"Business Modeling Drivers in e-society Formation"

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Abstract

One of crucial issues in e-society formation is how to innovate value proposition and process laid down among parties involved. This paper describes some insight obtained through Japan e-society formation research. Value provision innovation must be accomplished prior to process innovation, even both of them have to be tried one after another in dual spiral way.

1. e-society Business Formation

e-society comprises of business enterprise, government and individuals. It is featured by implementation of socio information systems which serve for business and non-business purposes. This paper deals with only business realm of the e-society and never touch on the non-business realm, see Fig.1. One major concern in the business realm is how to furnish *business modeling* that is a framework of pursuing business goals that each party of the e-society upholds. Mathematical simulation modeling is a frequently used method for business modeling, but it can only simulate such business aspect that could be represented by mathematical model. Though the mathematical model can simulate such model behavior under the model condition set out for certain simulation purpose, but even going through such modeling it is hard to innovate value and/or process in e-society formation.
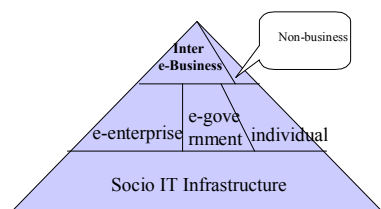

Fig.1 e-society Business Formation

Definitions

Process - its meaning varies depending on discipline and context the term used, from systematic series of actions or changes directed to some end in general, to natural out growth i[†] n bio, to court action in law. This paper assumes the generic definition of process.

Value – attributed or relative worth, merit, or usefulness and not restrict its meaning only to monetary or material worth, so that value includes even such worth as convenience provided in services and products. This paper means value by products or services offered.

Business Model – means conceptual come-up from business design and practical value exchanged between parties utilizing resources. e-business model means a framework where each party gets benefits from value contributors through interacting each other, especially utilizing merits brought by socio IT infrastructure like internet.

2. Issues in e-society Business

Since e-business has drawn people's attention in mid 1990's, e-business modeling has been tried in almost every types of parties such as business companies, customer, government, citizen and furthermore has been experimented in the relationship of each one of them.

In almost e-society concerns, we have to deal with inter-organizational business modeling as well as intra-organizational business modeling. However, "organization" is a generic term and varies its

boundaries for each organization with different granularity, e.g., from single stand-alone company to allied corporate enterprise to governmental office.

Therefore we should consider issues in internetworked enterprise, *interprise* in short that is an interrelated enterprise through for example internet[4.] A typical example of interprise is e-trade where different types of organizations are involved from darts to darts, e.g., value provider, mover, insurance, bank, tariff and authorization offices. e-trade still hold several issues such as gap in inter-organizational process and less compatibility of format of data exchanged.

In specific industries such as banking, trade, logistics, they have high demand for *process innovation*. Manufacturing industry has needs for *value proposition innovation* as well as needs for process innovation over their supply and demand chains.

In case of supply and demand chains, there are issues in combination of how to renew collaborative process and how to have distributed organization. More specifically, those issues are around how one should innovate enterprises that are fallen into one of four category types, i.e., the distributed organization and non-collaborative processing, the distributed organization and collaborative process, the centralized organization and non-collaborative process, or the centralized organization and collaborative process. The third type must be omitted.

In case of international banking, clearance still takes longer time and the banking is lack of *straight through processing* ability, STP for reasons of complexity of business procedure. There exists high needs for the process integration throughout banking and other financial institutes involved in order for reinforcement of their competency. Process integration in banking could be accomplished in several different levels such as the intra-organizational, the electronic authenticate, and the inter-organizational. However almost existing supports like Enterprise Application Integration, EAI, BusinessWare, work-flow management are limited to those capability that interconnects systems such as legacy, ERP package, database handling in-house application. There seldom to find methods and tools for supporting Process Innovation.

The localization business industry serving for global value providers is facing at needs of process and value innovations, since the industry is suffering from cost and quality problems caused by inefficient utilizations of   skilled human resources due to Multi Language Vendor's enclosure strategy that blocks seamless process integration spanned from client to Single

Language Vendors and translators.

Government and its parties have more serious problems than those business and its parties have. For example, trade business has difficulty of having sound interface of process and data, since each government office requires business enterprises and individuals adapt the unique interface each government defined. Generally speaking, in e-society X2G or G2X, where X={B|C|G}, lack of interoperability is still the biggest bottleneck problem.

Some of these problems noted above are caused by the technical drawbacks of less standardization on communication protocol and document format each party uses. There is the other cause, e.g., conservative attitude to resist against change of their business model and practices, their privileged responsibilities and authorization and after all the documentation format, unless observed change reasonability.

3. Primal Drivers of e-society Business Formation

It is crucial to choose approach to solve the problems stated in previous chapter. Which should be innovated first, Process, Value or else in e-society business formation? As the process and value are major aspects and can be identified relatively clearer than the rest, let's concentrate in the pros and cons of Process Innovate First (PIF) and them of Value Innovate First (VIF).

PIF Pros
1. Method Availability
   Useful methods are available for making process innovation, while value innovation methods are less available for use.
2. Easy to understand
   Process innovation is much easier to be understood by people concerned than value innovation is.
3. Process makes value
   Process innovation can make value proposition innovation happen, for example, bank process innovation can make such value proposition innovation as faster clearance, settlement happen.

PIF Cons
1. Opportunity Loss
   PIF concentration often leads to loose opportunity of value innovation.
2. Non-value
   Process optimum doesn't always ensure value proposition optimum, e.g., Process optimum is to try to achieve its goal by such indicators as complexity, cost and time duration.
3. Higher Cost

Development cost is unnecessarily increased due to possible fallback. Value innovation often requires rework for process innovation.

VIF Pros

1. Key concern

   Value is the first and ultimate concern. People wants pursue to earn value first. Once people are convinced of value proposition, then they are motivated to innovate process and other factors.

2. Value innovation as Major Driver

   Process can be innovated following to and based on the consequence of value proposition innovation, let's say, Value Map -> Sequencing Actions -> Process -> Process Innovate.

3. Value as Premise

   Local Value Innovation-wise Process Innovation, LOVPROI is good enough. Though local optimum solution does not ensure total innovation including, for example, *dis-intermediary*, it is only practically possible way to find appropriate e-society innovation.

Fig.2 LOVPROI
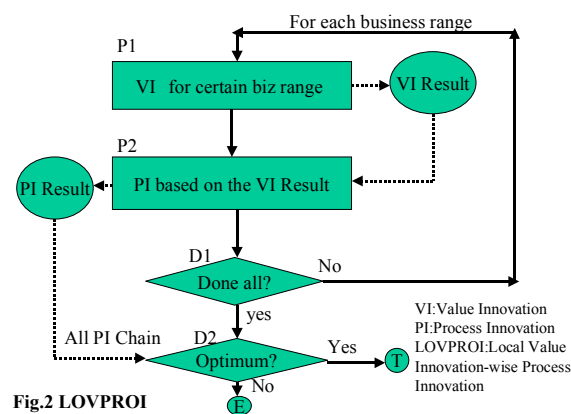
A purpose of the process denoted P1 is to innovate value proposition for a certain range of value chain and provide the value innovation scheme. The process P2 is to innovate process based on the value proposition scheme obtained in the P1. The decision box denoted D1 is to see whether there remains any range of chain in the underlining case unchecked. The processes P1 and P2 have to be repeatedly done until all chains have been checked. The decision box D2 is to see whether all of processes for all underlining chains have been optimized. These series of processes is called Local Value Provision-wise Process Innovation, LOVPROI in short. The LOVPROI does not always assure to provide Total Optimum Solution, since result from series of local value innovations simply do not ensure the total optimum. Re-Process Innovation repeatedly took place maybe assure to find a total optimum solution.

VIF Cons

Non-Total Solution

   VIF is not always possible to ensure optimum solution of e-society totally. There might exists opinion conflicts among parties involved with respect to value criteria they deem optimum. Inconsistency problem often exists among intra and inter value chains. PIF has the similar problem, but easier to solve.

Discussions

In spite of PIF Pros, there are some useful methods for Value Innovation and one can get sound results by using those methods. The problem stated in VIF Cons is of *totality* of optimization and not of PIF superiority over to VIF. The totality issue should be discussed separately from VIF or PIF selection. Practically speaking, local optimization for a certain scope of organization is only possible way of doing. Practical solution might be derived from and thorough consideration based on putting local solutions together.

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Locally limited within a scope of an underlining organization, it's possible to get value proposition innovation, VPI, while it is thougt to make VPI totally encompassing all of the relevant organizations, since total VPI has to resolve possible conflict of interests raised by parties involved. For example in chain of business to government, B2G, government and corporate enterprise have different value senses each other. How one could resolve it? Does top down approach of value proposition innovation assure to have success? It may be possible. One way to do it is *hierarchical* approach that starts to innovate value proposition at higher hierarchical level and proceed on to next level down until reach end, e.g., International – National – Value Chain – corporation levels. A problem is that the decision making in the course of hierarchical value proposition innovation takes much longer time and likely loose business opportunity.

Through scrutinizing of all these pros and cons, Value Proposition Innovation First has bit more advantages than PIF in e-society business formation. However this does not mean there is no need of PIF. It is noted that both of them are used complementarily in the course of the formation.

VPI Approaches

At least three types of value proposition innovation approaches are on hand use, i.e., Hierarchical, Distributed, and Federated.

Table 1 Types of Value Innovation Approaches

	Hierarchical	Distributed	Federation
Features	Usually Top Down, rarely Bottom Up	Distributed	Whole Chain and Component
Example	Toyota, especially their supply chain	Sony	e-Trade
Approach	Organizational layer by layer Top Down Optimization	Look for Local Optimization	Harmonize Whole Chain and each Component Elements
Remarks	Timely decision making is crucial.	Hard to coordinate each local optimum other	Federation level value proposition must be clear enough to follow by each elementary.

4. e-business Evolution Agenda

What one should do for evolving e-society business, in short e-business? For a given enterprise run in certain *business life cycle* stage, one have to accomplish series of tasks including at least business visionary planning, e-business architecture modeling and implementation, evaluation of the model and the e-business, and making evolution of the business.[12,13,14] The *business architecture modeling* includes the value proposition planning and e-business process design. Usually information systems modeling and other enterprise sub-models have to be accomplished based on the business architecture, more strictly speaking based on the e-business process, if top down approach is taken. The other sub-models are those needed for comprising of whole business enterprise. They include organization, resource, economics or financial sub-models. Value proposition plan and business process model comprise of the business architecture model.

Strategic visionary plan and architecture modeling are important tasks for modeling e-business.[1,6,11] However, these are not exhaustive. The other important and non-trivial tasks for e-business modeling are at least evaluation and evolution. Evaluation is needed, since one want see how the e-business is going on. Evaluation basically takes place in two different timings, i.e., modeling and operation. Evaluation taken during modeling phase allows one to make decision whether or not one should go with the e-business model. Evaluation during operation phase allows one to see measured data of indicators which shows how the e-business has been run.

Model evolution is essentially needed if one are looking for success all the time. Without having model evolution, no one could be survival in e-business competition. We have to be careful that e-business evolution is one thing and information systems evolution in the e-business is another. What we should do for e-business evolution include first identifying what should be improved and the reason why it should be.

Secondly, it is important to identify where the problems come from, the model, the information systems or the else.[7] Causes of the problems may be around the way of implementing of the model and putting it into practice. Causes may be from possible deficit that the model per se has.

Third, identify which part of the model has to be improved if the model is the root cause of the problems. One has to trace and identify what extent of the model has to be changed. One has to make the change analysis through out the entire e-business models and the sub-models. After complete change analysis, one has to re-build whole e-business systems including the information systems, otherwise no one can make e-business well matching to the surrounding circumstance and more fit to the goal.[16] Re-building entire e-business systems must be a big mess. See Fig.3 Structure of e-business agenda.

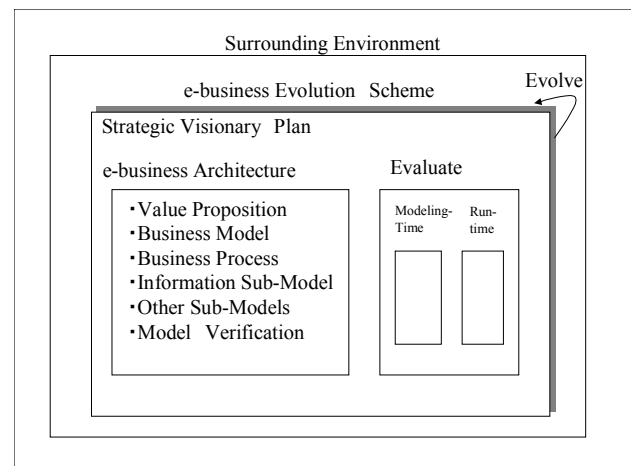
Fig.3 Structure of e-business agenda

5. Requirements to e-business Evolution Scheme

How one can accomplish the activities shown in the agenda in Chapter 4. What follows are itemized list of requirements for the agenda with priority, but the list is not exhaustive.

1) Strategic Visionary
Traditionally there has been needed for methods for e-business strategic visionary planning and architecture modeling Recently there is a strong need for especially linking the visionary plan and the architecture model, since people becomes want to design the scheme more seamlessly.

2) Architecture Modeling
Method is needed for e-business architecture modeling. Several methods are currently available for business process modeling, but one should be careful to make sure whether it is possible to meet requirements from inter-enterprise process. Even in case of intra-enterprise process only, one still must be careful to see whether it is possible to design web based business process. It is noted that not only process but also value proposition innovation method is needed.

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2.1) Value Proposition
The method for value proposition is definitely needed, since inspiration based way of innovating would be insufficient to find competitive solution. Value model is one of the major concerns in e-business design. The method should be useful for innovating value proposition, since the proposition innovation would ensure a core competency that the enterprise might rely on.

2.2) Linking Value Proposition to Business Process and Information Models

There is need of the method for seamless linking innovated value proposition and business process model. The link must not only handle inter-relationship between value proposition and business process but also inter-relationship among the proposition, the process and the other sub-models like information systems. Unless using linking method, no one can accomplish e-business architecture model in a coherent way.

3) Building Information Systems

If the method and tool are available for building information systems directly from and based on the e-business architecture model, it would make information systems building easier as well as the systems revising. That would be appropriate for keeping the e-business be competitive.

4) Evolution

All the methods mentioned above have to have such capability as making evolution of the model and/or systems until the e-business life cycle reaches to its end.

4.1) Evaluation

Definitely there is need for the method and/or capability of evaluating the business performance and effectiveness at the modeling time as well as at business run time. Unless such method and/or capability would be available for use, no one can identify what is wrong.

4.2) Change

Need the methods of changing e-business model in a sound way along with improvement requirements. Sound way means not the traditional one that results in a "chaos" situation causing one work a lot with confusions even if changing just a bit of systems and model. Dog year requires need of quick evolution and not take a longer time for changing.

6. Methods

As the author stated in the ICEIS'02 panel[21], there are extensive numbers of methods that are available for use in modeling e-business architecture. However, very few methods have been provided as solutions for fixing the issues stated in Chapter 2 and very few methods allow one to model e-business architecture seamlessly. There are un-neglected gap laid down between business and technical architectures to model.[19] Most of the methods serve for exclusively either business architecture or technical, and seldom serve for both of them. The author has already presented some of the solutions like VPI method for fixing these problems in e-business modeling[19]. The whole method is called Value-centric e-Business Architecture modeling, VeBA.

Value Proposition Innovation Method

In order to have enterprise competitive, value proposition innovation must be a key factor.[5] As competitive situations always change, enterprise value proposition must be kept innovating and should not stall all the time at the same proposition level. How to keep innovate value proposition would become a key factor for enterprise survival. Therefore, value proposition innovation method plays crucial role in e-business architecture modeling. In the VeBA project, a method called Value Proposition Innovation, VPI has been developed and continuously enhanced. The VPI method facilitates diagrammatic representation of whatever innovated and the diagram presents two folded-views, say, descriptive (as is) and normative (to-be), so that architect can make distinction between normative view of value proposition and existing view of it. Therefore architect could be convinced in the proposition.

The VPI method provides procedural steps for value proposition innovation. Though the VPI method itself is somehow complicate, only summarized steps are presented here:

1) Existing Value Proposition
Describe the existing value proposition and ask reasons about as-is: Evaluation is often made from customer view.

2) Disintermediation
Disintermediation of agent: Explore any possibility of disintermediation of existing agents and study any feasibility of disintermediation to see performance and value total increase.

3) New Value Proposition
Envisage new value proposition: find new value proposition carried out by enterprise[5].

4) Reintermediation
Reintermediation: determine new value proposition in detail including redefinition of agent role.

5) Value Map
Depict value map: visualize value map in which value contributors can exchange their value each other.

Under the e-business goals and/or objectives, one can explore value proposition innovation as much as one want utilizing method like VPI. Fig. 4 demonstrates an example of value map from e-trade value proposition innovation, though detail explanation will appear in the next section.   .

6) web-based VPI
Design web-based VPI focusing on interaction among parties. See Fig.6

7) Action Sequencing
Checking sequence of actions taken and concluding e-business model. See Fig 7 and 8.

**7. Case Study**

7.1 Value Innovation

Let's look at trial e-society formation assuming no obstacles mentioned earlier in the Issues Section. In e-trade as an case study, let's assume more than six different parties are involved, say, customer, manufacturer, trader, logistics, services like insurance and bank and government. The value proposition innovation for this example is took place following to the procedures stated above. For simplifying the discussion, every step results are not shown in this paper except most crucial steps.   Fig 4 Global Value map shows existing value exchanged between the relevant parties in upper box and normative value proposition in lower box in the figure. After study of the value innovation, a model has been decided to

disintermediate the trader and government. This innovation brings merit to customer and other parties, though this innovation idea has a possibility of surrendering to strong resistance from disintermediary candidates.
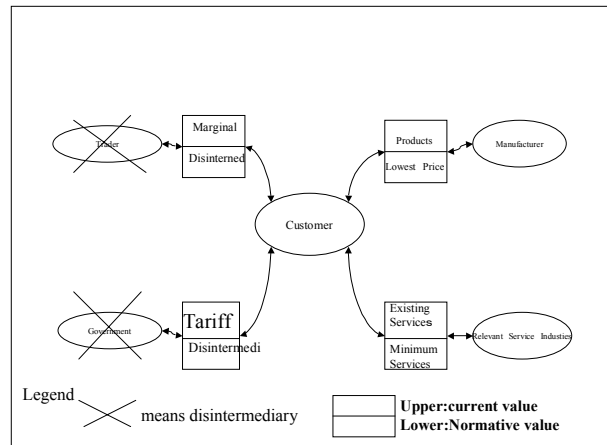
Fig 4 Global View of VPI in   e-trade

Fig 4 shows an idea of Value Proposition Innovation given and taken among parties involved in case of e-trade. In this innovation, trader and government are thought disintermediary, so that they will disappear in the value chain. The other parties like manufacturer and logistics, insurance and bank will not disappear and provide product and services with lowest price.
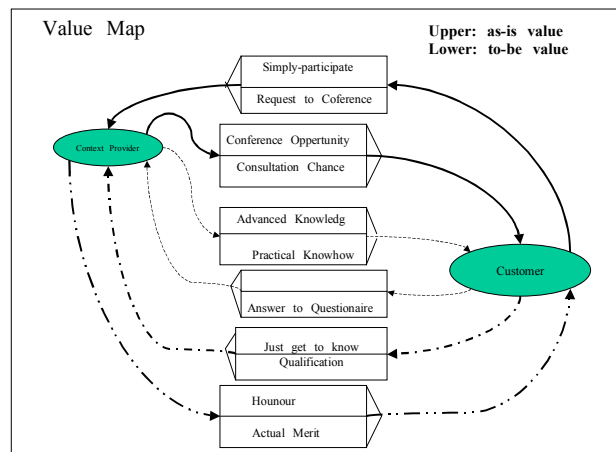
Fig.5 Local View of VPI

Under the global value proposition innovation scheme, Fig 5 shows a local view of value proposition between customer and manufacturer. Consequently, this value proposition scheme allows customer be able to get the best product and services fit to their needs much faster with the lowest price, since extra handlings taking marginal interests will be excluded.

If modeler wants to have information systems model

that will match to the value proposition scheme, then continue to do following the remaining steps of the VPI method. See, Fig. 6,7 and 8 for the results of the design. Fig. 6 represents an interaction scheme with value exchanged between parties involved. Fig. 7 represents chronological sequencing of actions taken by the parties. Fig. 8 represents web-based e-business scheme designed for the value proposition.
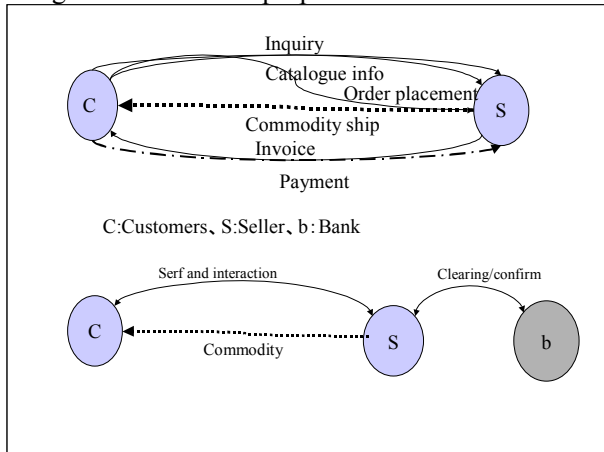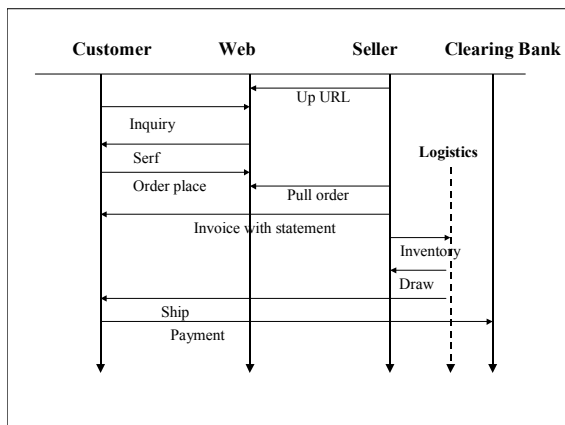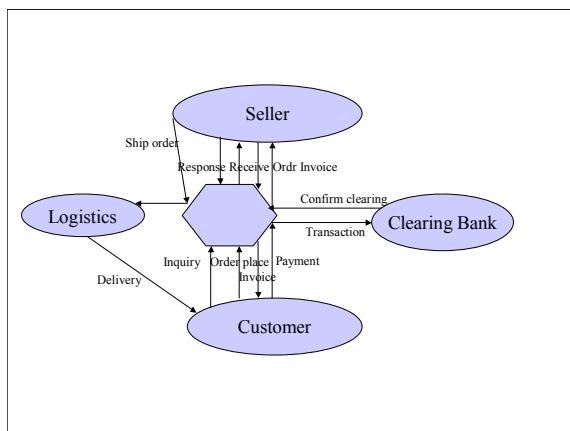

Fig 6 Interactions

Fig 7 Action sequencing

Fig 8 An e-business Model

7.2 Process Innovation Methods

A process innovation method named *Strategic Dependencies* deals with four types of dependencies seen in dependers and dependees involved, i.e., resources consumed, task to perform, goal to achieve, and soft goal to hopefully achieve. The method is used for clarifying interdependencies among parties involved. Starting at existing dependencies, this method allows modeler proceed on to simplify the interdependencies step by step until reaching to the normative process model. Such a model is shown for the same case study e-trade, See Fig.9.
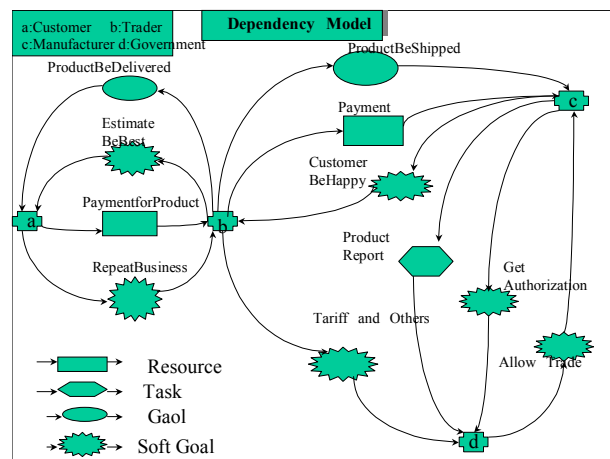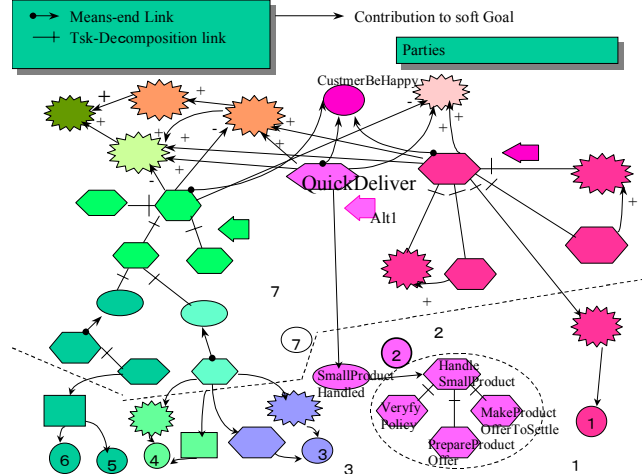

Fig 9 Strategic Dependencies

Strategic Dependency Method allows modeler to simplify existing process, but not always ensure modeler to find optimum solution. For the reason the method allows modeler to identify the means-end links, the task-decomposition and the soft goal contributors and their relationships immanently included in underlining process agenda, so that the method helps modeler to clarify the existing process and to find normative process model, See Fig.10 for a normative process model, a part for the e-trade case study.

Example e-Trade

Fig 10 Means-end Link

The other methods are also available for process innovation purpose other than Strategic Dependency. For example, ARIS, ARchitecture for Information Systems invented by Prof. A. W. Scheer is primarily oriented towards visualizing business process based on the event process control scheme[22,23]. ARIS is proved useful for business process management. The strategic dependency modeling seems powerful for process innovation purpose, while ARIS seems practically appropriate for process management including understanding, improvement, deployment and put the model into enacting information systems.

8. Concluding Remarks

Though those several methods mentioned in this paper have been initially developed for business evolution, the methods are gradually exploited to e-business project and are turned out into e-society project. The methods have been field proven of its usefulness for the modeling purpose.

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