PARTNER SELECTION CRITERIA FOR VIRTUAL ORGANIZATION FORMING

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Abstract: This article indicates criteria which a partner should evaluate during the forming of virtual organisation (VO). This paper bases on analyses existing criteria and investigate research works which were done by different researches. The represented criteria will be used to select partner for a new project in the frame of Partner Network (PN).

Key words: Partner Network (PN), Virtual organisation (VO), SME, Partner Selection, Key performance indicators KPI

1. INTRODUCTION

The different association of independent organizations become a popular tool to restrain the competition in the current economic situation on the global business market. "Interorganizational networks include supplier and marketing or distribution networks, technological-innovation and product-development networks, and different competitive coalitions used, for example, for establishing industry standards and for competing against other networks or a specific dominant player such as Microsoft".[1] There are many different forms of such associations exist, including, Collaboration Network (CN), Strategic Alliances (SA), Partner Network (PN), Industrial Clusters (IC), etc. These unions are mostly designed for Small and Medium Enterprises (SME) [7]. The SME have some common restrictions (budget limitation, small amount of services or products, etc.), which stimulate small companies to join together to survey on the market with tight competition [1],[4]. Each company has own preferences for partner selection during partnership formation [5]. In this work was analysed the existing preferences and finds most critical of them for companies. The next step will be development an evaluation mechanism for partner selection from association of independent organizations. The support of selection process for PN is an essentially issue during formation of temporary alliances of VO [6]. One of the aims of the PN is a collate data about member enterprises, their capabilities and KPIs of each member [7]. These parameters and data are used in partner selection mechanism when the VO initiators (hereinafter focal player or broker) make an own decision and this part is also considered in current research work.

2. PARTNER NETWORK DISCIPLINE

a. Partner Network Notion

Partner Network (PN) origin is close with Collaborative Network (CN) and definition of PN can be applied the same, but the main difference between PN and CN is the operating environment, which is constrained with legal aspects. When companies, entering into the PN, they should sign the frame agreement with collective juridical body, representing the PN. Based on that agreement the companies, which are working on financial proposal to the customer, can quickly form
the Virtual Organization, in order to be ready for the legally respond to the market demand. [8]
PN managerial legal entity is called Partner Network Managerial Office (PNO). The main obligations of PNO are:
• represent the PN members to the customers
• measure the PN members Key Performance Indicators (KPI)
• ensure the information channel for PN members for the exchange of agreed information
• organizing the process of PN members drop off and to support the joining of new members. [8]

b. Virtual organisation

Virtual Organization (VO) a temporary alliance of independent organizations (e.g. companies, institutions, people and commercial and non-commercial organizations) that come together to share resources and skills to achieve its mission/goal, and whose cooperation is supported by computer networks [9]. VO forms from entities which constituted a PN. Normally, the process of forming VO takes a time, due to legal, technical and social aspects. The fig.1 shows the principle scheme of the VO. There are depicted important VO features on the picture, which define every VO. It is a Focal Player (FP) [8] or broker, a subset of the PN enterprises may be chosen to form a VO for some specific business opportunity [9]. It is a common goal/mission to achieve a business opportunity. It is a set of partners who has competences “required to achieve a given task or acquired by an actor in the context of achieving this task” [10]. The focal player (broker) has to select appropriate partners to achieve the project goal successfully from universe of enterprises or PN. There are introduced the competences, KPIs capacity and capability to simplify the selection process. In most cases, the process will be complicated, since a FP has to choose between many parameters and each of the parameters has own weight. The partner selection is

![Virtual Organization](image)

Fig. 1 Virtual Organization [8]

c. Partner Information Artefacts

All organizations have to be introduced in the PN before join to PN. The process of joining new member comes through negations, interviews and questioners. During the joining process the Partner Network Managerial Office (PNO) collects the information in the central database. This information is called Partner Information Key Artefacts and contains required information about partner [8]. The Fig.2 shows determined “most critical artefacts that companies need to exchange in IC”[8].
The most critical artefacts has been determined on base survive of 20 SMEs from different domains. Artefacts may be exemplified as follow:
• “roles, skills, organizational structure, location
• communication
• data clusters, data elements
• machinery/benches [12];
• software application systems, ICT technology [13];
servers, network nodes, operating systems
- critical factors, business objectives, key performance indicators (KPI)
- risks, issues, action plans
- projects“ [13]

This is basic and necessary information that PN has to collect from new company, which has willingness to join the network. The information will be also used during the formation of the VO [14]. In next chapter it will be define the criteria base on the key artefacts.

3. PARTNER SELECTION CRITERIA

a. Criteria in literatures

During the formation of VO organization the FP faces with a challenge of selection “proper” and “right” partner. "However despite the growing numbers and increasing significance of strategic alliances, many fail … such failures may be for many interrelated reasons - and may be defined in various ways - two common causes are poor partner selection and poor alliance management”[15] [16] [17].

“Any collaboration begins with analyzing potential partners … Realizing potential alliance benefits depends on selecting appropriate partners”[6]. This section provides an illustration of criteria which FP takes as preferences in time the partner selection. There are many research are dedicated on partner selection topic on base on particular parameters and collaborative utilities. Feng et al. suggests a method for partner selection of codevelopment alliances using individual and collaborative utilities [18]. Wann et al. propose in the research work “how firms should select alliance partners for entering competition advantage” [19]. Author proposes the criteria and sub-criteria for partner selection. “After some interview with some experts and practitioners in high-tech industry, the study develops five big criteria to determine how to select the best partners.

- Characteristics of the partner
- Marketing knowledge capability
- Intangible assets
- Complimentary capabilities
- Degree of fitness” [19].

Geringer, 1990, has distinguished the criteria on task and partner-related dimensions of selection partner [20]. Kannan and Tan, 2002, have defined the criteria [21] as “quantifiable or “hard” criteria such as price, delivery, quality, and service are routinely used for selection and assessment [22] and “soft”, difficult-to-quantity factors such as management compatibility and strategic direction of the partner have also been shown to be important, particularly in the context of strategic buyer-supplier partnership [21], [23]." In survey has been observed 411 US companies from different domains. Assessment criteria have been ranked partner performance by participants. This research work demonstrates FP expectation in front of partners for VO.

b. Partner selection criteria for formation VO

It was defined Enterprise Key Artefacts in the previous section. Each of the artefacts has criteria, attributes and dimension. In the selection it is presented criteria that our group found during the investigation in the research works.

In case “roles, skills, organizational structure, location” artifact can be applied criteria Technology [21], [22], [23],[26] which has following attributes: Technological compatibility (TCOMP), Assessment of
future manufacturing capabilities (FMC), Supplier’s speed in development (SSD), Supplier’s design capability (SDC), Technical capability (TCAP), Current manufacturing facilities/ capabilities (CFC).

“Communication channel” artifact defines as Relationship [25],[26] criteria. It criteria have attributes: Long-term relationship (LTR), Relationship closeness (RC), Communication openness (CO), Reputation for integrity (RFI).

Criteria resources can be applied for “Machinery/benches” artefact. In this case the attributes can be interpreted as: Competency, Quality, Time, Volume, Costs, Flexibility, Environment.

“ICT technology” has criteria as “Information/knowledge”. The criteria have attributes: Quality, Integrity, Availability, Exchangeability, Confidentiality, Updatability.

“Key performance indicators (KPI)” are criteria itself that can be split on the attributes, which has been figured out during the interviews with mangers of production companies: volume of output during the period, kg/period, labor usage for the period of time, h/period, productivity, h/ton, project's profitability, %, space performance, kg/m2, consumption of welding gases, bottles/period, individual performance, the number of kilograms of finished product per 1 worker per month, kg/person, number of delays of product output, outturn, %

“Projects” artifact can be applied “Past performance - past experiences in VO”. Namely, “Successes and failure in past collaborative activities are evaluated as significant indicators of readiness for future collaboration” [27].

4. COOPERATION WITH OTHER RESEARCHES

The artifacts were used in this paper is a result of collaboration research with colleagues from Tallinn University of Technology.

This paper is a sequel of the research work introduced in paper “Business and IT alignment in enterprise considering the partner network’s constraints”. The paper gives details of the enterprise artifacts which are necessary for join the new member to the PN. Also it indicates that an enterprise IT has to be aligned with its Business Model. The IT alignment is a significant activity for the company to start the cooperation on Virtual level of cooperation such as VO.

The research presented in this paper has to be verified and validated by any method. This is task of the following collaboration research with another colleague. Paper “Quality improvement methodologies for continuous improvement of production processes and product quality and their evaluation” indicates the improving methods. It also introduces the ways how to improve the management processes in VO.

The general scheme of papers interconnection is depicted on Fig.3.

Fig. 3 General scheme of the Research

5. CONCLUSION

As the result of the research can be concluded that partner selection is a multi-decisional process and a FP should define the most significant preferences and on its base make a final decision respecting to partner. A result of the whole project can fail, if FP does not consider of the possible threats related with the selection partners.

In this paper indicates the criteria that should be considered and the criteria amount is quote many. Next research will focus on the methods and tools, which can
be applied for evaluate introduced criteria and weight the criteria to assist a partner selection process.

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7. REFERENCES

2. Kangilaski, T., CHALLENGES FOR SMEs ENTERING INTO THE VIRTUAL ORGANIZATION PARTNER NETWORK, By: Edited by: Kyttrner, R
12. Bjorklund, S. Pribytkova, M. Karaulova, T., DEVELOPMENT THE MAINTENANCE PLAN: MAINTENANCE ACTIVITIES ON OPERATIONAL LEVEL, Edited by: Kyttrner, R, 7th International Conference of
DAAAM Baltic Industrial Engineering Location: Tallinn, ESTONIA, APR 22-24, 2010, VOLS 1 AND 2, 286-291

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