

Information system ISSME for web-based virtual enterprises

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ABSTRACT

Contribution is a part of 6th FP EU MANUNET and is describing the information system ISSME of partner searching and its use in the frame of cooperation between SME. The main objective of information system is the creation of large base of SME and allows the search and choice of cooperative partners according to criteria for creation of virtual enterprise. The information system leads to fact, that in near future the electronic cooperation will transmit through all companies, whereby is overcoming the country boundaries and expands through the regions just today.

1. INTRODUCTION

Cooperation of SME is necessary, because the individual company is no table to cover all customers' demands and needs connected with products providing. Nowadays cooperation is overcoming the country boundaries and expands through the regions. One of the important aspects of cooperation is searching of suitable partners and creation of virtual enterprises by the of internet tools. The vitalizing of competition-ability and cooperation between SME may be build by means of our information system for ISSME, designed by us. Information system ISSME allows strategic connection between geographically distant companies with the help of internet and with ability to realize common projects.

2. COOPERATION BETWEEN SME WITH THE HELP OF ISSME

The reason of creation of information system for ISSME is the lack of suitable systems for searching of information about companies at the solution of market opportunity. Existing database systems allows searching of companies and provides the base information about company resp. information about business activity and company structure. However at the creation of virtual enterprise is important the orientation on current offer of free capacities, skills, the share of skilfulness, real expense and ability of realizing common product. Inseparable part of company is the providing of information about structure and business activities. The success productive societies depends on ability of identification of customers needs and realize fast product development with low expense and with short delivery dates, which is adapted to the customers demands. The reaching of these objectives is not just problem of marketing and business, but also the problem of production and development, but the main problem is the cooperation on the product development connected with whole product lifecycle management. In the process of product development is important to consider about the opportunity of consultation between individual development groups. On the product development may work several

development groups, which are working as one team, whereby every group performs its own assignments in different periods of product development. Therefore there is an effort to create the “bridge” between development team and customers in the phase of development and product valuation. The base is the cooperation between developers and customers, what allow reaching the effective improve of product development.

In the frame of web-based information system we distinguish 3 forms of cooperation:

1. The form of cooperation, which is creating between developers and customers may be consider as the main form at the realization of the web-based information system, whereby the base is the cooperation and communication bond (fig. 1a). This form is not oriented only on the cooperation between developer and customer, but also allows to customers the searching for company with the help of information system according to criteria of realization order. On this level the consortium is not created either hire of free capacities; there is only the creation of cooperation between companies or company and customer by the realization of order.
2. Cooperation between companies on the outsourcing level (fig. 1b), allows companies by the help of information system the choice of suitable cooperative partners according to requested criteria and realize cooperative relations. It is a creation of cooperation without integration of cooperative companies to „virtual enterprise“.
3. The third form of cooperation (fig. 1c) is cooperation in the frame of „virtual enterprise“. Companies have the opportunity for realization projects on highest cooperation level with the opportunity of choice and search of cooperative companies through ISSME, where individual companies are sharing information in the form of catalogues and they are available for cooperative partners. Companies at this level are possible to create and realize the projects in the frame of cooperation, where they can share its expense, experience and responsibility together, which allows the approach to global markets and in this way they can realize their projects on the highest level of cooperation.

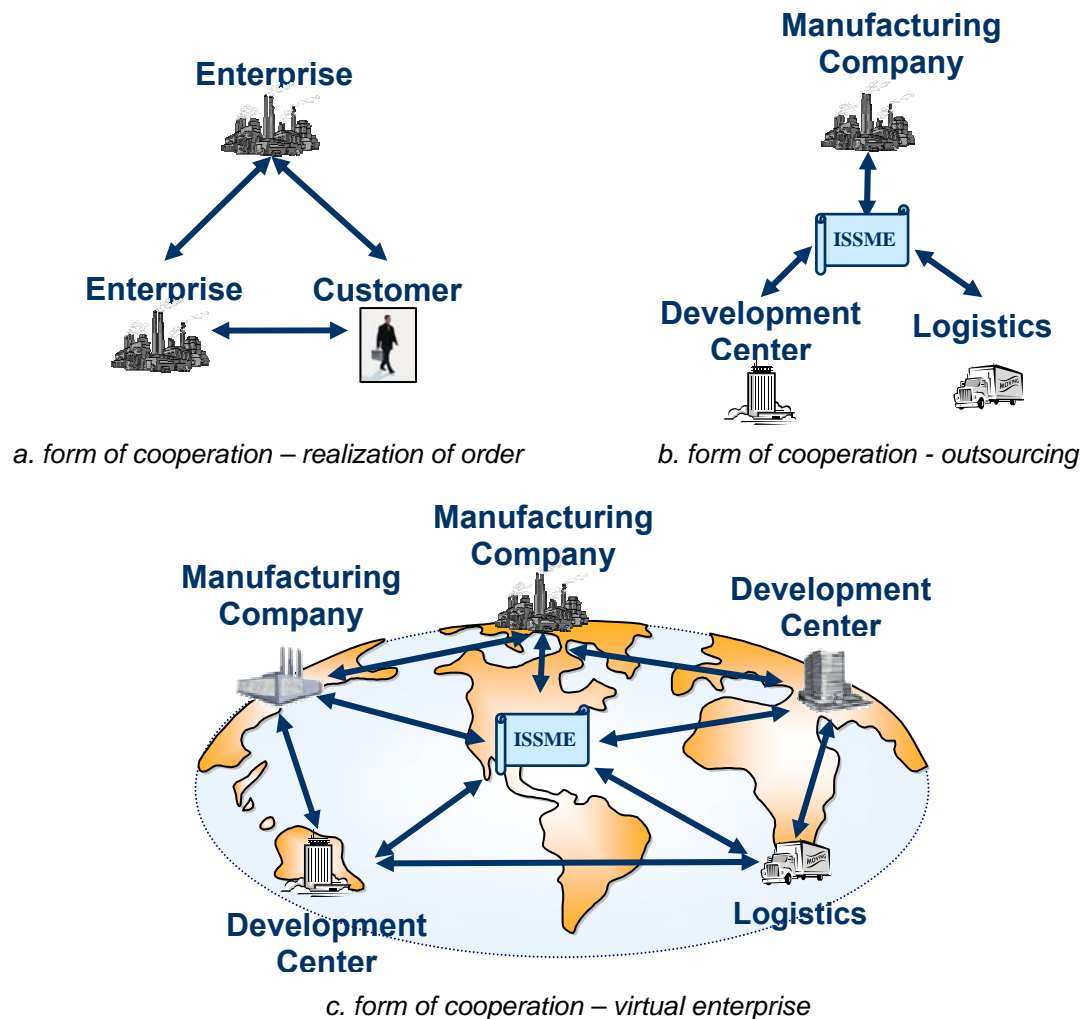


Fig.1. Three forms (levels) of cooperation

The cooperation characteristics between companies:

- Peer-to-peer cooperation between companies in the frame of virtual enterprise.
- Cooperation on development of new product or service.
- Cooperation at exchange of information in the frame of virtual enterprise.
- Providing of knowledge and skilfulness of individual companies.
- The control of cooperative relations in virtual enterprise.
- The coordination of external contractors (outsourcing).

Individual forms of cooperation represent the company needs and abilities to realize the market opportunity. The effort is to reach the third form of cooperation, where SME by the help of information system ISSME are able to create a temporary consortium of independent companies, because of fast utilization of dynamically changing market opportunities. The consortium of independent companies or virtual enterprise is based on the ability of creation of temporary cooperation and realization of shot market opportunities, which the cooperative partners can not (or can, but only on low level) realize individually. On the present, the increasing tendency has: net cooperation, choice of

suitable partners and effective use of information technology in order to optimization of communication between companies.

3. VIRTUAL ORGANIZATION – VIRTUAL ENTERPRISE

Virtual organization is a group of more companies based on virtual environment with use of internet tools and with ability of creation of virtual enterprise as one compact entity of cooperative companies, whereby in frame of its attribution can create more cooperative companies or cooperative entities. Virtual organization is created from its initial design of market opportunity, whereby in the frame of whole period of creation of virtual organization or virtual enterprises, assures the direct contact of the sponsor order with the database of the available companies by the help of information system or web interface, in the frame of which the sponsor has the opportunity of the choice of companies according to requested criteria. Virtual enterprise is created at the moment, when the list of suitable cooperative companies, which fulfil the criteria of the sponsor and division of tasks, is created. In this period is the created consortium of independent companies, which share its competences, devices and expenses. Virtual organization allows the creation of the connection of more virtual enterprises, which effort is to reach the common result.

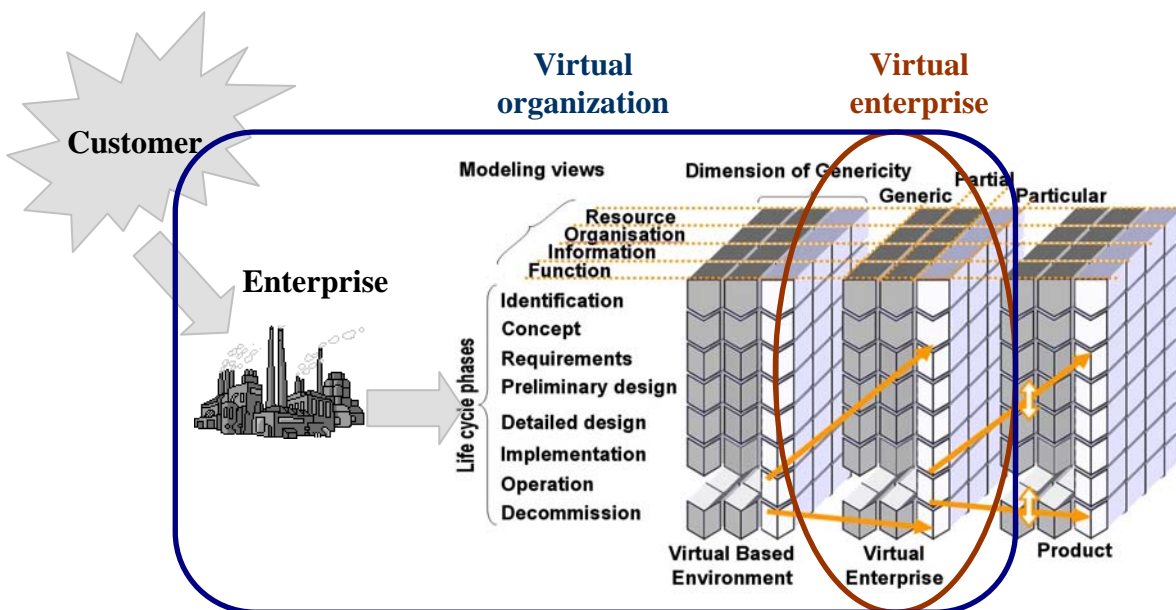


Fig.2: Design of virtual organization a virtual enterprise

At the creation of virtual enterprise is important to consider about the possibility of creation of large SME base with the ability of sharing skilfulness, expenses and approach to mutual market. Large base of SME we can reach the most effective and the best choice of companies at the formation of cooperative partners' relations with other companies in the process of virtual enterprise creation. The effort is to create the company database and provide the system or set of tools, which help at the choice and searching of suitable companies' consortium.

4. INFORMATION SYSTEM

Information system ISSME is a web-based application, which allows companies the searching of suitable cooperative partners; provide information of machines, tools and free capacities, and realizing the cooperation with partners on the highest level as is possible. Information system ISSME assures SME the gaining, processing and transferring of data, which is realizing in real time, where ISSME will process, separate and save to the database for the next process. System is interactive and companies have the ability to enter the information system ISSME and to create the own machine, tools, fixtures database etc. and so provide the information about free capacities of cooperative partners. Demands are processed on the server side and on its base the list of searched companies is generated. The choice of suitable cooperative partner is the hardest and the most important part in the partner searching period. The objective is to find that partner, which fulfil the requested criteria for creation of virtual enterprise. Every cooperative partner has the possibility to contact its potential cooperative partner and realize the cooperative relations. The cooperation between SME leads to creation of the highest form of cooperation, what means the creation of virtual enterprise.

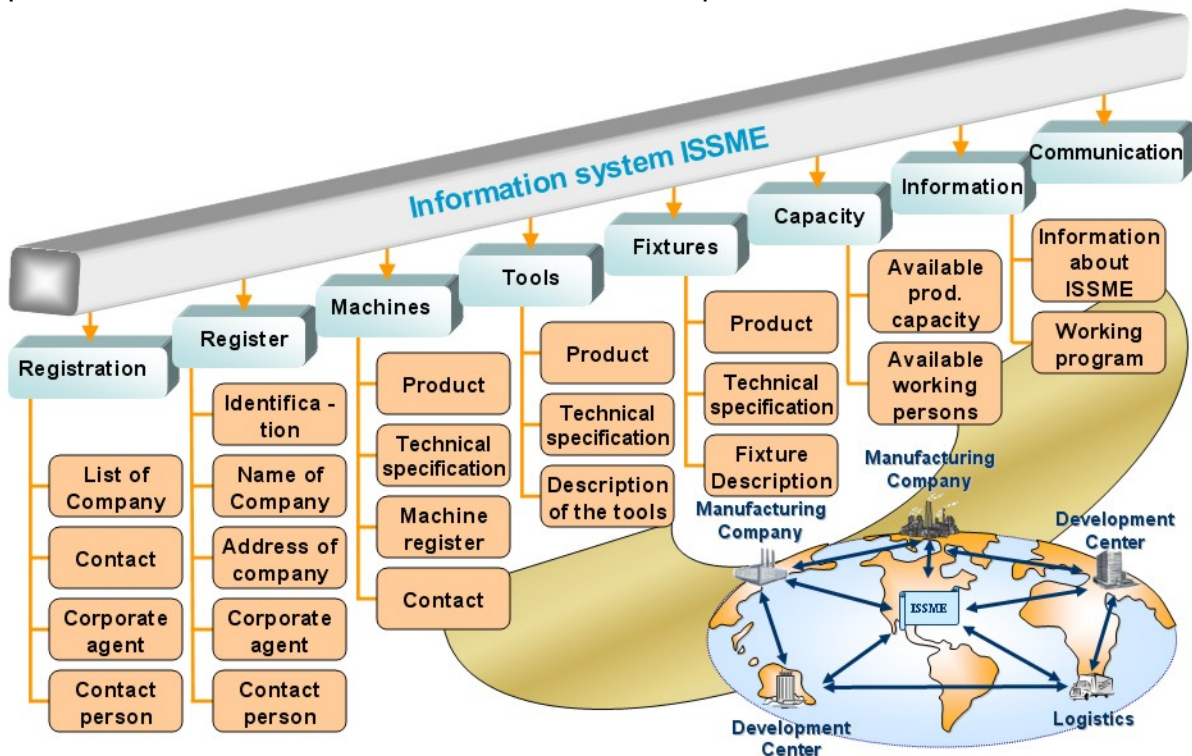


Fig.3. Structure of information system ISSME

Every company by the help of information system has the possibility to search and create the cooperation bonds with partners and so realize the projects and market activities. In the frame of projects MANUNET the effort is to create the web-based information system ISSME between cooperative companies, where they will create the company organization and work groups' independent from geographic location by the help of information system ISSME in the frame of creation of virtual enterprises.

5. CONCLUSION

Information system is the input tool at the searching, choice and partners cooperation on the base of internet connection. Assures the partner searching according to specific choice of requirements on the base, by which the list of potential partners is generated, what allows companies easy and fast choice of cooperative partners. Company may choose from database not only the cooperative partner and use the internet technology, but also the effective cooperation with them. ISSME helps in the area of innovative projects and creation of work groups also the geographically distanced cooperative partners. By the help of ISSME companies can realize different forms of cooperation and gaining stronger position in the hard competitive economic. In the frame of cooperation between companies is important to create the common development environment to reach better cooperative relations that means the application of work groups as develop groups cooperating on project realization. The searching of partners by the help of cooperative relations with other companies leads to expand of cooperation at the creation of virtual companies between SME.

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