typology framework.

## 2 CONSIDERATIONS FOR THE TYPOLOGY

The structure of a collaboration mainly refers to issues including ‘... how a collaboration is managed, how it is organized and regulated by agreements and processes, and how the partners control and influence its evolution and performance over time’ (Doz and Hamel, 1998). For the designing of a collaboration structure, both formal and informal arrangements would be taken into account, so as to achieve organization, coordination and regulation of the collaborative activities. Here considering the initial stage for the configuration of collaboration, the legal form has been highlighted for a detailed explanation of collaboration styles, as it defines the collaboration scope, frames roles and responsibility of members. While building up the legal form, collaboration risk and profit distribution policy would also be set up in the meanwhile. This enables organizations to control the resource allocation and also the distribution of benefits among partners. Therefore, types of legal form will be emphasized for the interpretation on the typology of collaboration structure here.

Considering the typology of collaboration structure based on the legal form, multi-theories including transaction-cost theory (Lyles and Salk, 1997), resource-based view (Das and Teng, 2000) and also institutional-societal theory (Zhao et al., 2008) have been considered as a reference. As a result, two characteristics have been included as the most logic determinants for the classification and distinguishing. They are ‘financial sharing’ and ‘interdependence level’, where the former emphasizes the investment and cost sharing. And the latter highlights the influence of resource characteristics and institutional effects.

In this work, we see when organizations resolve to establish a collaboration, theories on the transaction-cost would not simply focus on the decision about ‘make or buy or partner’ (Lyles and Salk, 1997), but rather on issues concerning ‘invest and share the cost commonly or separately’. In most of the cases, when members of a collaboration are very close to each other and would like to work jointly for the end solution, they would be more inclined to invest and share the cost commonly. In this case, their collaboration tasks are rather based on the carrying out of a specific process. For the realization of the collaboration, it is common to establish a legal entity, either a corporation-based joint venture or an association-based collaboration group. On the contrary, when members divide collaboration tasks in separate parts and contribute to one or two special portions separately, they would be more likely to invest separately and their collaboration would be rather based on the setup of a special contract, e.g. R&D collaboration contract. Sometimes, this kind of collaboration does not need an implementing process, but a providing of certain services or technology know-how. Here license contract defined as ‘one organization grants another the right to use patented technologies or production processes in return for royalties and fees’ (Todeva, et al., 2005) is one of the more classic examples.

Besides the direct financial issues, the classification of collaboration structure also concentrates on features related to partners’ ‘interdependence level’. And based on Zhao et al. (2008), this kind of interdependence could be interpreted via the view on various powers within the inter-organizational relationships. Here expert power, reference power, legitimacy power and their general levels would be considered for the understanding of the organizations’ dependence degree (Tangpong et al., 2008). The higher the general power of an organization is, the higher the dependence degree of its partner would be. Moreover, with a view to interdependence between members, both dependence degree and dependence asymmetry would be considered. Generally speaking, in a collaboration, when organizations hold a high level of interdependence, they would be more likely to found a legal entity, or setup a bilateral contract for the framing of collaboration tasks. A low level of interdependence would occur more often when the collaboration is at the very beginning, when organizations would like to communicate with each other in order to search for special opportunities. Considering the asymmetry of dependence, there is another collaboration condition which is represented by organization A depending on organization B. In this case, a unilateral contract would be a likely suggestion. Taken together, we see different features related to the characteristics of ‘financial sharing’ and ‘interdependence level’ would be the basic traits for the distinguishing on the collaboration structure.

## 3 TYPES OF COLLABORATION STRUCTURE

### 3.1 Collaboration types

Considering works of Baum (2008) and integrating the studies on collaboration power and interdependence (Tangpong et al., 2008), a general collaboration structure has been clustered as in three-part types: informal agreement, legal entity-based and contract-based (see table 1). Whereas legal entity-based structure includes legal entity with the setup of corporation and association respectively, contract-based structure refers to bilateral contract-based and unilateral contract-based. Each of these collaboration structures embodies different features when considering characteristics related to the ‘financial sharing’ and ‘interdependence level’. In practice, opportunity society by gentlemen’s agreement is a classic example of information agreement. Joint venture is the main form of ‘legal entity by setup of corporation’, while enterprise association and industry standard groups are some good examples of ‘legal entity by setup of association’. Moreover, with a view to the contract-based collaboration, R&D consortia, cartels and virtual enterprise are rather based on bilateral contract; and unilateral contract is rather used in forms of licensing, distribution agreement, franchising and so on. Taken together, the general collaboration structure is classified and listed out as in table 1.

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