

## RESEARCH OF A VALUE ORIENTATION TOWARDS INNOVATIVENESS IN THE INDUSTRIAL ENTERPRISES

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**Abstract:** *It is purposeful to investigate the values orientation towards innovativeness to find the ways for increasing innovativeness potential of the enterprise. The authors of this article performed necessary research, analyses, evaluation and generalization in order to solve this problem. There were applied methods: – analysis of information sources, a sociological inquiry of industrial enterprises personnel and correlation analysis. The demand to increase valuation of innovativeness was proved after the investigation. Correlation analysis showed that there is a very weak dependence between evaluated by personnel parameters in the most of the cases. Lack of advanced knowledge of management was also established. A way to make better situation is to use purposeful general politics for innovativeness training in the enterprises and to solve the leadership problems.*

*Key words: Innovation, innovativeness, value orientation, industrial enterprise*

### 1. INTRODUCTION

The values orientations of the industrial enterprises personnel play an important role in the improvement of its activities and in achievement of better results in proper quality, as well as higher competitiveness achievement. Limitations which have influence on the innovativeness appear in the enterprise general politic, especially in the engineering, economic, social and cultural advancement sphere.

**The goal of the work:** to provide a research of the innovativeness situation in the industrial enterprises and to foresee the ways how to increase potential of the personnel innovativeness which would be useful to strengthen innovation efforts and efficiency of production activity.

**The subject of research:** the perception and evaluation of the innovativeness, as a value, in the industrial enterprises.

### 2. PROBLEM STATEMENTS

Innovativeness of industrial enterprises personnel is one of the front-rank factors which makes activity of these organizations to be successful. Theoretical approach unambiguously is not defining, how personnel innovativeness became a part of the organization value system and how to evaluate these phenomena. The application of innovativeness for increasing efficiency of production activity is also our open question. In practice, a fair amount of people in general do not understand meaning of this term. This problem is an especially relevant; because modern society is a very interested in the innovation quality continuous improvement and helping to strengthen failing or even vanishing production. The importance of an innovation for success of the organization activity was pointed out by Dawn Dobni, J. R. Brent Ritchie and Wilf Zerbe [1]. Suman Rao [2] referred that faulty value system can lead to the accidents. Commitment, trust and exchange of views by John Storey [3] are debate concern. However serious impulse is impossible without making managers

good training and development, and by keeping managers good through avoiding poor morale, high stress, etc., under Mark Cook [4]. Innovativeness of the personnel manifest in their capability to renew material and immaterial culture elements in manufacturing or services processes and turnover of the goods by applying new scientific knowledge, working methods, technologies, patented inventions according to Juozapas Staškevičius [5]. Therefore it is essential to research value basis from which this capability originated.

### 3. APPLICATION AREA

Main application area for innovativeness research results is development of the industrial enterprises personnel activity. The research involved 34 Lithuanian industrial enterprises and there are questioned 243 personnel representatives. The results of the investigation can be useful in these enterprises and worldwide in general.

### 4. RESEARCH COURSE

As the first step the aim of the research was formulated. At the second step the research of the industrial enterprises personnel value orientation took place. Third step involved the analysis and valuation of the innovation situation in the enterprises by using correlation regression method and after analysis adequate conclusions were stated.

### 5. METHOD USED

Applied methods – a survey of scientific literature and other information sources, structural system analysis, a sociological inquiry of industrial enterprises personnel and inter parameters calculation of the correlation coefficients. Innovativeness was spread out in to the better understandable terms of the creativity and the enterprising. Evaluation of estimated parameters was turn in to 0 – 100 points system [6, 7].

Estimation of innovativeness, as a present state value, can be accomplished by the formula:

$$INV_{pa} = \frac{100}{N} \sum_{i=1}^N \left( \frac{(Cp_i + Ep_i)P_i - \min_I}{\max_I - \min_I} \right); \quad (1)$$

where  $N$  – sample size (the number of questioned respondents),  $Cp_i$  – valuation of creativity by  $i$ -th respondent (present state, points from 1 to 5),  $Ep_i$  – valuation of enterprising by  $i$ -th respondent (present state, points from 1 to 5),  $P_i$  – perception of innovation by  $i$ -th respondent (that parameter corresponding to the weight of respondent opinion, points from 1 to 3),  $\max_I$  – valuation of innovativeness, as a value, maximum points (in our case 30 points),  $\min_I$  – valuation of innovativeness, as a value, minimum points (in our case 2 points). Like wise estimation of the parameter  $INV_{da}$  – innovativeness, as a desirable state value, is accomplished by formula similar to the formula (1).

Estimation of present state condition of enterprises is accomplished by the formula:

$$SIT_a = \frac{100}{N} \sum_{i=1}^N \left( \frac{SIT_i - \min_{SIT}}{\max_{SIT} - \min_{SIT}} \right); \quad (2)$$

where  $SIT_i$  – valuation of present state condition of enterprise by  $i$ -th respondent (points from 1 to 5),  $\max_{SIT}$  – valuation of present state condition of enterprise, maximum points (in our case 5 points),  $\min_{SIT}$  – valuation of present state condition of enterprise, minimum points (in our case 1 point). Like wise estimation of parameter  $CHp_a$  – present state annual changes volume and parameter  $CHd_a$  – desirable state annual changes volume in the enterprises is accomplished by formula similar to the formula (2).

### 6. STATUS

General striving of the research was the need to establish causes which obstruct the way for effective and competitive production in the Lithuanian enterprises. During this research an attempt takes part to ascertain how value orientation of the personnel makes influence upon industrial

enterprises innovativeness, changes and success. The research results display that there is substantial difference in estimation of innovativeness and poor perception of the innovation process. Consequently we suppose that is purposeful to organize the innovation training for enterprises personnel.

## 7. RESULTS

Accomplished research displayed that less than a half of the respondents properly understood innovation term. In to the question “What is innovation?” rightly reply 49.8% of respondents, inaccurate answer was received from 39.5% of the respondents, unanswered cases constitute 10.7%. Average values of parameters evaluated by the respondents are presented in the tables 1 and 2.

Respondents	Evaluation of parameter, points	
	INVP <sub>a</sub>	INVD <sub>a</sub>
Other groups (office-girls and so on)	50.89	57.59
Workers	49.62	57.42
Engineers, designers	66.91	79.31
Sellers, marketing staff	59.52	57.74
Financiers, accountants	63.29	73.57
Departments managers	63.49	70.04
Directors	67.09	76.79
Total	57.82	66.08

Table 1. Average estimation of innovativeness, as a present INVP<sub>a</sub> and desirable INVD<sub>a</sub> state value

Research showed that through uncertain factors evaluation of situation by workers and office-girls are rather similar and their orientation values for innovativeness are almost equal (table 1). Sellers and marketing staff are standout from all assessors. They dislike more annual changes (table 2) and higher valuation of innovativeness (table 1).

Respondents	Evaluation of parameter, points		
	CHP <sub>a</sub>	CHD <sub>a</sub>	SIT <sub>a</sub>
Other groups (office-girls and so on)	53.13	50	68.75
Workers	48.04	57.84	63.97
Engineers, designers	48.53	54.41	51.47
Sellers, marketing staff	50	37.5	70.83
Financiers, accountants	47	55	67
Departments managers	58.80	62.96	60.65
Directors	53.57	67.86	73.21
Total	50.93	58.02	62.65

Table 2. Average estimation of present CHP<sub>a</sub> and desirable CHD<sub>a</sub> state annual changes and present conditions of enterprises SIT<sub>a</sub>

Further our research proving, that amount of annual changes evaluated by workers and office-girls categories also is a very similar and take medium position. For this reasons the motions for strengthening of innovativeness sense and innovation process are weak. This is significant stagnation symptom of business activity in the explored enterprises. Financiers and accountants evaluated annual changes with lowermost points, but they have a need for more changes in the future. Engineers and designers evaluated present state situation

of the enterprises as a medium. They are leaders in desire to have better evaluation of the innovativeness. Conclusion is that sense of innovativeness and search for innovation predominant in the engineers, designers and directors setting.

Results of the valuation of the innovation situation in the enterprises by using correlation regression method are presented in the tables 3 - 5.

Respondents	Coefficients R of correlation between estimations of innovativeness, as a value, and annual changes volume in the enterprises	
	Present state	Desirable state
Other groups (office-girls and so on)	0.515	0.425
Workers	0.084	-0.033
Engineers, designers	-0.163	0.452
Sellers, marketing staff	0.372	0.216
Financiers, accountants	0.001	0.193
Departments managers	0.414	-0.0003
Directors	0.199	0.317
Total	0.167	0.102

Table 3. Coefficients R of correlation between estimations of innovativeness, as a value, INVp and annual changes volume in the enterprises CHp for the present state, and coefficients R of correlation between INVd and CHd for desirable state

Investigated correlation between valuation of innovativeness and annual changes are very weak (table 3). There only office-girls stand out whose evaluations of innovativeness cohered with annual

changes. Correlation link between desirable state of innovativeness and annual changes volume is the strongest of all estimators by engineers and designers valuation of those parameters.

Respondents	Coefficients R of correlation between estimations of innovativeness, as a value, and state conditions of enterprises	
	Present state	Desirable state
Other groups (office-girls and so on)	0.634	0.258
Workers	0.158	0.040
Engineers, designers	-0.058	-0.322
Sellers, marketing staff	-0.384	0.364
Financiers, accountants	0.245	0.115
Departments managers	0.277	0.100
Directors	0.418	-0.266
Total	0.132	-0.032

Table 4. The coefficients R of correlation between estimations of innovativeness, as a value, INVp and present state conditions of enterprises SIT for the present state, and coefficients R of correlation between INVd for desirable state and SIT

Investigated correlations between valuation of innovativeness and present state conditions of enterprises are very weak too (table 4). There are also only office-girls which stand out. Their evaluations of innovativeness cohered with present state conditions of enterprises. Innovativeness in the engineers and designers cases evaluated as the success decreasing factor. There are only very weak links in total population.

Investigated correlations between valuation of annual changes and present state conditions of enterprises are stronger (table 5). There stand out directors and financiers, accountants which evaluations of annual changes cohered with success of enterprises activities. Regrettably, desirable changes in a number of cases evaluated as success decreasing factors.

Respondents	Coefficients R of correlation between estimations of annual changes volume in the enterprises and state conditions of enterprises	
	Present state	Desirable state
Other groups (office-girls and so on)	0.078	0.333
Workers	0.280	-0.297
Engineers, designers	0.032	-0.340
Sellers, marketing staff	0	0.293
Financiers, accountants	0.677	0.070
Departments managers	0.113	0.045
Directors	0.825	-0.030
Total	0.250	-0.171

Table 5. The coefficients R of correlation between estimations of present state annual changes volume in the enterprises CHp and present state conditions of enterprises SIT, and coefficients R of correlation between CHd for desirable state and SIT

At the time of correlation regression analysis obtained data highlighted that neither success of enterprises activities nor annual changes in the mass hasn't link to personnel innovativeness, as a value.

## 8. FURTHER RESEARCH

Further investigation of personnel opinion about suitability of brainstorming, quality circles, research, product changes, innovation training, examples using and licenses buying methods for industrial enterprises take a part. At the time of the research was established that these methods are well known. Like most suitable it was evaluated licenses buying method. Its evaluated average was 3.81 points from 5 points liable maximum. Most frequently was used method of examples, whom how operational referred 60.91% of respondents. Estimated dimensions of valuations accentuated only bad situation of innovativeness, because investigated methods of innovation acquisition were voted as only halfway suitable for enterprises activities.

## 9. CONCLUSIONS

After accomplishment of theoretical and practical research of personnel innovativeness state in the industrial enterprises, we conclude that:

1. It is paid apparently too low attention for innovativeness, foremost for cognition and management of this phenomenon at academic level. The perception of innovativeness, in the investigated industrial enterprises, is insufficient too, because a fair amount of personnel did not even know exactly what this term meant by it.
2. These problems manifest themselves in such deficiencies:
  - (a) lack of deeper cognition of personnel innovativeness purport and its objective definition topic;
  - (b) lack of the necessary parameters and indicators for conditions changes measurement and evaluation;
  - (c) complexity of selection of organizational forms which depends on above-mentioned subject-matters;
  - (d) lack of the leadership in the innovation activity.

3. Practical aspects of the personnel innovativeness cognition and management naturally are even darksome. Our research displays that:

(a) the value orientations of the workers are in a quite low position. Its reaches only 49,62 points;

(b) the value orientations of office-girls are alike the workers, though reaches a higher ratio in comparison with workers, 50,89 points from office-girls;

(c) quite unequal situation of valuation of the innovativeness exist between engineers and marketing staff. It is not easy to perceive, wherefore marketing staff value orientations so step from engineers by 7,39 points;

(d) more equivalent situation of innovativeness evaluation exists between researched directors and departments managers, 67,09 points from directors and 63,49 points from departments managers;

(e) in evaluated by respondents parameters set, neither success of enterprises activities nor annual changes in the mass hasn't link to personnel innovativeness, as a value;

(f) there is only few groups of the personnel which evaluations of parameters cohered, for example, the valuations of directors and office-girls cohered, but only in some cases.

4. In authors opinion to improve existing situation of innovativeness can help:

(a) purposeful, major scientific methodological run in cognition and management spheres;

(b) purposive to renew organization of personnel working places at stated intervals of time in the enterprises, what apparently will demonstrate requirement of innovativeness and innovation;

(c) that innovativeness of personnel will properly concern with its creative potential, required special education and training program for innovation knowledge and perception in the enterprises;

(d) that it would be not only talking and dreaming about innovativeness, it is purposeful to create and put into the

practice understandable by personnel material and moral incentive system;

(e) creation of a healthy momentum by stimulating employees to innovate and change [<sup>8</sup>].

5. The process of innovation in the Lithuanian enterprises based on licenses buying and using of good examples in the most of the cases. The potential of personnel innovativeness, especially potential of the workers, can be increased, and there is a big space for high professional management and long term values oriented scientific research activity.

## 10. REFERENCES

Dobni, D., Ritchie, J. R. B. and Zerbe, W. Organizational Values: The Inside View of Service Productivity. *J. Bus. Res.*, 2000, **47**, 91-107.

Rao, S. Safety Culture and Accident Analysis – A Socio Management Approach Based on Organizational Safety Social Capital. *J. Hazard. Mater.*, 2007, **142**, 730-740.

Storey, J. *Adding Value through Information and Consultation*. Palgrave Macmillan, New York, 2005.

Cook, M. *Personnel Selection: Adding Value through People*. John Wiley & Sons Ltd., Chichester, 2000.

Staškevičius, J. A. *Inovatika*. Technika, Vilnius, 2004.

Grigoroudis, E., Siskos, Y. A. Survey of Customer Satisfaction Barometers: Some Results from the Transport-Communications Sector. *Eur. J. Oper. Res.*, 2004, **152**, 334-353.

Bayol, M. P., Foye, A., Tellier, C., Tenenhaus, M. Use of PLS Path Modelling to Estimate the European Consumer Satisfaction Index (ECSI) Model. *Ital. J. Appl. Statist.*, 2000, **12**, 361-375.

Hiam, A. *Motivational Management*. AMACOM, New York, 2003.