Analysis of Quality Management System Audit in a Selected Organization

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Abstract: *The objective of the paper is to show a process of internal audit of quality management system in a selected production organization and analyse it. Internal audit was performed according to the technical norm ISO IATF 16949:2016. Internal audit of a system was elaborated in a production organization focused on automobile components. First, we analysed time schedule of internal audit system. Audit was divided into three days. We audited branch in Trnava and two branches in Levice. After audit we elaborated a report from the internal audit where findings were registered during audit. These were divided to the main variations, fine deviations and potentials for improvement. Within audit we found one main deviation in Levice, in the branch called Géňa risk analysis for all the production processes (process FMEA) was not elaborated. For this deviation and for other fine deviations we made a catalogue of corrective actions. These are necessary to be implemented into processes of organization. We also made a catalogue of actions for improvement potentials, which enable us to gain higher effectiveness of production processes.*

Key words: *internal system audit, quality, quality management system, ISO IATF 16949.*

INTRODUCTION

People have focused on products meeting their personal requirements. Nowadays, all the organizations have set up quality management systems. The expression quality management system nowadays might also be a marketing move. Quality management systems are defined by a set of norms ISO 9000. It is important to improve and implement this system. To make it effective enough, though, it is necessary to continuously improve it and control it. And that is what quality management system audit serves us for [9,11].

The expression audit can simply mean a specific control of a subject or system. Quality management system audit serves us for systematic, regular research of effectiveness and effectivity of quality management system and looking for opportunities for continuous improvement [1,12]. The basic norm for quality management system audit is STN EN ISO 19011:2012 norm, the manual for quality management system audit or system of environmental management. Organizations focused on automobile production and production of their components are audited according to a technical norm ISO IATF 16949:2016. Audits are performed in the internal or external form, whilst we can perform audit for an individual product or the whole process [3,4,10].

MATERIAL AND METHODS

Quality management system is now inseparable part of customers´ imagination about quality. For an organization it is important to have working and effective quality management system. To confirm effectiveness of a set up quality management system we may use the internal audit of the system [5].

The objective of the paper is to describe and practically display the process of internal system audit in a production organization. Internal audit provides us with a picture describing how an audited system in an organization fulfils requirements of ISO IATF 16949:2016 norm. Furthermore, it is necessary to describe a time plan and audit schedule, which shows us the overall imagination about performed internal audit. It is important to process a report about audit after performing internal audit in an organization with findings recorded during audit [14]. Consequently, a catalogue of corrective actions for the shortcomings of the organization´s branches, is processed from a report on audit. These actions are then implemented from the catalogue into processes in an organization and verify them [6, 13].

Time plan of audit

Analysed audit of quality management system was done in an organizational unit of a production organization in Slovakia in Trnava and in Levice. It is internal audit of system. The objective of this internal audit in an organization was to receive a proof of permanent utilization of quality management system and confirmation of fulfilling requirements on certification according to a new norm ISO IATF 16949:2016, which replaced the old norm ISO TS 16949.

A place of internal audit of system wa a branch in:

− Trnava – production, machining parts and assembly,

− Levice: branch Géňa – machining of parts and branch Levitex – production and machining.

Auditor team was made of the head auditor and assistant auditor. Internal system audit in an organization is made based on pre-set time plan of audit which is done by a quality manager. Audit plan is clearly divided according to chronology of performing audit from the beginning till the end. Internal audit of quality management system is performed regularly once a year. Within internal audit according to IATF 16949:2016 norm, we audit specific branches and processes according to selected parts of the norm, not according to the whole norm.

RESULTS AND DISCUSSION

Characteristics of the organization

The organization was established in 1915 by Maag and Alfred Colsman. It is a worldwide technological leader in technique of propulsion and chassis, as well as in the area of passive and active security technique. The organization employs approximately 146 000 employees and it is made of 230 branches in almost 40 countries. In 2017 it reached a turnover of 36,4 billion euro. The company belongs to the biggest sub-contractors of automobile industry in the world.

The headquarters of the company are in Trnava, Slovakia. In Slovakia, it has five production localities – in Trnava, Levice, Šahy, Detva and in Komárno. Nowadays, there are three operating units of the company:

− Operating unit Modules of driving gear in Trnav, Levice and Komárno

− Operating unit Modules of damping in Levice and Šahy

− Operating unit Chassis components in Levice and Detva

Report of the internal audit

Internal audit in a production organization is made before realization of external audit of quality management system in the given organization. We can, therefore, state, that it is a kind of preparation for the external audit, which may help the organization to reveal possible errors and shortcomings. Consequently, the organization has time to eliminate these shortcomings before performing the external audit and accept potentials for improvement in the future.

After finishing the internal audit we elaborated a report from the internal audit, containing a list of auditor findings during audit. They are:

− MNC (main non conformity) – the main deviation,

− NC (non conformity)- fine deviation,

− OI- potential for improvement.

The main deviations are deviations which may, quite significantly and negatively, influence production processes and they are not in accordance with the norm, according to which the system is audited, therefore it is necessary to pay attention to them [2].

Fine deviations do not have a significant influence on processes, however these may gradually end up like the main deviations. These deviations must be watched right after the

main ones.

In table 1 we can see the report from the internal audit, displaying findings in all the branches of the production organization, showing adequate chapter of ISO IATF 16949:2016 norm, to which they belong. The findings are described by brief and clear way and they contain a place of the mismatch. The report from the audit is one of the main documents, elaborated by the main internal auditor. This document is then delivered to the quality manager of the production organization [2].

Table 1 *Report of the internal audit*

№	Finding	Evaluation
1	Géňa: There is no risk analysis for all the production processes (process FMEA).	MNC
2	At the department of product development there was no proof of a level of workers´ training in the area of: risk analysis, FMEA of a product, safety of a product	NC
3	Géňa: Production, a change in production. Number of production: 42953998, number of a part: 07113998, it was not presented from the quality department. Recommendation: protocol must be a part of documentation of releasing the first piece, if not, service sees that release was not performed. It is necessary to perform repetitive release in case of big production order min. 1/day.	NC
4	Levitex: Transport units on an assembly line V6 are contaminated on the outside and show significant contamination inside. There was no description of the process presented, for cleaning transport units. From the whole level of contamination, it is clear, that cleaning is not performed regularly.	NC
5	Géňa: In case of a claim no. 272 /2018, no steps D1-D3 were performed. In case, the claim was done by a supplier, a team must be created, a problem described and immediate action accepted.	NC
6	Trnava: Quality assurance: claim, number 1800784, part number: 90700004645, missing screw. In 8D programme it is stated that revision of process FMEA was not updated.	NC

Catalogue of corrective actions for the main and fine deviations

After finishing internal audit of quality management system, the head internal auditor elaborates and sends a report on internal audit to a quality manager of the organization. They must then elaborate a catalogue of corrective actions. During audit we found one main deviation, five side deviations and seven potentials for improvement. The main deviation in the internal audit was a finding in Géňa branch, saying that there was no risk analysis (process FMEA) elaborated for all production processes. The main deviation is always monitored and has a priority during elaboration of a corrective actions catalogue [2].

Preventive actions are also recorded in a catalogue of corrective actions (PA), which may help the organization in the future, to prevent deviations. For one finding, more preventive actions can be elaborated. Another part is responsibility for the given corrective and preventive actions, where a function of a worker responsible for performing these actions, is described. Moreover, even the date up to which the actions must be taken, are a part of a corrective actions catalogue as well and documents must be sent to the head auditor for approval. Corrective actions catalogue of internal audit is recorded for 3 years at the quality manager.

***Table 2** Continuation of the report from audit*

№	Finding	Evaluation
7	Levitex: Not measured effectiveness of processing complaints from 0 km (length of processing a complaint)	OI
8	Trnava: Warehouses and areas of material acceptance. It is necessary to implement 5S. In the areas behind the shelves there was a mess, scrap, a bicycle. Recommendation- to mark places determined for supplies of operating material, spare parts and series supplies.	OI
9	Various areas – problems with documentation, e.g. documents were not filled completely or not completed activities within 5S. Levitex: Incorrectly filled cart of releasing the first piece, establishment plan no. 06308255 404/234 did not meet requirements of a managed document.	OI
10	Development: information from the lessons learned must be transferred to a control list	OI
11	Trnava: checkout - nowadays 35 claims are opened, partially from 2017, comparison of the status in a SupplyOn system and SQR database.	OI
12	Maintenance: from the first sight it is not clear from the system, when the maintenance is transferred	OI
13	Trnava: On a pressing machine during production of a pump before assembly in a production of changers, there were parts placed on one transport trolley with a different level of processing. Storage places on a trolley, are not marked. Status of parts is not clear. Within repetitive insertion of a part into a machine, it can be damaged.	OI

Corrective and preventive actions for individual findings

Finding 1:

Corrective action - to process FMEA for missing production processes.

Preventive action – review of all the processes P-FMEA and review of actual state of FMEA on production branches.

Finding 2:

Corrective action – to ensure training for all the employees of a development department as for risk analysis, D-FMEA and product safety.

Preventive action - together with a human resource department add training of D-FMEA and risk analysis and product safety into a list of trainings compulsory for development employees

Finding 3:

Corrective action – in case of performing measurements on trial machines out of workplace, it is necessary to always enclose a protocol from measurement to adequate production order.

Preventive action - PO1 – retraining of workers in accordance with the local regulation DL 10-03 Q: Examinations in a production process. **PO2 –** add a control of protocol presence into a first piece card in case the measurement is performed on a meter outside the workplace.

Finding 4:

Corrective action – to check transport units as for cleanliness and congestion. If necessary, clean the transport unit or re-pack the parts to different units.

Preventive action – to define a procedure of cleaning transport units and the way of its control.

Finding 5:

Corrective action – to check claim no**.** 272. Add the missing data.

Preventive action – PO1 – to check all the claims from 2018 and if necessary add the missing data. **PO2 –** to add local regulation DPL 19-01 Q and procedure by claim from a customer, caused by a supplier.

Finding 6:

Corrective action – to check claim no. RMS 1800784. To harmonize information in 8D programme with performed actions in reality.

Preventive action - PO1 – to check all the claims from 2018 and if necessary to add the missing data. **PO2 –** on a regular monthly basis take out RMS list of 8D reports, stating necessity of updating P-FMEA and check whether it was reviewed in reality.

As suggestions for improvement, we propose checkouts from corrective actions catalogue an potential actions for improvement catalogue, elaborated after internal audit of system. These are inevitable to be effectively implemented into production processes of the organization to effectively fulfil their purposes. We suggest retraining of the employees to be informed with these changes. These actions provide increasing and maintaining of quality in production processes and ability of organization to fulfil requirements of the norm, according to which the audit of a system was done. It logically results in a lower number of claims, meeting requirements of customers and decreasing internal costs on nonconforming parts.

CONCLUSION

Audit of quality management system has a significant position in an organization. The findings of the audit can significantly influence effectiveness and correctness of production processes in an organization. In case of finding big number of main deviations, we must reveal reasons and propose corrective actions for these deviations. Correctly working quality management system can widely influence quality of produced parts.

The objective of the paper was to analyse and describe a process of performing internal audit, especially audit of quality management system in a production organization for production of automobile parts and elaborate catalogue of corrective actions and catalogue of actions for potential improvement for findings. Audit of quality management system was up dated according to the ISO IATF 16949:2016 norm which must be set up if the organization wants to produce parts for automobile industry.

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