

ENHANCING STAKEHOLDERS INVOLVEMENT BY SUGGESTION SYSTEM, ALBORZ PROVINCE POWER DISTRIBUTION COMPANY EXPERIENCES

Naser Eskandari
Alborz PPDC
Nasser_eskandari@yahoo.com

Bahman Jamshidieini
Alborz PPDC
bahmanjamshidi@gmail.com

Ali Dadashi
Alborz PPDC
a.dadashi@ymail.com

Hossein Khosravi
Alborz PPDC
HosseinKhosravi1985@yahoo.com

ABSTRACT

The stakeholders' expectations from a distribution system operator (DSO) vary overtime depending on economic growth, energy consumption trends, technological improvements and business environment. DSOs should detect these changes and adapt to them, otherwise they cannot meet their stakeholders' future requirements. Although shareholders and employees expertise play a pivotal role in adaptation process, other stakeholders such as customers, suppliers and other provincial service providers have valuable knowledge about power distribution and consumption that can be used to enhance DSO's flexibility. Therefore, Alborz province power distribution company (APPDC) uses a web-based software to involve all stakeholders in enhancing power distribution processes. In current paper, the concepts and the approach which was chosen by APPDC were introduced and the procedure used to collect, evaluate and implement the suggestion was explained.

INTRODUCTION

The significant portion of DSO income is customers' payment. Therefore, sustainability of a DSO depends on success of its customers. Nowadays, customers' requirements are not as steady as before. DSOs and ministry of energy are trying to understand and predict the future demand of customers and define proper services, tariffs and incentives that support the sustainable success of energy sector. However, it cannot be achieved without active participation of customers, employees, contractors and other stakeholders because the required knowledge is divided among them and optimum solution cannot be achieved single-handedly.

The ability of an organization to proactively, reactively or inherently adapt to its changed environment in the timely manner is called flexibility [1]. DSOs like other organizations that have strong interaction with customers, contractors, suppliers and public sector should adapt themselves to environment, otherwise their capability to provide predefined services will decrease. Therefore, DSOs should listen to all innovative ideas in order to enhance the flexibility of company. Process innovation (performing a current activity in a different way), service innovation (providing a new service) and technological innovation (developing a new technology or using current technology in an innovative application) can be cultivated in a DSO. Smith has identified four types of innovation: incremental (improving or refining the existing

process/service), modular (develop and use of new technology and components within an existing system), architectural (using existing technologies in an innovative way that change the structure of process/services), and radical (introducing a total new design) [2] [3].

Nowadays, innovation is the core of business growth and a result of learning process and interaction between stakeholders. Three concepts should be supported by top management for cultivating innovation: 1- innovation should be integrated into the strategic plans and decisions; 2- create conditions in the organization that allow dynamic innovation networks to emerge and flourish; 3- valuing ideas for fostering innovation culture in the organization [4]. Suggestion system is a well-known and practical approach to supporting new and innovative ideas.

Alborz province power distribution company (APPDC), which provides electricity for more than one million customers, widely uses suggestion system to encourage customers, contractors, employees and all stakeholders to find innovative and effective solutions related to different aspects of business problems. In a few years not only more than four thousands suggestions were received but also hundreds of them have been implemented to increase service flexibility and productivity.

The suggestions sent by customers, employees, contractors and other stakeholders are collected and classified via special software. These suggestions are assessed by a technical committee to ensure that they are not against any laws or regulations. In addition, the cost, benefits and risks of the suggestion are evaluated and finally, the practical and valuable suggestions that passed previous steps are approved and implemented.

In the current paper, the suggestion system which was used by APPDC to involve its stakeholders in making more flexible environment was explained and its advantages were discussed.

POWER DISTRIBUTION STAKEHOLDERS

DSO's stakeholders are every individual and organization who has interest in what a DSO does or an influence upon the energy generation, distribution and consumption as well as expanding distribution network and supporting business process. Balancing the expectations of all stakeholders is a pivotal responsibility of DSO's top management. Although DSOs have many different stakeholders, they can be categorized into internal and external groups.

Shareholders, employees and suppliers are the most important internal stakeholders. Shareholders are the

owners of DSO properties and provide the capital required to maintain power distribution processes. In Iran shareholders of provincial power distribution companies (Iranian DSOs) are governmental organizations. They formulate proper strategy for a DSO and choose a board of directors to implement them. Employees are stakeholders who are not only influenced by the DSO but also have a profound impact on how the DSO operates. In addition, the major part of company knowledge is produced, implemented and preserved by employees. Suppliers and contractors are a group of internal stakeholders that support the value chain of the energy distribution process. There are suppliers and contractors who work in more than one organization so they can play an important role in sharing knowledge and best practices between them. Furthermore, the personnel of network components manufacturers and other service providers have a direct access to the technical data which is not available to the DSOs' employees.

Customers are the most important stakeholders of the power distribution business. They have valuable knowledge about energy consumption trends and economic situation of related sectors. The expectations of customers in terms of cost, power quality and reliability are not constant and the customers are the best source of information which can be used to anticipate future expectations. Local communities, NGOs, municipality and other governmental organization are other external stakeholders that can contribute in energy distribution processes improvement.

SUGGESTION SYSTEM

“Suggestion system is a technique that will motivate the employees to think creatively and to participate in the decision making process [5].” A suggestion system success depends on a few key elements. Expressing top management support is the first element. If managers require the desired result they must be committed and enthusiastic toward the program. Second, employees are more likely to come up with valuable ideas if they understand the company’s mission. Third, visibility is one of the most important elements of a successful suggestion system. All employees should be aware of the program in order to participate in it. For example, periodic progress reports could be very effective. Forth, organization can recruit an administrator to be in charge of suggestion system, Fifth, the accepted and implemented suggestions and their positive impacts should be publicized. Finally, it is possible to distribute a fraction of suggestion system savings as reward among people who participate in offering and implementing suggestions.

Although suggestion system has obvious advantages, sometimes organizations fail in their attempt to implement it properly. If stakeholders believe that organization management is not really interested in their suggestions or

make biased judgments about which suggestions are acceptable, only few individuals offer suggestions. Strict rules, slow response, rejecting suggestion without clear explanation and inconsistent reward can hinder their participation.

ALBORZ PROVINCE POWER DISTRIBUTION COMPANY SUGGESTION SYSTEM

Suggestion system of Alborz province power distribution Company started to work nine years ago. The board of directors of APPDC decided that it is necessary to involve company stakeholders in improving process via integrated system including knowledge management and suggestion system. Nowadays, the majority of employees, a lot of contractors and suppliers as well as many customers contribute to enhance service flexibility. In figure 2 the overview of Alborz province power distribution company suggestion system is shown.

Collecting the suggestions

Suggestion are Collected and classified in APPDC by special web based software. Figure 3 is a screenshot of this software. Everyone can access to this system via World Wide Web, In addition, there is written forms with questionnaire for stakeholder (except employees) who want to send suggestion in papers. In table 1 a few questions of this questionnaire can be seen.

Categorizing and Evaluation of the suggestions

After collecting suggestion, they have been classified into many categories including:

- 1- Suggestion for smart metering, smart grid utilization and smart connection to other provincial utilities.
- 2- Suggestion for offering more flexible, reliable and resilient services to large commercial and industrial customers.
- 3- Suggestions related to bankrupted customers that cannot pay their bills to reduce litigation cost and minimized unpaid bills.
- 4- Suggestions related to people or business that cannot have a permanent connection to grid or connecting them to public network is illegal.
- 5- Suggestions related to providing proper environment for distributed generation.

The collected suggestions are evaluated in two stages. In first stage which is called pre evaluation, the suggestions are checked and illegible, obscure, repeated or irrelevant suggestion are send back to the people who submitted them. Other suggestion divided into two groups. The first group including suggestions which need risk and benefit/cost analysis or checking its compatibility with laws and regulations. These suggestions are sent to expert teams. The results of expert assessment are attached to suggestion in the software and are sent to suggestion system committee. The committee and manage director representative accept or reject the suggestion according to

suggestion context and expert teams reports. Other suggestions that do not need expert evaluation are sent directly to suggestion system committee.

Implementing accepted suggestions and allocating rewards

The accepted suggestions are sent to related department for implementation. When a suggestion is completely implemented, the report of expenditure and saving are sent to suggestion system committee and the reward of people who submit and implement the suggestion are paid. Generally five percent of first year saving are allocated for rewards. If the saving is less than expenditure or the suggestion does not implemented successfully, those people receive small reward due to their contribution.

Suggestion system assessment

The suggestion system of APPDC is assessed and audited annually. The assessment is based on EFQM like model that has eight criteria: Leadership, training and empowerment, involvement culture, organization, knowledge management, incentives, process and result. In addition, total process is audited by independent person. The result of audit and assessment are used for continual improvement of suggestion system.

Figure 4 shows the suggestion system process based on IDEFO.

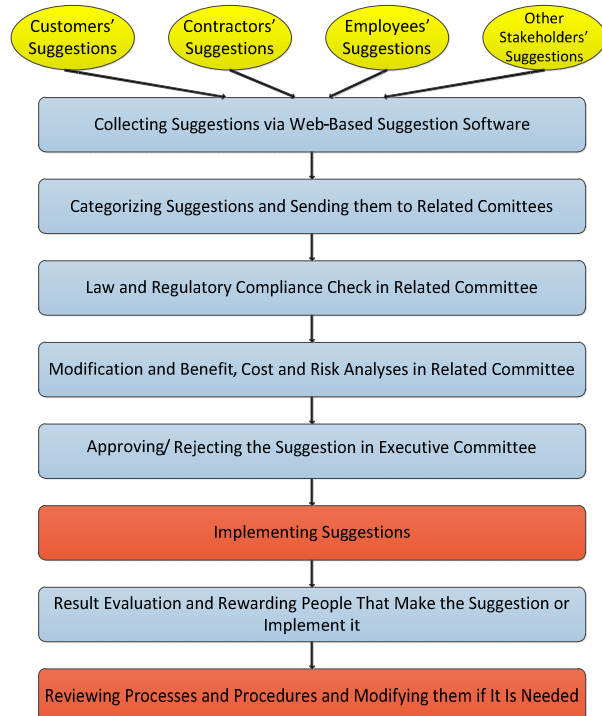


Figure 2: the overview of suggestion system in Alborz province power distribution company

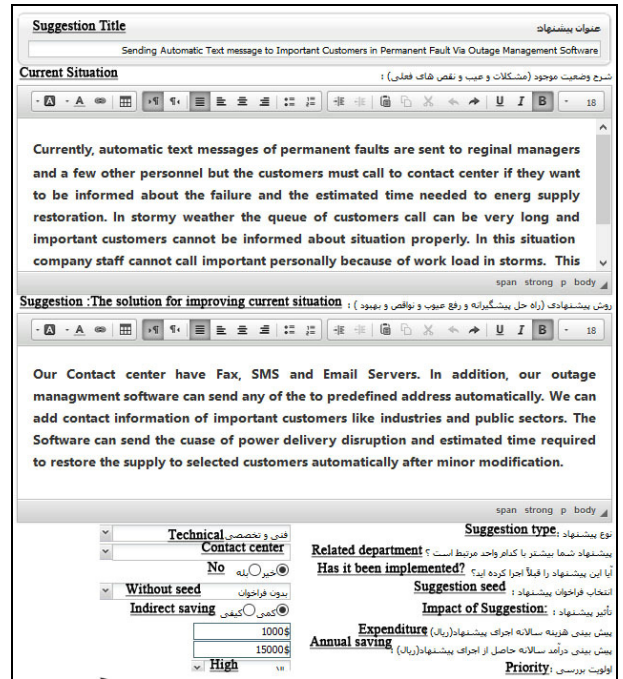


Figure 3: Screenshot of web-based suggestion system software (The underlined text is the translation of Persian text and cannot be seen in original software)

Table 1: part of suggestion system questionnaire

	Question
1	Are there any new technologies in other business sectors that can help APPDC to improve its services?
2	Are there any new technologies which is currently used by other DSOs that can give advantages to the customers and the company?
3	Are there any new ideas about innovative technologies that can be put into use?
4	Are there any ways to reduce flicker, harmonic or other power quality problems?
5	Is the any feasible approach to persuade consumers to reduce the activities that generating harmonics, flickers, overload, ...?
6	Is there any idea for informing customers about planned outage?
7	Is there any suitable way to improve planned outage schedules?
8	Is there idea for mutual cooperation between the APPDC and its consumers for peak shaving and demand side load management?
9	Is there any legal approach to prevent companies from importing, installing and using equipment that has negative impact on power quality
10	Are there any ideas that can improve the mutual cooperation among the DSO, contractors and customers in outsourced activities like installing new transformers or constructing new feeders?
11	Is there any better route to connect costumers' transformers to the grid?
12	Are there any ideas that can reduce the load forecasting error?
13	Are there any information technology based solutions that can improve the relation between APPDC and its stakeholder?
14	Are there any new external resources that can finance network reconstruction or installing transformers or substation for new customers?
15	Are there any ideas that facilitate the financial transaction between APPDC and its stakeholders (especially its customers, suppliers and contractors)?

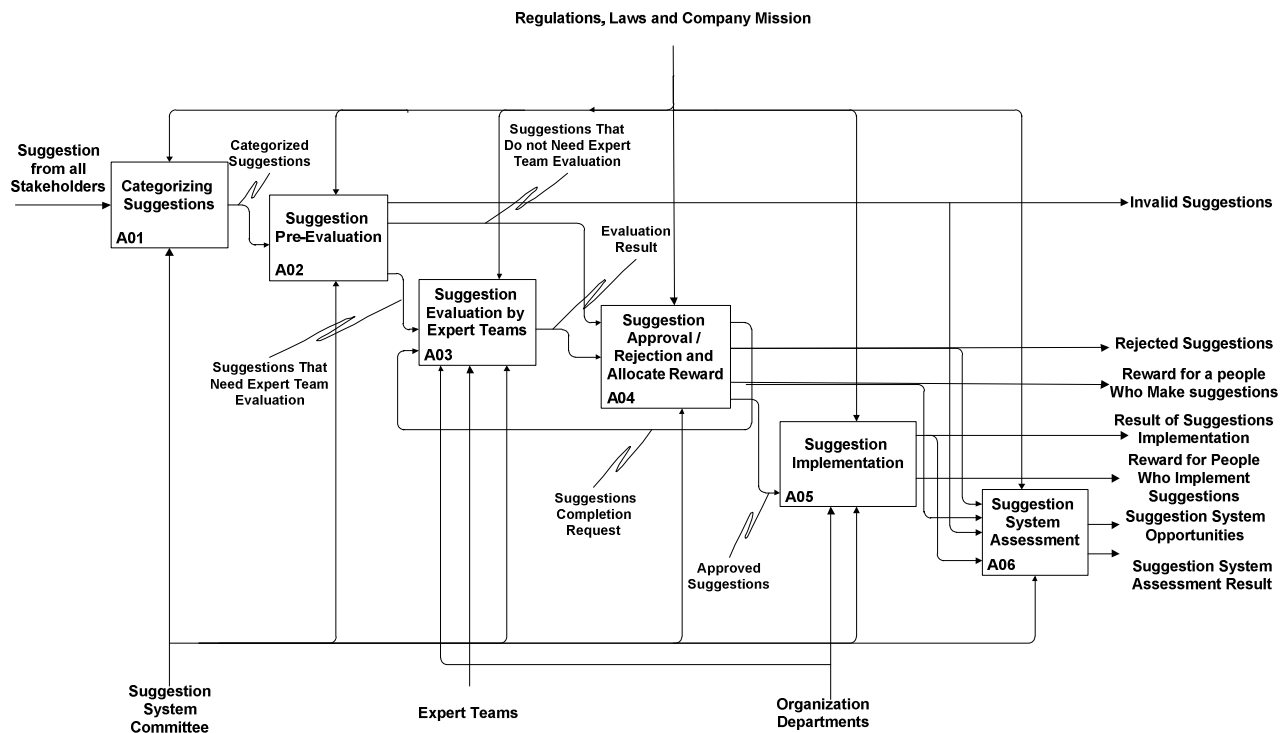


Figure 4: Suggestion handling process in APPDC

THE RESULT OF IMPLEMENTING Suggestion SYSTEM IN APPDC

Suggestion system has been used in APPDC for nine years and more than 4800 suggestions were received and evaluated in suggestion system committee and expert teams. The participation of contractors and employees in suggestion system is acceptable and large share of suggestions were submitted by contractors' employees. In table 2 a few suggestions implemented in APPDC were listed.

Table 2: Part of implemented suggestion list

Suggestion No: 294	Using 40kV tester to examine condition of medium voltage transformers that were damaged
Suggestion No: 438	Using load buster in switching cutouts for minimizing the duration of outages
Suggestion No: 4185	Changing the material and thickness of the textile used in field crew uniforms in order to improve the protection against electrical arcs
Suggestion No: 4378	Using different symbols in outage management software for medium voltage, low voltage and subtransmission outage
Suggestion No: 4456	Redesigning transformer earth system base on IEEE std 142

CONCLUSION

Web-based suggestion systems is a practical tools for collecting ideas of employees, customers, contractors, suppliers and other stakeholders of a DSO. APPDC

experiences showed that valuable suggestions and knowledge can be acquired via this software.

REFERENCES

- [1] Conboy K. And Fitzgerald B., 2004, "Innovative systemic perspectives: Toward a conceptual framework of agile methods: a study of agility in different discipline" *Proceeding of the 2004 ACM workshop on Interdisciplinary software engineering research*, 37-44
- [2] Smith D. 2006, *Exploring Innovation*. McGraw Hill, New York
- [3] Davenport T.H, 1993 *Process Innovation, reengineering work through information technology*. Harvard Business School Press, Boston
- [4] Barsh, J., Capozzi, M.M. and Davidson, J, 2008, *Leadership and Innovation*, McKinsey Quarterly, No 1, 37-47
- [5] Vijayarani S., Radjamanogary, 2013, "Motivating Employees Creativity through Suggestion System – An Empirical Study", *IOSR Journal of Business and Management*. vol. 9 Issue.2, 22-27.