

Information Systems Planning Method Based on Value-focused Thinking

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Abstract: *In the existing ISP methods, the important' role of enterprise value is usually ignored or not recognized in the information systems planning (ISP). Besides, in some ISP methods, there is a connotative precondition that the main body of value is always the enterprise stakeholder. Thus, in ISP, the enterprise stakeholders' value has been recognized while the value of other main bodies has been neglected, which has resulted in boycott and other problems in normalization construction. Based on the existing ISP analysis frame and ways, this article analyzes the enterprise fundamental principle of enterprise value acting on ISP and defines the formation of enterprise value. On the basis of Keeney's analysis way of value focused thinking for decision-making, we induct the factors of enterprise value into the ISP method and set forth such an ISP process : (1) identify the aggregation of enterprise value; (2) conform the objective structure of enterprise levels; (3) determine the appraisal standard for enterprise fundamental objectives; (4) determine the basic structure for information systems ; (5) confirm the data requirements for information systems; (6) give appraisal and comment.*

Keywords: *Enterprise value, Information systems planning (ISP), Value-focused thinking (VFT)*

1. Introduction

At present, under the guidance of our government policy "to promote industrialization with informatization and take the way of new type of industrialization", the enterprise informatization construction of our country has entered into a new developing period. However, the phenomena of "IT investment black-hole" and "information isolated island" have puzzled the development of enterprise informatization due to the enterprise's lack of a holistic planning in the informatization construction. ISP is of great importance for promoting the effect and level of enterprise IT application and improvement of the investment efficiency of the enterprise informatization.

ISP can be regarded as a strategic decision made by the enterprise on its own information system. Its main purpose is to determine the fundamental objectives and structure for the enterprise's future information system so as to enable the information system construction to be in compliance with the business planning (BP) strategy and objective. The literature" sums up the 15Y development into 4 phases : the isolated planning phase (before 1960s), the ordinal planning phase (from the early 1960s to the end of 1960s), the alternation planning phase (from 1970s to the end of 1980s) and holistic planning phase (from the end of 1980s to present). Since 1980s, the development of IT can meet with almost all the business requirements. The purpose for an enterprise to process ISP depends not on what IT can do, but on how to balance the enterprise function with IT investment in order to achieve best economic result. The ISP method based on BPR is a representative one.

In recent years, domestic scholars have put forward some new ISP methods in view of holistic planning. The literature [2], under the guidance of the theory based on the competition advantage of core competency, emphasizes the cooperation of strategic planning with the strategic ISP in business competition, not only considering the demand of the enterprise for its internal information, but also emphasizing the planning for information resources, the enterprise information organization and the recombination of operation flow. Me literature "" has set forth an ISP method aiming at the output, in which the enterprise's objectives and strategy, the activities to obtain, manage and use the information resources and to perform various functions of the information system are all taken as the center so as to determine the enterprise's main output task and then institute the ISP method for the enterprise according to the output task. The literature [4] has set forth a collective frame consisting of enterprise strategy and combined model. In addition, the literature [5] has summarized the consistent researches of BP-ISP strategy in foreign countries. Among numerous ISP methods, people have ignored or failed to emphasize the study of ISP in view of enterprise value and the consideration of making use of the information system to realize the enterprise value.

2. Factors of Enterprise Value in ISP

During the implementation of ISP, the literatures [1][16] offer the analysis frame (see Fig. 1) . According to this frame, the objectives of information systems have to be set from the numerous ISP methods, no matter they belong to the early Critical Success Factors (CSF), Business System Planning (BSP), Strategy Set Transition (SST), End/Method analysis (E/M) or Business Process Reengineering (BPR) system planning methods. To confirm the function and structure of the information system is the main problem for these methods to solve.

In CSF method, the work to set the objectives is mainly done first by identifying CSF of the enterprise and then by confirming the indicators to scale the CSF. In BSP method, first confirm the business operation process and then analyze the data sort to determine the enterprise's future information system structure. In SST method, first identify the enterprise strategy and then transform the business strategy set into

information system strategy set. In E/M analysis method, first confirm the effective standard for the output and then stipulate efficient standard for creating output process.

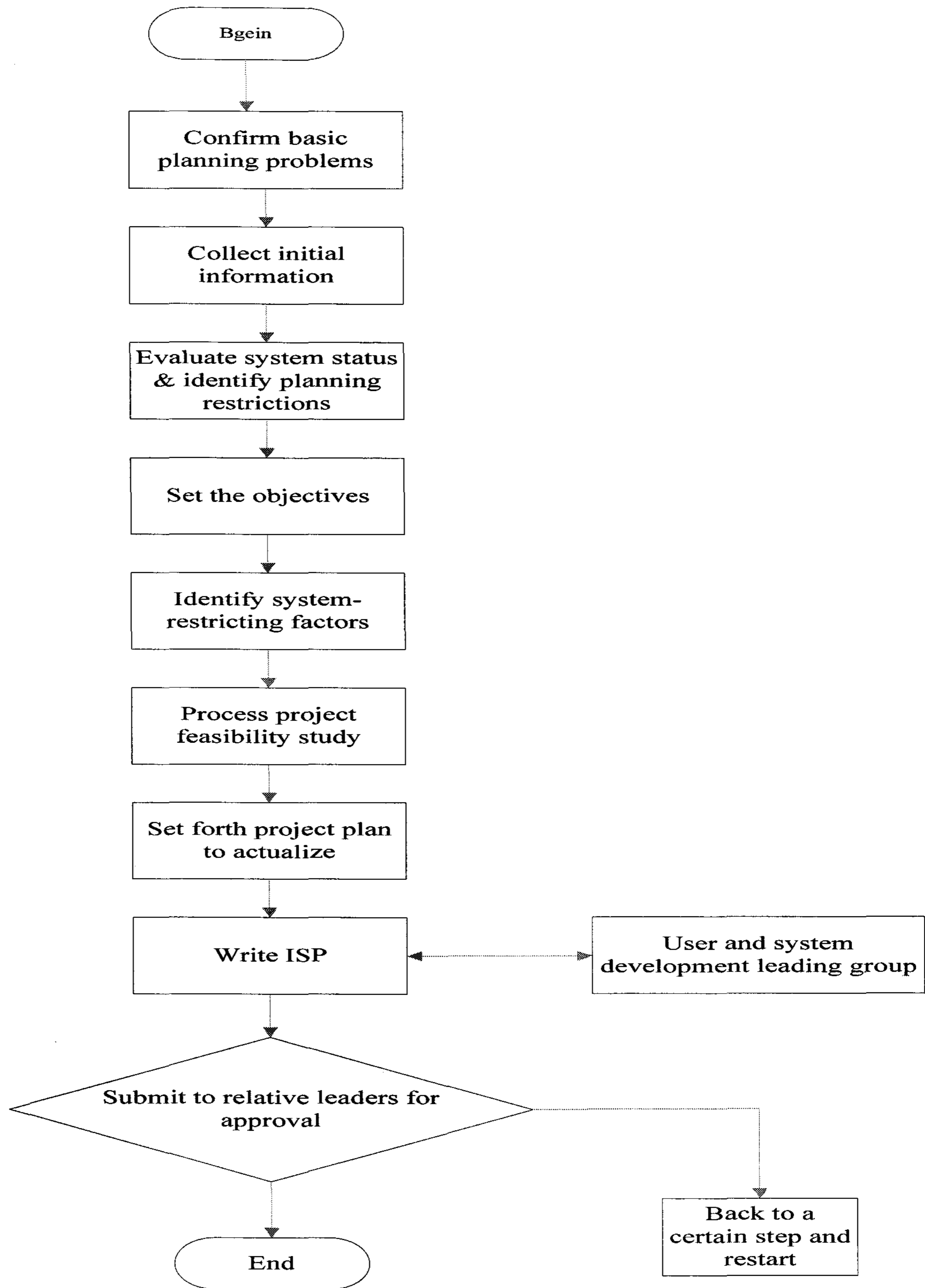


Fig. 1 ISP steps

The system planning method based on BPR is to introduce the operation flow recombination in order to solve the problem that causes the difficulty for planning work in BSP to fit the change of business operation surroundings and the IS development and that finally results in the organization ossification of IT. Comprehensively speaking, as we are always engaged in these common use ISP

methods, we all neglected or didn't focus the critical effect of enterprise value on the establishment of IS objective. We think, no matter when we determine the CSF of an enterprise or when we identify the strategy aggregation of an enterprise, we must take the enterprise value as a starting point.

Here, it is a must to give a definition to enterprise value (EV). Whereas value is only a subjective concept, we think that EV may be regarded as the main body of the enterprise. Therefore, it is the gist to evaluate whether the improvement of enterprise management objective is useful or not. EV may be affected by the surroundings where the enterprise is located, such as the social public value, the customer's value, the enterprise manager's value, the enterprise employee's value, the government's value and the value of the enterprise owner. All these may affect the formation of the enterprise value. Therefore, EV may be regarded as the integration of the different principle parts. The definition is as follow:

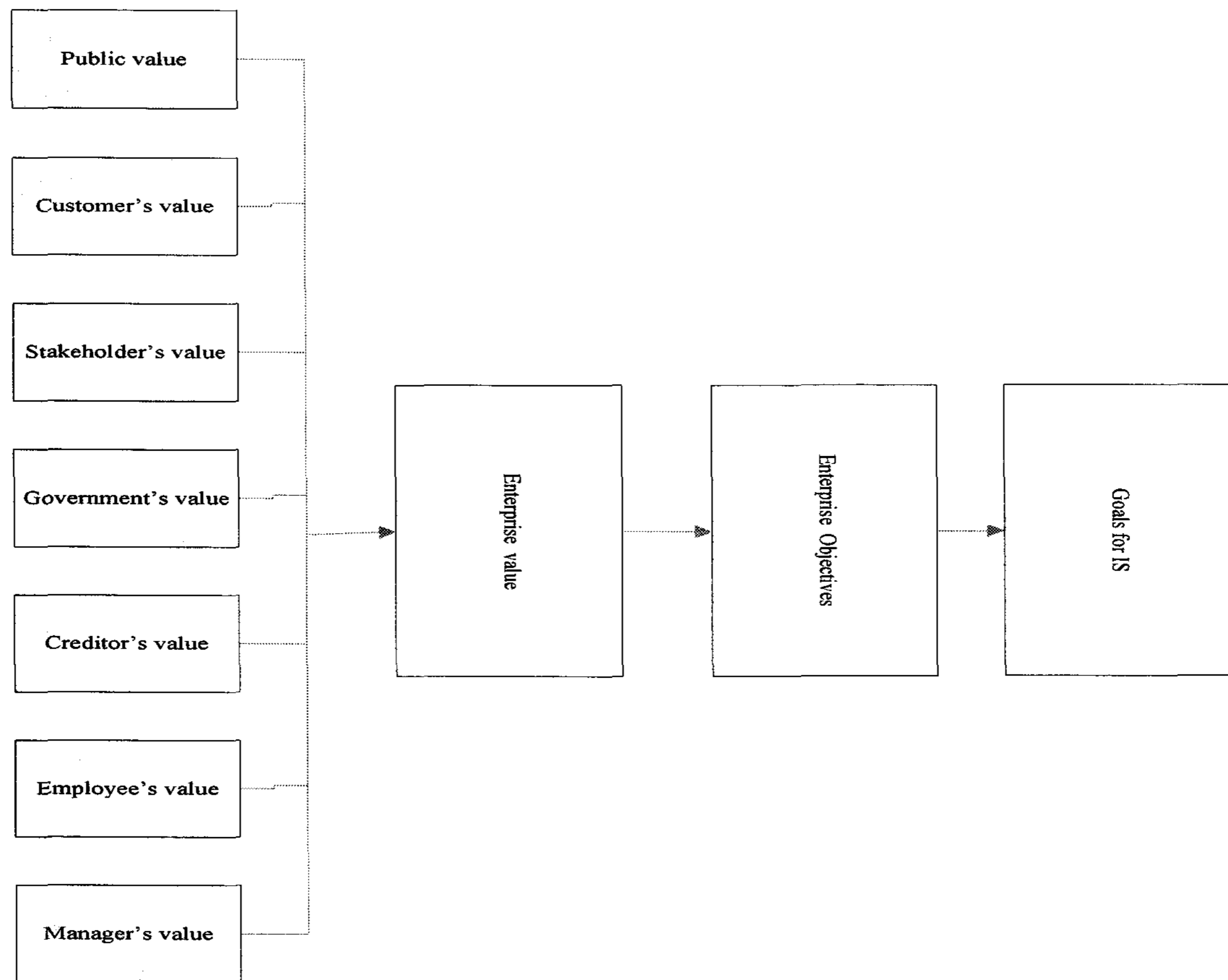
$$EV = f(P, Cu, S, G, Cr, E, M) = P \otimes Cu \otimes S \otimes G \otimes Cr \otimes E \otimes M$$

In which: P---Public value, Cu----- Customer's value, S----sharers value in an enterprise, G-----Government value, Cr----- Creditor value, E----- Employee value, M----- Managers value Due to the contradictions existing among different principle parts, these values should be considered comprehensively during the course of ISP. Up to now, it is hard to find out an effective way to integrate the values of different principle parts into one identical value. However, a basic principle is brought forward here. It is the Pareto Optimality Principle that makes it possible to achieve the result of the enterprise value integration at the cost of no damaging the value of the component factors (e.g. the value of enterprise employees) that form the main body. What should be pointed out is that in some ISP methods, there is a connotative precondition in which the main body of the value is usually the owners of the enterprise. In our opinion, one of the possible causations that result in boycott is that during the IT application only the enterprise owner's value is considered while the value of other principle is neglected.

With Fig. 2, we can explain how the enterprise value factors act on the IS objective in the course of ISP. The process may include: the enterprise value consisting of 7 factor main body values, the enterprise objective determined according to enterprise value, the enterprise IS objective obtained on this basis.

3. ISP Method Based on Value-focused Thinking

As enterprise value in ISP process is a factor that cannot be neglected, by making use of the principle as shown in Fig.2, we set forth an ISP method, namely ISP Method Based on Value-focused Thinking. This method does not only make us fully think of the factor of enterprise value, but also offers us the approach and principle to introduce the PV factor to ISP course.



Note: An arrow means "leading to".

Fig.2 The role of EV in ISP

In the study of management decision-making, the value focused thinking put forward by Ralf L. Keeney is a kind of valuable decision-making method. He thinks [7] that, as for any decision-making subject, value is most important. A substituting scheme is only a means to realize the value in the decision-making course. Between value determination and substituting scheme determination, value always ranks the first. Adopting this idea for decision-making, a better decision can be made. This process is what he calls value focused thinking (VFT). The method includes the following basic steps:

Step One: Determine the fundamental objective for the problems to be solved;

Step Two: Construct the decision-making scheme for substitution that can be widely recognized according to the object and the means to realize the object, not only thinking over the most possibility to realize the scheme;

Step Three: According to the required information needed for the objective, including quantity and nature determination information, evaluate the advantage or disadvantage of the decision-making scheme for substitution.

According to the idea of value focused thinking given by Keeney, based on the ISP analysis frame given in Fig. 1, we consider to introduce VFT to ISP. This method includes the following steps:

(1) Identify PV aggregation

In the form of visiting and holding colloquia, find out the values, benefits and concerned problems of different main bodies related to EV and then obtain the EV

aggregation. In EV aggregation, it is necessary to fully consider the values of different main bodies and meet with the Pareto Optimality Principle mentioned above.

(2) Construct enterprise level objective structure

Based on PV aggregation, convert these values into the values needed for the enterprise fundamental objectives to realize, namely to answer, "What should we do?" The values in PV aggregation are in possession of the compatibility, so that we can form a level objective structure in accordance with different PV.

Meanwhile, we may determine the means objectives accordingly for enterprise fundamental objectives in order to realize the PV means.

(3) The evaluation standard for the determination of enterprise fundamental objectives

According to the enterprise fundamental objectives and means objectives, we may determine the correspondent evaluation standard so as to measure whether the objectives are satisfied and the degree satisfied. At the same time, it is also required to analyze the degree of values related to the value main bodies of the enterprise that are realized in the objectives so as to weigh the gain and loss.

(4) Determine the basic structure of IS

According to enterprise fundamental objectives and means objectives, the objectives with level structure are supposed to be enterprise IS objectives, functions and restrictions. Whereas the IS function structure serves the realization of the values for different main bodies, this process may have to be repeated and instructed again and again by the system analyzers between relevant main bodies until they are recognized by majority of people.

(5) Determine the data requirements for IS.

According to the evaluation standard for enterprise fundamental objectives in (3) of this paper, these objectives can be inverted into the data requirements for IS so as to determine the planning of data management.

(6) Form a complete enterprise ISP to submit to relative authorities for evaluation.

It is necessary to point out that in the appraisal of ISP scheme; a customary way to do is to form an expert's evaluation group in charge of this work. However, in consideration of the character of PV aggregation, we suggest that the different formation of value main bodies must be considered. For example, in the construction scheme of our government to plan electronic government affairs, obviously the social public and enterprise should be brought into the scheme evaluation institution, otherwise, the planning scheme cannot be recognized by the society.

4. Conclusion

To introduce the way of value focused thinking into ISP is an effective trial for us to perfect the existing ISP. We think this method is in full consideration of the important role of PV to ISP and it is constantly drawing the main bodies of different values to take part in the planning course. Enabling ISP to make contributions to the realization of the values of different main bodies. We agree the point of view in the literature^[1] that a single plying method is impossible to implement the enterprise ISP work well use of dent methods.

In further study, we think it necessary to discuss comprehensively about the important role of value factors in ISP and the basic mechanism that affects on ISP so as to provide the gist for consummating this planning method.

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