

Chapter 8

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EVALUATION OF SUPERIORS WITH THE USE OF 12TH GOLDEN RULES OF TOYOTA AND THE BOST RESEARCH IN A COMPANY FROM MACHINERY BRANCH

Abstract: The chapter presents the utilization of 12th golden rules of Toyota, workers opinion and the BOST research in aim to superiors' evaluation in a company from machinery branch. Numerical and percentage structure of answers in a range of superiors' features classification into one of 4 category was presented. These structures was presented in graphical way with the use of bar charts and box and plot diagrams – to show on basic statistical parameter distribution, such as: median, quartile and range. The analysis indicated which managerial skills were positive or negative evaluated, so which features must or should be improvement in the next step. Skills of management which must be change immediately according to employees are: leaders must be more open-minded on crew's self improvement, they must be critical but in a discreet way and they must inform about events in organization.

Key words: BOST research, managerial features and skills, 12th golden rules of Toyota, responses structure, statistical analysis.

8.1. BOST research and its implementation in superiors evaluation

A BOST research was elaborated by prof. Borkowski, Director of Institute of Production Engineering, Faculty of Management in Technical University in Czestochowa, who give this toll his name (acronym derived from the first two letter of name and surname of the research method's

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author). The BOST research, exactly the BOST poll is coming with prof. Borkowski fascination of Toyota and their management and production system, which is in essentially way presented in Toyota house model and was described in detail in the book of *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer* by Jeffrey Liker. In his book Liker calls the Toyota Way "a system designed to provide the tools for people to continually improve their work." The system can be summarized in 14 principles (LIKER J.K. 2005). The BOST research is known as Toyota management principles in question, is a toll which contains set of questions that allow to estimate production and services companies and their resources for the sake of utilization of modern rules of management in the context of Toyota's achievements. The name of this toll and the structure is protected by law (BORKOWSKI S. 2012a).

The BOST is a research tool that uses a questionnaire technique aimed to workers and their superiors opinion collecting as the source of opinions about the organizations that apply Toyota principles. This method can be successfully applied in the analysis of both production and service organizations (at production companies, administration, banks, hospitals, shops, schools and administration units) (BORKOWSKI S. 2012b, BORKOWSKI S. 2012c).

The BOST poll contains 4 part. In the first part elements of Toyota house's roof are evaluated, that is mean: quality, cost and so on, in the next - set of question of importance of the elements of Toyota management principles should be estimated, in the 3rd part there are question which are elaborated to superiors evaluation, in the 4th part workers or superiors evaluated their self. The final part of the survey includes the respondent's characteristics and identification of the business nature of analyzed enterprise or institution.

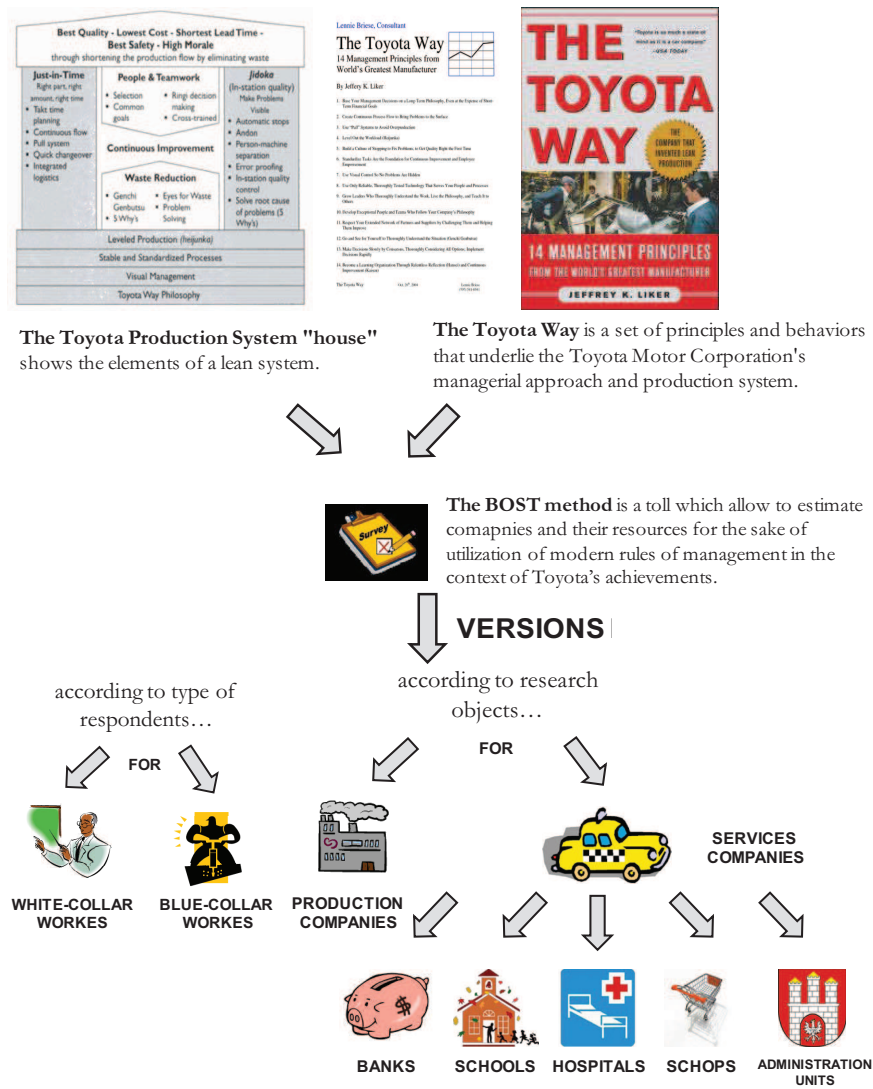


Fig. 8.1. Type of the BOST research.

Source: own study

The structure of the BOST poll was presented in the Fig. 8.2.

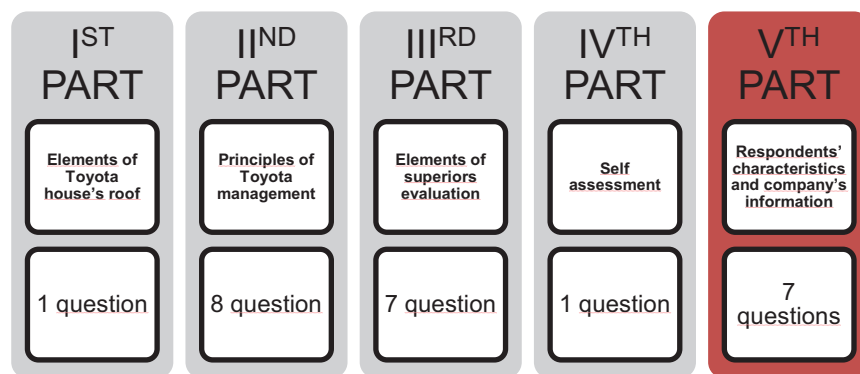


Fig. 8.2. Structure of the BOST research.

Source: own study

In the BOST research superiors are evaluated according to 4E+1P rule, according to 12th golden rules of Toyota and according to the rules of the Toyota leaders (BORKOWSKI S. 2009) (Fig. 8.3). The chapter will present the results concerning superiors evaluation according to golden rules of Toyota.

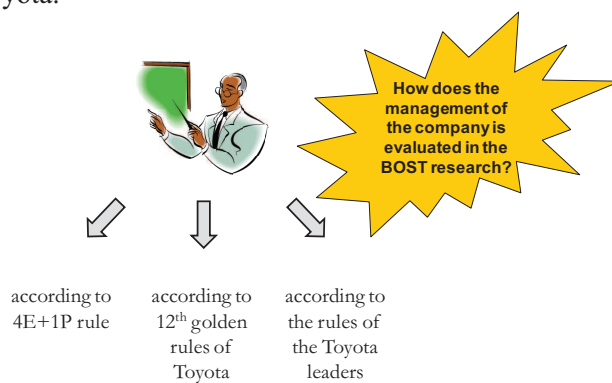


Fig. 8.3. Ways of superiors evaluation in the BOST research.

Source: own study

The scope of the superiors features in accordance to golden principles of Toyota leadership model was presented in description of the E10b questionnaire part (KLESZCZ A., BORKOWSKI S., DYJA K. 2009).

E10b. The superiors characteristics

Please, tick appropriate answer with using the following marks: 1- Yes, 2- Rather Yes, 3- Rather Not, 4- Not (place the mark „+” in appropriate window)

E10b. Assessment of the superiors in accordance to golden principles

	1	2	3	4	
KA					Gives a good pattern
KB					Inform about activities objectives
KC					Inform about events in the organization
KD					Asks workers for an advice
KE					Promotes the implementation of the tasks
KF					Directs and requires
KG					Allows for self-improvement work
KH					Expresses appreciation for a well done job
KI					Expresses publicly thanks
KK					Criticizes in a discreet way
KL					Forgives and encourages good performance
KN					He/She is open to the ideas of the crew

Assessment of the superiors made by employees can present the main qualities of the organization leaders desirable by workers. It enables to verify position of the leader in the organization what results from the workers opinion.

8.2. Research analysis. Structure of ratings

The main objective of the research study presented in the paper was an analysis of selected issues and opinions of employees on superiors and

their features in accordance to Toyota principles that promote philosophy based on the responsibility and respect with regard to workers. The practical goal is to provide preventive measures, which should contribute the management system improvement (BORKOWSKI S., STASIAK-BETLEJEWSKA R., KNOP K. 2013).

The survey on the superiors' features in accordance to Toyota golden principles was conducted in the chosen company from machinery branch, where 34 workers expressed their opinion.

Percentage summary of ratings in the scope of evaluation of superiors skills and features according to 12th golden rules of Toyota. The results were presented in Table 8.1.

Table 8.1. E10b. Evaluation structure [%]. 12th golden principles

Result	Principle's denotation											
	KA	KB	KC	KD	KE	KF	KG	KH	KI	KK	KL	KN
YES	38	18	6	3	29	41	12	15	12	12	15	29
RATHER YES	44	47	38	21	44	50	32	35	18	35	53	47
RATHER NOT	12	21	29	35	15	6	41	24	44	12	18	15
NOT	6	15	26	41	12	3	15	26	26	41	15	9

Source: own study

Numerical summary was presented in graphical way in the Fig. 8.1a. Ratings "1" and "2" indicate on positive features of superiors, ratings "2" and "3" indicate on negative features. If we know part of positive ratings (sum of rating "2"+"3") we could calculate quotient of ratings POZ/NEG, which indicate, in case of when part will be higher than 1, on supremacy of positive features, whereas, when share will be lower than 1 - on supremacy of negative features. Summary of calculation quotient of POZ/NEG was shown on the Table 8.2 and Fig.8.4b.

Table 8.2. E10b. Value of POZ/NEG quotient. 12th golden principles

Result	Principle's denotation											
	KA	KB	KC	KD	KE	KF	KG	KH	KI	KK	KL	KN
POZ/NEG	4.67	1.83	0.79	0.31	2.78	10.33	0.79	1.00	0.42	0.89	2.09	3.25

Source: own study

In addition, it was calculated the difference between positive and negative ratings (POZ-NEG) as regards the managers' characteristics. In case of a positive result, the characteristics of managers are positively perceived by the employees, when the result is negative, it means that managers are evaluated negatively by employees in the indicated characteristics. The greater the difference between the assessments the more the diversity of results. Result's calculation of the difference between POZ and NEG are shown in Table 8.3 and Fig. 8.4c.

Table 8.3. E10b. Difference POZ - NEG. 12th golden principles

Result	Principle's denotation											
	KA	KB	KC	KD	KE	KF	KG	KH	KI	KK	KL	KN
POZ-NEG	64.7	29.4	-11.8	-52.9	47.1	82.4	-11.8	0.0	-41.2	-5.9	35.3	52.9

Source: own study

The relationship between positive and negative ratings are presented as the number of evaluations between the percentage share of positive and negative ratings (BORKOWSKI S., ROSAK-SZYROCKA J. 2011a, BORKOWSKI S., ROSAK-SZYROCKA J. 2011b, KLESZCZ A., BORKOWSKI S., DYJA K. 2009), this relationship is shown in Figure 8.4d.

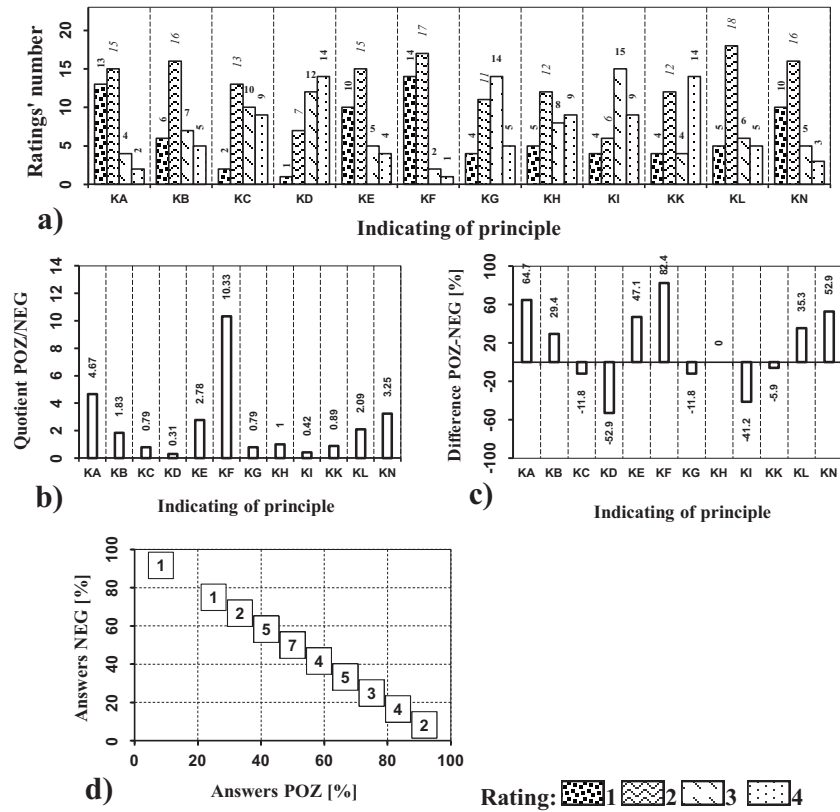


Fig. 8.4. Characteristics of research findings on superiors' features on the golden principles basis: a) number of ratings, b) quotient POZ/NEG, c) difference POZ-NEG, d) relations between POZ and NEG.

Source: own study

It can be stated, on the analysis of research findings (Fig. 8.4a), that the most positive superiors' feature, in the opinion of the researched company(workers) is feature labelled KF (Directs and requires) and KA (Gives a good pattern). Those features relate to the management style connected with involvement of the managers in the workers team by

directing them in task realization and encouragement of workers to think about work results ahead.

The most negative superiors' features, in the workers' opinion (Fig. 8.4a), are features labelled KC (Informs about events in the organization) and KG (Allows for self-improvement work) and KK (Criticizes in a discreet way). As it can be concluded, communication in the examined company doesn't run smoothly - managers of the examined company don't used to inform about events in the organization, they also aren't open-minded on crew's self improvement and when they criticize, they don't do this in a discreet way.

The highest diversity the workers opinion (Fig. 8.4c) was noted in the case of superiors' feature labelled KF (Directs and requires), and the lowest diversity concerns opinions on feature KD (Asks workers for an advice).

It was used the box plot diagram for graphic presentation relationships between the selected statistical parameters (OSTASIEWICZ S., RUSNAK Z., SIEDLECKA U. 1999). Box plot diagram is designed to show the value of such parameters as median, quartiles (Q_1 and Q_3) and range (minimum and maximum value) for a set of ratings on the characteristics of managers.

Box plot diagrams for analysis of the distribution of basic statistical parameters are shown in Figure 8.5a.

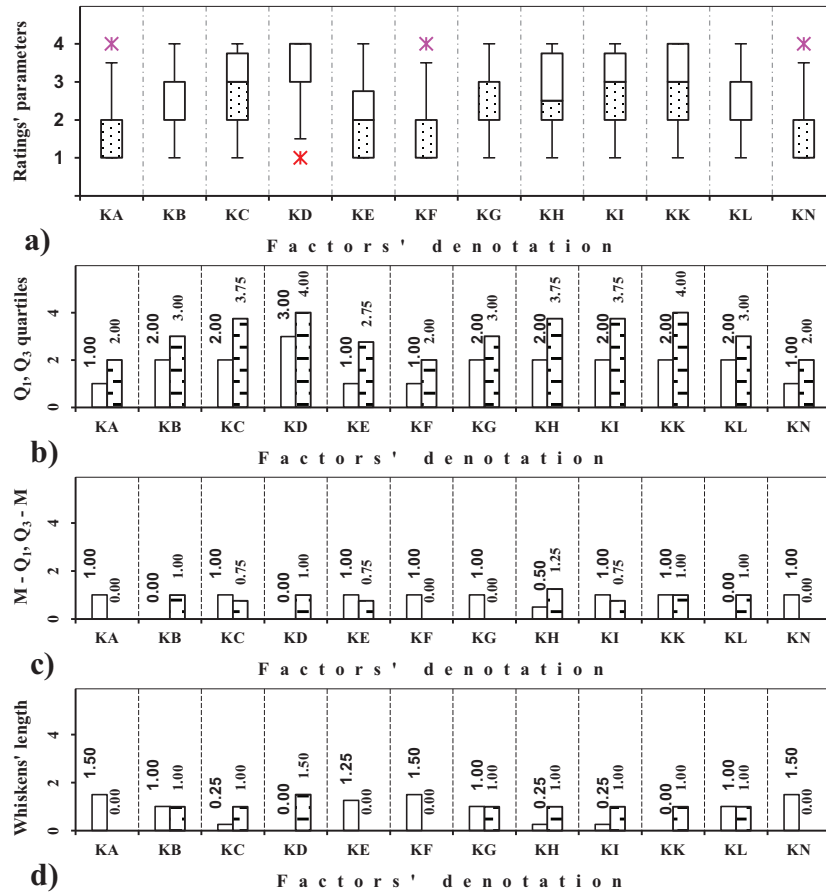


Fig. 8.5. Box-and-whisker diagram and its elements: a) basic graphs, b) Q_1, Q_3 quartiles, c) $M - Q_1, Q_3 - M$ suitably, d) length of whiskers: upper (without filling), lower (with filling) for factors in E10b area.

Source: own study

Figure 8.5 shows that for all ratings was used full scale. The same distributions ratings occurred for managers' characteristics marked as KB and KL; KC and KI; KA, KF and KN. For features such as KA, KF and

KN interquartile range between the lower (1.0) to the upper (2.0) quartile shows that in this area was located half the ratings given by the respondents. Interquartile range from low (3.0) to the upper (4.0) quartile shows that in this area was located half ratings given by respondents for the characteristics of KD. In the case of the factors indicated as KB, KG and KL half of the ratings assigned by employees ranged between 2 and 3. The most diverse opinions were recorded for the factor marked with a symbol KK, interquartile range was greatest for this feature

8.3. Summary

In the chapter it was evaluated characteristics of managers, supervisors, leaders in the production of the company, taking into account the criteria of 12th golden rules for Toyota. The evaluation was performed by production workers in researched company by using BOST survey. It was used in this aim E10b question. An analysis of the structure of responses, including a statistical analysis of the distribution of basic statistical parameters. Summarizes the characteristics of managers and their division into four groups depending on the degree of compliance with the requirements from the point of view of workers was conducted.

The Figure 8.6 present summary of classification of superiors managerial skills in analyzed company with the use of 12th golden principles of Toyota and the BOST research. We can see what managers features are real positive according to workers opinion, what are positive, what features are on the limit of workers' patience, what features should be improvement and what features should be improvement immediately, now.

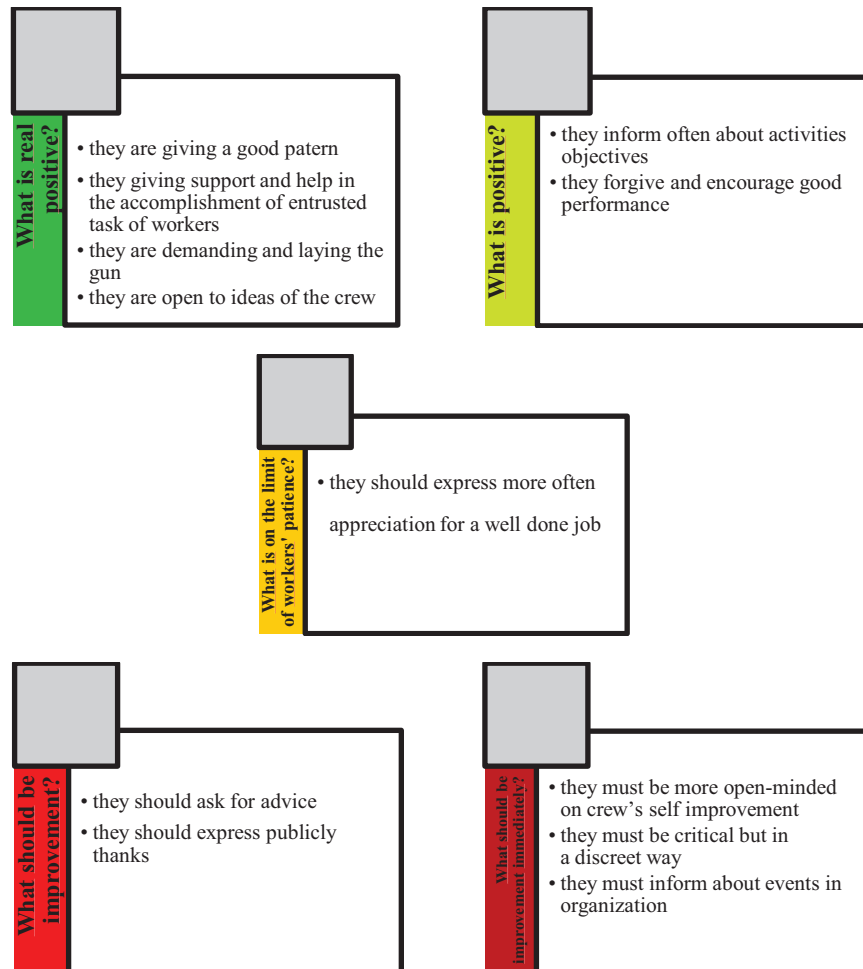


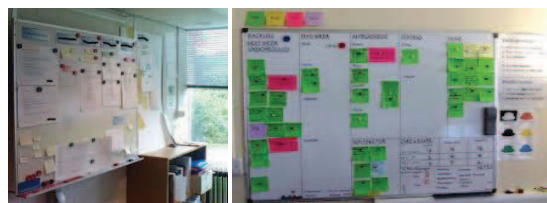
Fig. 8.6. Results of superiors managerial skills classification in the analyzed company with the use of 12th golden principles of Toyota and the BOST research.

Source: own study

Employees pointed to these characteristics managers that need to be improved immediately and should be changed in the near future. Among

the features which should be improvement in a short period of time is a matter of considering the views of employees when making decisions, the employees consider that managers should ask them for opinions, advice, communicate with them in a process of making decisions. Managers should also be more praise their employees, at the same time they should do in an open, public way.

Managers must be more receptive to a proposal for improvement from the employees, if they criticize they must do it in a discreet way and they must also inform about events in the company, here goes with the help the visual management tools, such as information boards, magnetic boards, white board, which could solve the problem of poor communication between management and employees (Fig. 8.7). Information boards allow to view at first glance into the status of the operation. Using the information boards reduce the risk of invalid activity, because the employee may support to the knowledge contained in them at any time, they show him the situation of standard and not-standard, reveal problems are also helpful in evaluating the employees' work by their superiors.



Use magnetic boards to tracking activities

Fig. 8.7. Different ways of visual management techniques usage in aim to solving the problem with lack of information about events in organization.

Source: own study

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