



Change Management Process with IT Support at Manufacturing Company

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Abstract: The dissertation mainly talks about a change management system integration at a multinational company. The goal is to show a real business problem solution. This is a multinational company called Harman. Székesfehérvár plant is a supplier of automotive industry. Produced parts are car audio systems: head unit, amplifier, speaker, etc.. Considering the lot size there is high runner volume production. The daily production is between 1000-3000 pcs/product and the production portfolio is wide. In case of this volume it is absolutely a must to control all the software and hardware changes too: If something changes at these parameters it can affect a high raw material and finished good stock at the warehouse. It is the main reason why the company decided to set up the new process. I got this issue from the Director and started the activities together with a colleagues from the Product Management. I work for this company since 2011 so 5 years ago like an Industrialisation Project Manager and I am responsible for launch activities and other special new projects like this. The direction of the solution was specified by the project core team who decided to create a special software for handling the issue. This software developed by in site Engineers. It can help at the communication because it is a half-automatic informing system what works via mail delivery system. This is also able to follow up the open items traceability. The key of the method that the software gives the tasks for the users automatically and in this way nobody will forget to start the activities in his responsibility. The project was successful because the software is integrated at the company and all the project affected colleagues are able to use it.

Keywords: change management, automotive, industry, production, process, support, solution, IT, software, automatisaton.

1 Introduction

The production process changes are frequent at production corporate environment. Coordination of change introduction makes a challenge for the organisation and

the individuals too. The company management defined that the goal is to set up a process to manage and follow up these activities.

If the corporate does not handle the changes in time than there can be more life situation what can affect the costs directly or indirectly.

- Direct affects are the lifetime of the production raw materials and the finished goods and also if the produced parts are out of ordered product version.
- Indirect affect if the customer loss of confidence because of direct affects and it can be a negative judgement at future business.

2 Process management

The output of the process need to be defined by the goal. A kind of process check, control methode and process development necessary too. The process output must be harmonized with the working rules of the business side. It can be effective if the process use minimal resources.

“The process input can be the output given to a preceding process. A process or in-process activities are usually started by a trigger event. This event can trigger this input or some other event. The process may also include roles, responsibilities, tools and management control mechanisms in order to give the output reliable. The process may define policies, standards, guidelines, activities and work instructions if necessary.” (Dr. Kovács, 2012)

A process basically never completely finished, there is always something to be improved. The literature calls it Kaizen activity.

„Kaizen – Teamwork developed processes mainly used in the production area, but there are many examples that office processes can also effectively applied. The essence of the methode that there is always a point at the production process which can be improved. If we find the bottleneck, and we can improve on it, we can ensure the compary continued growth.” (Bíró, 2016)

An organization just rarely wants to change itself. The organizational restructuring occurs mostly due to external forces or pressure from above. This the radical change, the development and implementation of a new strategy requires to set up a new organisational structure, to create a new corporate culture. These are the tasks of the top management.” (Reicher-Komáromi-Szeghegyi 2015)

„Conditions for building a knowledge-based organization are: build trust within the organization, continuous optimization of communication, stimulate learning and knowledge management. A knowledge-based organization creates virtual,

cross-functional, informal community from functional and formal organisation.” (Szeghegyi, 2011)

The company's knowledge is the knowledge of people working there. The present project has the task to be able to use this knowledge and utilize it. Corporate tries to make the knowledge management more effective with IT support.

The changes are usually completely independent from us and our control. Such as global warming, the change of the seasons or the economic crisis. Also the changes, which we initiate for ourselves can be controlled even if we do it right: For example dieting, new product introduction and in this case a change of a raw material too. There is a huge difference between the two definitions. However in everyday language often use the same word: change. It is necessary to make a difference between the concept of changes.

3 Software introduction at corporates

The information technology significantly contributed to the transformation of knowledge management into an irrespective area. The knowledge management supplement information technology management and IT applications. (Reicher-Komáromi-Szeghegyi 2015)

“A company has a lot of impact, data and information both external and internal environment. To be effective, a company needs to make a difference between the importance and potential impact of the information. Information systems are designed to help companies, organizations in information collecting, processing, storing, retrieving. Need to provide additional information value for the company.” (Sediviné, 1998)

Criteria of complex integrated information system:

„All functional modules of the system are connected to a common database, using its data and sending data to it. The modules are sharing information with each other through the database. External user access to data is controlled by a multi-level, hierarchical authorization system.

External input data are recorded and entered at the generated place so there is no re-recording and multi-generated storing. (Data is applied only once, and appears only once in the database.)

The whole system has a uniform user interface. This means that each input-output access has the same data input and data display format.

The system has internal, built-in auxiliary tools that allow adaptation to company needs, not the original developer, but at the user level not at the developer level.” (Sziray, 2002)

3.1 Supporting software lifecycle processes

„Supporting process subserving is the goal for the primarily affected partners in indirect way. To carry about main processes or organisational processes with special activities.

The support processes are as follows:

Documentation

Supporting the knowledge recording of lifecycle processes: interpretations, requirements, solutions, agreements, decisions, instructions, plans, facts.

Configuration Management

Software systems and software component identification; oversight of changes at versions, review, evaluation, supply, delivery. It also means all of these records.

Quality Management

Includes activities that provide objective assurance for the software products and software processes comply with the requirements.

Verification/Validation

Activities of supplier or buyer for software products checking. Depths depends on the project requirements.

Common review

Status review of project activities or product development. This process can use any two parties in the session where one party can scan the other party.

Revision

This process can use any two parties, where one party (reviewing party) reviews the other party (reviewed party) software products and activities. This activity consists of requirements and contract compliance planning.

Problem Solving

Serve to analyze and eliminate problems during the development, operation, maintenance or other problems in the implementation process (including non-conformity ones).

Change management

At the standard the *Change management* does not appear as a separate process. The description of the configuration management and configuration control follows that change management for software product is interpreted as part of configuration management. (Gyurkó, 2003)

3.2 Company introduction

Harman International Industries, Incorporated is an American company that designs and engineers connected products for Original Equipment Manufacturers, consumers and enterprises worldwide, including connected car systems, audio and visual products, enterprise automation and connected services. Headquartered in Stamford, Connecticut. Harman maintains major operations in the Americas, Europe, as well as Asia and markets its products under more than twenty brands including AKG Acoustics, AMX, Crown Audio, Harman/Kardon, Infinity, JBL, JBLProfessional, Lexicon, MarkLevinson, Martin,Revel, Soundcraft and Studer.

On November 14, 2016, Harman entered into an agreement to be acquired by South Korean company Samsung Electronics for US\$8 billion.

HARMAN has a high position in business sphere at Hungary. At the list of the most profitable companies at Hungary regarding the export turnover it has the 18th position last year.

4 Implementation

The company's main activity is the high runner series production, but the factory is responsible for this activity in preparation as well. This is the new product launch process. During the New Product Introduction activities are: product design process and adaption of the production lines, processes and resources for high runner series production.

After the prototype phase, a base process can be set up regarding process implementation. Several factors must be considered. It would be able to produce the parts. This process must be approved by the customer and all the department managers and the director too. Sample production phases are differenced depending on production process development level.

The product and the processes can be improved further, based on sample production problems and customer feedback. All development applications must be approved by the circle mentioned above. This is followed by the introduction of change.

All of these processes together are called change management. In order to increase the efficiency, the company has created a database. With this software they can follow the introduction of changes (over time, status).

The company's change management system applied at 'C and D' phases of production (the automotive industry identifies these like serial production period). In front of these, at product and process development phase (A and B sample) enforce other regulations.

Basically all the employees can request a change. Of course a good reason needed. In some cases the change documentation must be applied and sometimes it is just a possibility.

The request starts with an electronic form initiation.

Form is educated for all employees who might be involved in this area, for example Engineering. The form must be sent via e-mail to the administrator, who will start the approval process in a documentation system.

There are three options:

1. After the approval of the responsible persons, the requestor will receive a confirmation of the feasibility of introducing change.
2. The requestor get a restriction on a parameter, which can be accepted by her/him.
3. Further investigations can be asked from the requestor's side, what is forwarded to her/him. The perform must be coordinated.

If a change request is reviewed and approved, the administrator need to communicate it to the affected colleagues, who are concerned in. They should ensure strict compliance with the deadline of the introduction. For supporting this process the company developed a software, called Change Request Database.

The ISO standard does not define specific operational tasks for change, only specifies general principles. After engineering and auditing proposals the management defined the goal: A real efficient system should be integrated at plant Székesfehérvár, what is able to avoid the delays and misunderstandings.

The software developed by an internal IT team. They take part at the introduction from the beginning to the daily routine. In that way they are able to respond for all emerging issue.

This database is a semi-automatic change management support system. The software notifies automatically the colleagues via e-mail. They are associated with a specific change request. The tasks can be carried out at the same time, or built on each other as well. The task list is specified by the core team in advance. After completing a task it must be documented in the program. The system will alert those colleagues who are the next participants at the priority list . After finishing the whole task list, the change request is implemented.

Conclusions

Basically, the project is a success. The company has established a process and developed himself a supporting software, which is able to facilitate the introduction of the changes. All the future users got a documented education about the software. The database has been helpful in coordinating hundreds of changes already. Continuous improvement of the software is a self-reinforcing process, because of user laziness. It is important to work with pure data software and to have a person responsible for this in the organisation. (Reicher 2014) It does not require technical review process anymore, as the colleagues do not like unnecessary work. Without asking them, they indicate the system administrators, if an error is found in the process. The process development team is also pleased with this, as it seems that the database used continuously. They work is easier with this behaviour.

Some workers do not like to use the system. They feel it, like a new administration task. But actually it saves time for everybody at the organisation. With this process, they can concentrate to their own expert job, it is not necessary to focus on the management issues. If a colleague fails to carry out her/his task in the scheme, the distribution chain is broken. This shifts the introduction of a Change Request.

Therefore now the next task for company management is to show them what are the reasons behind the new process, and why they must use the database. Motivational tools can help in understanding too.

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