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Collaborative Relationships of Professional Service Organizations for Project Success

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ABSTRACT Revealing the key success factors that define supplier-customer relationships within delivery of professional services is the principal focus of this study. It analyses the interdependencies of these success factors and how they influence the collaboration success as well as ultimately the delivery success. In other words, it shows how good the designed model of key success factors fits reality and which factors have the largest influence within the model in order to reach long-term delivery success between professional service suppliers and their customers. According to the results of the study, it can be concluded that "perceived assurance" is the significant factor affecting the "project success". "Fairness", "communication", and "processes" have detectable but limited measurable influence. "Commitment" and "interfaces and standards" seem to have no measurable influence on "project success".

INTRODUCTION

Since the professional service industry is a very young area of research existing literature and published research is very rare. Nevertheless, there are fields that are closely linked to collaboration in the professional service industry because they are also linked to the industrial value creation processes and its up- and downstreaming activities such as for example, supply chain management (SCM). Supply chain management (SCM) is defined as "the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the eyes of the ultimate customer" (Dudek 2009: 6; Stadtler 2015). When looking at the interfaces where professional service firms interact with their customers they are part of this SCM network within the industrial value creation process. Therefore it was a valid starting point to look to SCM in order to find valid collaboration models for supply chains that handle service products.

When looking at collaboration it is necessary to understand the two major aspects of the interface between the two companies. First of all it is important to look at how relationships between the two companies are built. On what levels they can exist and what pre-conditions must be fulfilled before even entering in a mode where there even is a relationship between the two companies. The second part then is how – within this relationship – collaboration models function or in other words on which basis two companies interact with each other. In order to measure any influencing factors on this complex collaboration system the researcher must understand the basic workings of this relationship.

The elements of a relationship between customer and supplier are exchange, interaction and later integration. These elements build up on each other which mean that there must be an exchange before there can be interaction and there must be interaction between the players before integration can develop (Hougaard and Bjerre 2009; Pires et al. 2015; Abrahamsen and Håkansson 2015).

It is clear that a measurement of success factors within this relationship will have to address all layers of this collaboration in order to yield results that will work on all commitment levels. Also it is clear that basic needs will always have to be fulfilled first before improvement measures can flourish.

The exchange phase of the development of a relationship is a pure exchange of certain products, payments or other conditions that is clear-

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ly predefined within clear market conditions. If a company has a buying contract with another company then all actions made within this contract happen on this first level of relationship development. If there are additional coordination tasks that adapt the pure exchange between the companies with a specific requirement (for example, a certain specific company process) then the relationship has moved into the interaction phase of the relationship development. The integration phase is reached when the processes of both companies start to become aligned in order to achieve better results (Hougaard and Bjerre 2009:22). This model helps to understand why a relationship is something that is not either exist or not exist but that it is something that develops over differentiated stages and phases and that there are distinguished quality characteristics that help to classify what kind of relationship exists between the two companies. Obviously it is necessary to evaluate by these characteristics in terms of relationship type a service supplier has with its customer and how the next level of the relationship can be reached.

The second and also very important issue is to understand why collaborative models are necessary. Certain business processes become more difficult as soon as there is more than one party involved or as soon as it is not possible anymore to establish one decision maker within one party (Dudek 2009:20). Besides, it is without a doubt necessary to coordinate all activities in a supply chain if each party´s interest is the same (for example, maximize its profits or minimize its cost) (Gan et al. 2011:4). When looking at the relationship between a service company and its customers it is clear to see that there are at least two parties involved and that there is not one clear hierarchical decision maker because both the customer and the supplier should have a relationship in which both are equal and the customer is not generally superior to the supplier. In those relationships collaborative models (for example, for the planning and coordination of tasks) have to be established (Dudek 2009:20; Zouaghi et al. 2011:156).

One of this collaborative models that seems to be applied in the professional service market a lot is a domain based approach: Each domain (one domain being either the supplier or customer) hierarchically defines its processes but the coordination between the domains is done through the collaboration that connects both (Kilger and Reuter 2005:259).

The advantage of this model seems to be that there is only one clear linkage between the two partners. Therefore there is no communication or collaboration or in the worst case conflict that is not noted at this interface between both parties. This should make it easy and clear to handle this interface and to handle the topics that arrive at this interface. On the other hand, this is at the same time the disadvantage of this model. All activities that are performed bellow this interface are not (at least not in sync) informed about the activities of the other collaborating party and therefore everything that happens beneath the interface happens independently from the collaboration partner. This might lead to double work or uncoordinated activities within each party. The communication at this point of interface was one major aspect of the conducted study.

Main purpose of the study is revealing the factors that influence a collaboration model between professional service suppliers and their customers that will ultimately lead to a successful business partnership. This study attempts to support service companies and their customers to analyze the key performance indicators of a successful collaboration during all stages of the decision process as well as help identify those management methods that will help to create measures to ensure an efficient collaboration and a true win-win situation for both service companies and customers.

METHODOLOGY

Research results that are concerned with the field of professional service collaboration is very rare. Therefore, it was necessary to start this research from scratch. Three years of research (between the years 2012 and 2014) were necessary to yield the results of this study. The goal of the extensive research project was to determine which factors within the professional service collaboration do have a measurable impact on the quality of a professional service project. In the beginning the field of possible measures to take into consideration was very wide. Only a qualitative pre-study made it possible to generate a database for the quantitative research. The result of this qualitative study yielded a set of measures that could be clustered into factor clusters (Bath and Öztüren 2013). Later on those measures were tested quantitative in regards to

their importance according to the sampling group. After the first study (Bath and Öztüren 2013), the measure set was refined in order to reduce the set of measures and refine the identified clusters. This was done through an importance test that measured the individual importance of each factor as well as a t-test that detected derivation between the customer and supplier view. Only those factors that were considered as important by both the customer and the supplier side were later used in the second quantitative study that was aimed to detect the actual measurable influence on project success via a regression analysis as well as confirmative factor analysis.

The following hypotheses were tested:

HI: The perceived fairness between professional service suppliers and customers has a significant positive effect on delivery success.

HII: The commitment between professional service suppliers and customers has a significant positive effect on delivery success.

HIII: The communication between professional service suppliers and customers has a significant positive effect on delivery success.

HIV: The commonly established processes between professional service suppliers and customers have a significant positive effect on delivery success.

HV: The commonly established standards and interfaces between professional service suppliers and customers have a significant positive effect on delivery success.

HVI: The perceived assurance of a professional service supplier in the perspective of the customer has a significant positive effect on delivery success.

Sampling Group

For the quantitative study, the following preconditions were considered. It is of key importance to access the special group of professionals either on the supplier or customer side within the professional service field. That is why it was necessary to use the expert sampling method, a non-random selection of individuals that are known experts in the field of interest (Kumar 2011). These people can be considered as expert either by the length of time they have worked in a certain field or by the level of insight they have in the field because of the importance of the position they have. The third group of potential samples has included academic researchers as well as market researchers that had conducted studies about the professional service market. These researchers were used as a control group in order to see if their answers are different from the working professionals. However the focus still remains on the service customers and service suppliers. For the questionnaire, the study aimed for a confidence interval of 5 percent and will estimate a high consistency within the answers.

The second analysis that was done within this research project is the data collection necessary to conduct the factor analysis. For this model it was necessary to measure the evaluated data in regards to a fixed dependent variable. This means it was not enough to gather data from all service management individuals (customers and suppliers) but it was necessary to ask individuals that can answer questions in regards to a concrete service performance, for example, a service project that they have recently worked in or a service delivery that they have recently received as a customer. Therefore, it was necessary to address a much more specific sampling group. In this case purposive sampling was used in order to address exactly the group of people who would be best able to respond to the questions and therefore contribute best. Usually this method is applied in qualitative research, but it can be used in quantitative research also; especially if the information needed are very specific (Kumar 2011: 207).

Validity and Reliability

These steps were taken to address the issues of internal validity/internal consistency within this study:

Sample

It was intended to use random sampling method nevertheless the questionnaire was submitted to other individuals who might be interested in the subject. Obviously this recommendation technique limited the random sampling method, on the other hand by using this technique the satisfactory sample size (n=260) was achieved. There was a very satisfying number of responses as well as submissions to further interviewees. Also the drop-out numbers were below 5 percent that is also very satisfying. Increased non-response rates are usually found

when for some reasons participants will not answer the questionnaire at all or if they will stop and drop out of the survey while answering the questionnaire (for example, when questions become too difficult to answer). The latter is called partial nonresponse (Leeuw et al. 2008:464). The samples with missing data were not evaluated in the further statistical analysis, leaving 260 completed samples for analysis of a total of 272 respondents.

Questionnaire Design

Generally it is very important to ensure the consistency of the questionnaire. Therefore it is very important that the questionnaire will be presented to each interviewee in the exact same way. Due to the use of a set web lay-out this was ensured. Each interviewee read through the same text and question formatting. Also this questionnaire and the usability of the web survey was tested with a pretest in order to detect if users understood all questions as well as if the use of the questionnaire formatting was explained well enough in order for interviewees to navigate through the questionnaire. Very small drop-out rates show that the usability was satisfying.

Internal Consistency

A test sample was used in order to assess if all interviewees were able to comprehend the scale. There was no distinction in a question to be recognized that would require exclusion from the questionnaire. Moreover, in order to measure the internal consistency the split-half technique was applied in regards to the samples. This means that the total sample was split in half and the question score for each question was calculated in order to detect if the results can be reproduced with the same instrument in different sample groups (Kumar 2011:184). This was applied through the differentiation of the different sampling groups (customer/supplier group) as well as the control group (supplier and customer experience). All those sampling groups had a very similar distribution of answers within the scale.

Unidimensionality means that each variable within a factor cluster fits statistically only within this factor cluster. This was supported by an exploratory factor analysis in order to determine if a specific variable has a measurable effect on a factor cluster or not.

Content Validity

It must be measured if there is a consistency in the answers in regards to the same theme. This means if a question in regards to a specific theme is asked, the replies must be the same in different tests (Schnell et al. 2011: 150).

Pre-test of the Questionnaire

The questionnaire was pretested with a small sampling group of 15 respondents. Of course with this small number there is no possibility to draw statistically relevant information from this sample but it yields two kinds of information. First of all the interviewees of the pretest were asked for direct feedback on the questions, the scale as well as the general usability of the questionnaire. Furthermore, the results of the pretest give a first indication of the results of the full sample. In this case this was true and the pretest yielded similar results than the full sample. Also the performed qualitative study (Bath and Öztüren 2013) can be considered as a form of pretest as it had similar themes as the quantitative study which insures the convergent validity (Bryman and Cramer 2004: 24).

Convergent Validity

It must be measured if the answers to similar themes within two different research methods yield the same results (Schnell et al. 2011:150). The exploratory sequential design is a two phase study method that used a qualitative and quantitative research approaches in regards to the same topic. In this study, findings from the qualitative study were reviewed through quantitative methods. Furthermore, the interviewees from the qualitative study were not included in the sample for the quantitative study. Additionally, the same questions were not exactly used in both studies that have evolved around the same topic as well as the identified categories.

Concurrent Validity

It needs to be ensured that we can measure what we want to measure. This includes first of all the understandability of the topic as well as questions of the questionnaire. First of all there were only very few questionnaires that remained uncompleted, which means that the target group

was able to understand and complete the questionnaire. Also the individuals in the target group submitted the questionnaire to other interested potential samples. When looking at the variance between different sampling groups, it has to be mentioned that the though the supplier and customer answers were very similar there are clear differences in regards to a few topics. This shows that the survey was able to detect similarities and differences in two target groups.

Discriminant Validity

The constructs must show significant difference from one another (Schnell et al. 2011:150). This is validated through the used statistical procedures by showing that the correlation coefficients between the factors used in the structural equation modeling are not greater than the factor loading of each item on the corresponding factor

Predictive Validity

There should not be a change in answers over time. Unfortunately in this case all the studies (the qualitative and the quantitative studies) were not repeatedly conducted, therefore it cannot be analyzed whether the test scores correlated with some later measurements. However, since a longitudinal perspective was not within the scope of this study, it can be asserted that the satisfying results of the other validity tests are sufficient to demonstrate the validity of the questionnaire.

RESULTS

The regression analysis in regards to the identified clusters yielded the following results. Only those factor clusters were acceptable that yielded at least a Cronbach's Alpha value of >0.6.

The cluster project success consisted of the following items:

1. Supplier Payment Terms
2. On Time Delivery
3. Quality Standards
4. Change Management
5. Error Handling

The calculated Cronbach's Alpha for this cluster was 0.496. The further analysis showed that a significant improvement of Cronbach's Alpha is possible if the cluster is reduced by the first item "supplier payment terms". Therefore

Table 1: Overview over the six identified factor clusters and the two success categories

Factor cluster	*Measure*
Fairness	Fair contract negotiation
	Aiming for win-win situations
	Open and honest handling of errors
Commitment	Involvement of the responsible management level (management commitment)
	Take on responsibility
Communication	Regular meetings
	Availability of contact person
	Clear communication interface ("one face to the customer")
	Quick reaction times (especially within bidding process and in case of problems)
Processes	Compliance to company guidelines
	High quality specification and offer documents
	Security through frame contracts
Standards/Interfaces	Clear and transparent buying/sales process
	Official project kick-off/information exchange
Perceived Assurance/	References Continuity (for example, in employees)
	Branch know-how
	Method know-how
Project Success	Joined strategy planning
(Collaboration	Joined feedback /
Success Delivery	Lessons learned
Success)	Joined past experiences
	Rebuy
	In line with budget
	Successful cash-flow/payment management
	Being on time with delivery
	Being within the defined quality standards
	Added value beyond the original problem
	Effective change and error management

the cluster for the further analysis will be built up of four items.

The cluster "collaboration success" consisted of the following items:

1. Feedback
2. Lessons Learned

The calculated Cronbach's Alpha for this cluster was 0.777.

Therefore, collaboration success can be used as a cluster of two items.

The cluster "communication" consisted of the following items:

1. Contact Person
2. Problem Availability

The calculated Cronbach's Alpha for this cluster was 0.708. Therefore this cluster can be used for further analysis.

The cluster "processes" consisted of the following items:

1. Buying Process
2. Information Exchange

The calculated Cronbach's Alpha for this cluster was 0.542. These items cannot be summarized to a cluster.

The cluster "fairness" consisted of the following items:

1. Eye´s Level
2. Win-Win Situation
3. Honest and Open Handling of Errors

The calculated Cronbach's Alpha for this cluster was 0.677. Therefore the cluster for the further analysis will be built up of three items.

The cluster "commitment" only consisted of one item ("quality of end results"). Therefore the substitute question will be used for further analysis ("How satisfied were you with the commitment the other side invested into the specific project?")

The cluster "Interfaces and standards" consisted of the following items:

1. Quality of Offers
2. Frame Contract

The calculated Cronbach's Alpha for this cluster was 0.202. Therefore these items cannot be summarized to a cluster.

The cluster "perceived assurance" consisted of the following items:

1. References
2. Branch Know-How
3. Continuity
4. Method Know-How

The calculated Cronbach's Alpha for this cluster was 0.626. Therefore the cluster for the further analysis will be built up of four items. The fourth factor does not have a very high factor loading, but it still yields a satisfying interrelatedness (Table 1).

DISCUSSION

The confirmatory factor analysis and structural equation modelling was performed with dependent variable "project success", three cluster indices "fairness", "communication" and "perceived assurance" as well as three substitute indices "processes", "commitment" and "interfaces and standards".

Of the six measured influencing factors, "perceived assurance" have the significantly positive influence on "project success". "Fairness", "communication" and "processes" have detectable but limited measurable influence. "Commitment" and "interfaces and standards" seem to have no measurable influence on "project success".

"Fairness" and "communication" showed considerably large effects on project success, although not reaching the statistical significance level. On the other hand "commitment" as well as "interfaces and standards" were not significantly correlated with project success. Thus, it can be concluded that *"perceived assurance"* seems to be the most important predictor of project success, while especially commitment and interfaces and standards seem to have no measurable influence on project success (Table 2).

The biggest question when reading through service management literature is how a service supplier can make a potential service delivery tangible for its customer during the pre-consump-

Table 2: Standardized regression weights in regards to dependent variable "project success"

Regression	*S.R.W.*	*p*
project success <— communication	0.246	0.179
project success <— processes	0.152	0.320
project success <— fairness	0.323	0.117
project success <— commitment	-0.039	0.813
project success <— perceived assurance	0.319	*
project success <— interfaces + standards	0.074	0.598

tion phase. Being able to create this tangibility seems to be one of the key success factors when it comes to selling services. References from other similar projects within their own company or other companies within the same branch help them immensely to make their buying decision. Furthermore, there seems to be a strong need for suppliers to employ service employees that have sufficient branch know-how in regards to the customer company is operating in as well as methodical know-how. Non-qualified human resources are one of the factors that endanger a good collaboration with the suppliers in the eyes of the customers. Nevertheless, suppliers of course recognize this and state that "the right head for the right project" will differentiate them from their competitors. Also, it is necessary to not only offer these references and skills during the sales process, but to offer it continuously throughout the customer encounter. One of the biggest threats for the collaboration is the "exchange of well qualified personnel with incompetent inexperienced personnel". The supplier will have to find a way to balance out its own needs with those of its customers in order to find a compromise between having free resources while still insuring continuity in service personnel.

CONCLUSION

The collaboration between customer and supplier is one of the absolute key success factors for service projects. This study offers an approach to uncover customer and supplier expectations towards the success factors and collaboration requirements of professional service projects.

According to the statistical results of the study, perceived assurance has the highest significant influence on project success. This means for suppliers that their ability to create an atmosphere of professionalism is the overall outstanding key success factor. Areas of investment in the perceived assurance are maintaining highly qualified human resources, but also appearing qualified by presenting positive references about once past successful service project. Furthermore, not "jumping" from one highlight to the next, but also giving the customer a feeling of guaranteed support, for example, by providing a good continuity in service project staffing.

Additionally, fairness plays very noteworthy roles within the professional service collaborations. Fairness really can be established by conducting fair contract negotiation, aiming for win-win situations and open and honest handling of errors.

RECOMMENDATIONS

This study shows that service professionals hope to get hints on how to apply the knowledge gained in research in their daily work in order to improve collaboration as well as project success with their suppliers or customers. It is possible for service professionals to analyze which of those measures they already apply in their daily work and which of these measures might not be in application within their working environment yet. Also, they can take the results in order to prioritize which measures might be considered as most important by their suppliers or customers and which might not be of highest importance to their partners. In times of limited capacity and time restraints it is important to focus on those activities that will yield the greatest impact on the measurable project success.

When it comes to further research it becomes clear that there is still room for improvement. In this study, the target group was employees of professional service companies as well as customer of professional service companies. Also, there were specific branches that were in focus (for example, the automotive industry). There was no differentiation made between the different branches that strongly use professional service, for example, automotive, aviation, health, energy, etc. At this point and step of the research it was taken as an assumption that all these branches have a similar approach when working with their respective professional service suppliers. While this might be true in some areas, there might be other aspects in which the different branches might have a different approach towards their establishment and collaboration with their professional service suppliers. In possible further research studies, it would be of great interest to conduct a variation test to detect possible differences between sampling groups from different areas.

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