

RELATIONSHIP BETWEEN CHARACTERISTICS OF TEAMWORK AND PRODUCTIVITY IN MANUFACTURING ENTERPRISES IN LATVIA

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Abstract. There is a consensus that increasing labour productivity is one of the central issues in the management of manufacturing enterprises. For an enterprise leader, this means guiding the introduction of the latest technologies and advanced decision making, as well as finding the most appropriate formula for the use of human resources. The aim of the study is to clarify the relationship of team's characteristics with labor productivity at manufacturing enterprises in Latvia. 268 managers and employees of 25 manufacturing enterprises were questioned. The results of the study revealed that the increase of labor productivity in manufacturing enterprises is mainly related to the development of an understanding of a common goal and cooperation in the planning and evaluation of work results. Relations of certain characteristics of teamwork with labor productivity was revealed, considering the size of the enterprise, the scale of the market, its purposeful focus on increasing the labor productivity and reliance on the human or technological factor as the main factor in promoting labor productivity.

Keywords: labor productivity, characteristics of teamwork, cooperation, manufacturing enterprise.

JEL Classification: D23, M10.

Introduction

The achievement of the chosen goal with optimal consumption of resources is important for every manufacturing enterprise. In order to maintain the long-term growth, the improvement of labor productivity is a goal not only for the management of enterprises, but also for the economy as a whole. In this respect, the common vision of the European Union (EU) for the development of industry for 2030 is also topical for Latvia, as the EU strives for world leadership in general. Productivity in Latvian manufacturing enterprises shows a growing trend both since joining the EU (Austers et al., 2020) and in the period before that (Organisation for Economic Co-Operation and Development [OECD], 2018). In some periods of time, its growth in the Latvia economy as a whole has been significant. Between 2006 and 2012, the labor productivity in manufacturing industry increased by 30.4% (Beņkovskis & Bēms, 2014). Currently the speed of growth has moderated, and overall productivity is still below the EU average. As noted by the Ministry of Economics of the Republic of Latvia (2021) in the Latvian National Industrial Policy Guidelines for 2021–2027, the level of productivity in manufacturing industry is 60%

lower than the EU average and it can be justified with the structure of industries in the country dominated by traditional industries (wood processing, food processing, etc.) classified as low- and medium-low-tech industries, accounting for half of the industrial value added (Cabinet of Ministers, 2021). In Latvia, there is a significant difference in productivity indicators between large and small enterprises, where “the productivity of small and medium-sized enterprises in Latvia is about 70% lower than that of large enterprises” (OECD, 2018), which also determines the different opportunities for technology and human resources application. OECD experts conclude that “cooperation between science and industry is weak”, that the acquisition of modern technologies and management methods are hampered by the insufficiency and incompatibility of skills, that there is a “large informal sector with enterprises specializing in small-scale manufacturing, often applying obsolete technologies”, also “exporting companies tend to specialize in low-tech level manufacturing” (OECD, 2018).

As there is a diversity of factors influencing productivity in a manufacturing enterprise in terms of both technical and economic as well as organizational and social measures (Almström, 2017; Bergs, 2018; Karnīte,

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2012; Noruzy et al., 2011; Ozoliņa-Ozola, 2009; Siņicins, 2009; Viksna, 2009; Zvirbule-Bērziņa et al., 2004; etc.), enterprise managers also have a variety of possible solutions at their disposal to increase it. Dynamic development in business management offers not only tangible but also intangible resources for enterprises on the way to this goal. Belbins (2009), Britain's leading team expert, has emphasized that the essence of a people's organization is to create an effective formula for the work to be done (Belbins, 2009), so the approach used to define and describe work is often largely one of the key issues. Manufacturers of manufacturing enterprises in the production process, creating the interaction of the workforce and other factors of production, are aware that "the creation of an efficient production process requires a special set of knowledge" (Zvirbule-Bērziņa et al., 2004, p. 5), in its turn, in the conditions of limited resources, choosing a business management approach and type of work organization, basically two groups of resources – skillful distribution of capital and labor force – should be applied. This means that it is important to draw the attention of the enterprise's management to the work organization or the chosen type of activities in manufacturing enterprises in order to move towards the specified work results, including the division of labor, decision-making process, work environment hierarchy and involvement of employees in issues relevant to the enterprise, also assessing the potential of teamwork for the development of labor productivity. By linking teamwork with its characteristics in the work environment (Belbins, 2009; Haas & Mortensen, 2016; Katzenbach & Smith, 2015; Maginn, 1994; Mackin, 2017; Woods & West, 2010; West, 2012; Zinkevich-Evstigneeva, 2004; etc.) and the type of interpersonal relationships (Bote, 2017; Frimentls, 2006; Helers, 2004; Vintiša, 2011; Weiss & Hoegl, 2015; etc.), teamwork as part of an organizational culture (Belbins, 2009; Forands, 2003; Lūsēna-Ezera, 2013; Ruperte, 2010; etc.) is a way of thinking in an enterprise that provides both personal and organizational benefits (Helers, 2004; Maginn, 1994; West, 2004) and positive overall performance. Considering the diversity of manufacturing enterprises in Latvia, both in terms of enterprise size, market scale, duration of operation and technological development, the importance of teamwork in these enterprises may be different. Thus, the aim of the study is to find out the relation between the characteristics of teamwork and productivity in manufacturing enterprises in Latvia, at the same time paying special attention to the question *In what kind of manufacturing enterprises teamwork is essential in order to increase the labor productivity?*

1. Literature review

The best-known definition of productivity is the ratio of output to raw materials, which is usually measured to assess the technological change, test efficiency and cost savings, compare production processes, and test the society's

standard of living (Salehi et al., 2013). When making a management decision on the efficient application of various resources and striving to achieve certain results of the manufacturing enterprise's operations, it must be taken into account that efficiency and productivity are not the same things: productivity is one of the efficiency indicators that shows the relationship between results (income, profit, number of customers or output, etc.) and consumption (costs, number of employees, number of hours worked or equipment, etc.) to achieve these results (Ozoliņa-Ozola, 2009). In addition, indicating "consumption" for all types of consumption (e.g., the sum of all costs), used to achieve the result, reveals a multifactorial or total productivity, but indicating "consumption" in only one type of consumption, such as only human resources (labor) or only investment, or only fixed assets, etc., determines the productivity of one factor, where "one of the best-known types of productivity of one factor is the labor productivity" (Ozoliņa-Ozola, 2009, p. 46). In an in-depth study of productivity measurement, Salehi et al. (2013) have also noted that the concept of productivity measurement includes the *input measurement* (single-factor productivity/partial productivity and multi-factor productivity) and *output measurement* (measurements of productivity based on gross output and measurements based on the value added when the value of goods used in the production of goods or services is deducted from the value of the final product) (Salehi et al., 2013). Productivity of a single factor is measured by a set of results and consumption of resources, where one of the most popular forms of productivity in this method is productivity based on labor or capital input (applying this method, output can be measured in terms of gross output or value added), while multifactor productivity is measured by combining the investment of labor and capital or by referring to the combination of capital, labor, energy, materials and services invested as a whole (Salehi et al., 2013; Goshu et al., 2017). Thus, the *labor productivity as a single factor (labor) productivity* is a traditional quantitative indicator of labor efficiency, which is generally defined at the enterprise level as the ratio between the volume of products obtained and the labor resources consumed in a given period of time. Theoretically, there are different ways to look at productivity at the enterprise level – assessing, for example, the *output or labor-intensity* (Almström, 2017; Goshu et al., 2017; Ozoliņa-Ozola, 2009; Salehi et al., 2013; Sauermann, 2016; Zvirbule-Bērziņa et al., 2004; etc.), "labor intensity" shows the consumption of labor time per unit of output in hours, minutes and seconds, but the *output* indicator is the amount of products produced per employee over a given period of time; it is determined in terms of natural value or units of time consumed (Ozoliņa-Ozola, 2009). Natural indicators for measuring the output are also most often used by manufacturing enterprises, but they reflect objectively the level of productivity in enterprises that produce the same type of product, thus, in companies that produce a wide range

of products, the expression in terms of value is the most widely used to determine the output, because “it makes it possible to assess the average economic indicators in all types of business activities” (Zvirbule-Bērziņa et al., 2004, pp. 97–98).

Regarding the measurement and increase of productivity in manufacturing enterprises, Associate Professor P. Almström (2017) from Chalmers University of Technology (Sweden) has pointed out that the low level of managers’ knowledge at different levels on measuring productivity is also an obstacle to its improvement (Almström, 2017). He emphasizes that productivity can be improved through better methods (M), increased performance (P), and increased utilization (U), where it is much easier to improve the M factor than the U factor, as it possesses a significant potential and is influenced by the company’s culture and production management – its change takes more time than the involvement of operators to improve the method (Almström, 2017). Associate Professor J. Sauermann (2016) from Sweden, speaking about the importance of measuring labor productivity and the possibilities to improve it mostly from the position of personnel management, emphasizes that the understanding of labor productivity measures can provide an important insight into how workers work and how the workplaces should be arranged. In his view, productivity measurements can be applied to study a variety of issues, including the impact of incentives on employees’ productivity, peer behavior, or the accumulation of human capital at work (Sauermann, 2016).

Company management may have different views on the factors that determine labor productivity opportunities. According to the personnel specialist Ozoliņa-Ozola (2009), labor productivity can be influenced by the help of both technical-organizational, personnel and product factors, emphasizing the application of technical-organizational factors and amongst them the highly efficient techniques and advanced technologies, and the rationalization of the work mode (Ozoliņa-Ozola, 2009). If the technical and technological side of labor productivity improvement is mainly understood by management specialists as “mechanization and automation of the work process, purchase and application of more advanced equipment, increase of equipment utilization rate, as well as introduction of advanced production technologies, introduction of advanced customer service norms, etc.” (Zvirbule-Bērziņa et al., 2004, p. 99), then the organizational factors for the improvement of labor productivity are the “development of organizational structure of management, introduction of advanced forms of work organization, optimization of the enterprise’s work mode” (Zvirbule-Bērziņa et al., 2004, p. 99), supplemented by economic – “regular review of labor standards, improvement of the wage system” (Zvirbule-Bērziņa et al., 2004, p. 99) and social factors: “measures to strengthen work discipline, improvement of working facilities, creation of a favorable micro-environment, motivation of employees’ motivation” (Zvirbule-Bērziņa

et al., 2004, p. 100). Researchers in productivity measurement from Iran have also noted: “Labor productivity is the result of worker ability and promotion” (Salehi et al., 2013, p. 58). Noruzy et al. (2011) carrying out a case study on an Iranian Oil Company have discovered that job satisfaction and employees’ abilities are the individual factors that affect the labor productivity; participation, education, motivation and communication – organizational factors, but clarity of employees’ role, challenging work and autonomy are the professional factors that affect productivity in the studied enterprises (Noruzy et al., 2011). Choosing between technological factors or the human resource factor to achieve the company’s performance, including the issue of productivity increase, the entrepreneur and one of the most socially active representatives of the Latvian business environment Viksna (2009) has pointed out that the enterprise’s efficiency can be increased in various ways – optimizing costs, reviewing the customer database, introducing the latest technologies. However, the key factor in the company’s efficiency and success promotion is the employees (Viksna, 2009). A similar opinion has been expressed by the Latvian entrepreneur Bergs (2018), pointing out that it is very important to observe changes in various parameters over time in order to improve productivity. Every business will have its own thing to look at and try to optimize – it is a matter of managers’ knowledge, experience and interest, and, moreover, work organization and culture also play an important role in the labor productivity enhancement (Bergs, 2018), thus in terms of work organization and human factor application, teamwork in manufacturing enterprise covers a range of factors that affect the labor productivity. Especially because the relation between teamwork and productivity has been mentioned over time by several researchers. For instance, West (2004) has pointed to Henry Ford’s flexible approach to the mass production process and the transfer of Japanese experience to European and US corporate work organization, where teamwork was used in mass production after World War II, equally noting separate research in the mid-1990s, where HR managers in large corporations have confirmed that by learning to build team-based structures, organizations have become more flexible, productive, and efficient (West, 2004). In Palčič et al. (2010) study it is confirmed that teamwork in production is one of the most widely used organizational innovation concepts in Slovenian manufacturing enterprises (Palčič et al., 2010), while a study in manufacturing enterprises in Germany has found that almost 2/3 of manufacturing enterprises apply teamwork and a positive relationship between flexibility, complexity, new products, organizational concepts and the introduction of teamwork in production has been indicated (Bikfalvi, 2011). Islam and Syed Shazali (2011) while studying the levels of skills, impact of a favourable work environment and R&D on the productivity of manufacturing-intensive industries, have found that productivity is positively related to a favourable work environment (Islam & Syed

Shazali, 2011), but the study of the Iranian Oil Company has found a link between productivity and such teamwork characteristics as participation, communication in the enterprise, clarity of the role, challenging work and autonomy (Noruzy et al., 2011). Whereas a study by Munyai et al. (2018) has found that there is a strong link between the organizational culture of efficiency and productivity improvement in cable manufacturing processes (Munyai et al., 2018).

The growing trend of team research is largely a proof to the growing importance of the team in business management in order to ensure the success of modern organizations (Weiss & Hoegl, 2015), and the above-mentioned list of various studies also indicates the need to evaluate the possibilities of teamwork in the operation of manufacturing enterprises for the improvement of labor productivity.

2. Research methodology and participants

The goal of the research is to find out the relationship between the characteristics of teamwork and labor productivity in manufacturing enterprises in Latvia. In order to achieve the goal of the research, two research questions have been raised: *Which characteristics of teamwork are related to the increased labor productivity? What kind of manufacturing enterprises have these obligations?* In order to obtain the research data, a sample of a case study has been applied, which is based on the non-probability sampling convenience method, including in the sample the enterprises of the Kurzeme Region of the Republic of Latvia, which according to the statistical classification of economic activities in the European Community NACE Rev. 2 comply with Group C- *Manufacturing Industry* and who agreed to participate in the study. The sample of the study is managers and employees ($N_{employees\ of\ enterprises} = 268$) of various levels and structures of manufacturing enterprises ($N_{enterprises} = 25$) operating in the Kurzeme Region. of the 25 enterprises involved in the case study, 12% correspond to the large enterprise group (250 and more employees), 56% correspond to the medium-sized enterprise group (50 to 249 employees) and 32% correspond to the small enterprise group (up to 49 employees).

In order to obtain empirical data of the case study on the characteristics of teamwork (cooperation, communication, decision making, conflict resolution, common goal understanding, responsibility, diversity, trust) in manufacturing enterprises, a measurement tool was developed – questionnaire with 28 questions (both in nominal and ordinal scale) and questions to find out the demographic characteristics of enterprises on the type of their main activity, size, market scale, organization of manufactured production, as well as to find out whether, in the opinion of employees of manufacturing enterprises, labor productivity depends on in the enterprise – on *the human factor* (division of labor, mutual

relationships, etc.) or *the technological factor* (renewal of equipment, digitization, etc.) and whether the growth of labor productivity is an area that is receiving increased attention in manufacturing enterprises. The productivity data (turnover of the enterprise against the number of employees) of the 25 manufacturing enterprises involved in the study were obtained from “Lursoft IT” plc., which, based on Article 4.15 of the Law “On the Register of Enterprises of the Republic of Latvia”, is a re-user of information of the Register of Enterprises (Lursoft, 2021). The survey was conducted from July 2019 to July 2021, using both the online *google forms* platform and the distribution of paper-based questionnaires.

The majority of employees (52.2%) have indicated that the products of their represented enterprise are sold in the international market, but 33.2% of employees have noted that the enterprise sells its products in both the domestic and international markets. 21.3% (57) of enterprises start production before receiving an order and 78.7% (211) produce after receiving an order. When answering the question on which the productivity of the enterprise mainly depends in the opinion of the employees, 60.4% of the respondents indicate that from the human factor (division of labor, mutual relationships, etc.), but 39.6% of the employees of the enterprise state that productivity is mainly determined by the technological factor (equipment renewal, digitization, etc.).

IBM SPSS programs (Version 26) and the MS Excel application were used for data processing and analysis of the empirical study. Descriptive statistics and correlation analysis – Spearman rank correlation coefficient (to find out correlations between labor productivity and ordinal scale data) and Point-biserial correlation coefficient (to find out relation between labor productivity and nominal scale data (dichotomous scale items) have been applied for data analysis.

3. Results and discussion

Carrying out the correlation analysis of teamwork characteristics and labor productivity in manufacturing enterprises (see Table 1), it has been discovered that in manufacturing enterprises in general, **labor productivity correlates** with the following characteristics of teamwork:

- **cooperation of different departments for one task accomplishment:** the more characteristic joint work of different departments on one task accomplishment, the higher the labor productivity in the enterprise ($r_s = .123, p < 0.05$).
- **decision-making:** the more characteristic the decision-making between employees within each division/between performers in manufacturing enterprises, the higher the productivity ($r_s = .135, p < 0.05$). The labor productivity of enterprises is also higher if enterprises are less likely to make one-person decisions ($r_s = -.120, p < 0.05$) and it is common for enterprises to set up special work-

- ing groups to make complex decisions ($r_s = .178$, $p < 0.01$);
- **involvement of employees** in the assessment of the performance results in the enterprise/department ($r_{pb} = .154$, $p < 0.5$), and in the development of action plans of their division/department ($r_{pb} = .156$, $p < 0.05$);
 - **subordinates' initiative** in the daily work process when submitting their suggestions ($r_s = .144$, $p < 0.05$).

Table 1. Results of correlation analysis of labor productivity and teamwork characteristics in manufacturing enterprises (source: authors)

Characteristics of teamwork	Spearman's rho	Labor productivity
Different departments work together on one task accomplishment	Corr. Coef.	.123*
	Sig. (2-tailed)	0.045
	N	268
Decisions are made among employees within each division/department among function performers	Corr. Coef.	.135*
	Sig. (2-tailed)	0.027
	N	268
Your line manager makes unilateral decisions	Corr. Coef.	-.120*
	Sig. (2-tailed)	0.049
	N	268
Special work groups are set up to make difficult decisions	Corr. Coef.	.178**
	Sig. (2-tailed)	0.004
	N	268
The subordinate submits their suggestions	Corr. Coef.	.144*
	Sig. (2-tailed)	0.018
	N	268
Involvement of employees in problem-solving issues relevant to the enterprise during the last year:	Point-biserial corr. coef.	Labor productivity
In the assessment of the performance results in the enterprise/department	Corr. Coef.	.154*
	Sig. (2-tailed)	0.012
	N	268
In the development of action plans for your department/division	Corr. Coef.	.156*
	Sig. (2-tailed)	0.010
	N	268

Notes: *. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

The correlation results obtained from the study on the labor productivity and employees' involvement in problem-solving issues relevant to the enterprise also comply with several theoretically justified opinions (Adizes, 2018; Blanchard & Johnson, 2008; Bouvers & Gilberts, 2009; Caune & Dzedons, 2009; Hofs & Alsiņa, 2019; Praude, 2012; Ruperte, 2010; Owen, 2017; Wellington, 2017; etc.) on the importance of employees' involvement in business planning, where employees at all levels of the enterprise can support decision-making by implementing

fundamental processes and getting engaged in business planning, can support decision-making and provide an insight into what a particular enterprise can do today and what it could achieve in the future. Accordingly, the involvement of employees in the search for diverse solutions provides an opportunity to gain more information, knowledge and experience. The involvement of employees and the interest of employees in the operation of the enterprise as conditions that ensure a better labor force return has already been mentioned by the economic expert in Latvia Karnīte (2012) twenty years ago (Karnīte, 2012), in its turn Tohidi (2011) has also drawn conclusions about the ability of a multifunctional team to create a common understanding of the task, the ongoing process and the role of employees in it as good results (Tohidi, 2011). More importantly, however, a study of impact of work teams on manufacturing performance conducted in the early of 1990s confirmed the improve both labor productivity and quality in manufacturing enterprises where teams were formed (Banker et al., 1996). The importance of teamwork is also reinforced by the study of Barton H. Hamilton, Jack A. Nickerson and Hideo Owan (Hamilton et al., 2003) in a garment plant more than 20 years ago, where authors identified the positive impact of teamwork on the productivity of team members, improving their productivity by an average of 14 percent.

In order to get an answer to the research question "In what kind of manufacturing enterprises teamwork is essential in order to increase the labor productivity?", a correlation analysis with the characteristics of labor productivity of enterprises and teamwork was performed, taking into account **the size of the manufacturing enterprises** involved in the study (small, medium and large), **the scale of the enterprise's market and whether the enterprise produces their products before or after receiving the order**. An additional correlation analysis of the enterprises' labor productivity and teamwork characteristics has been performed depending on:

1) **what, in the opinion of the enterprise's employees, the labor productivity of the enterprise depends on** – *the human factor* (division of labor, mutual relationships, etc.) or *the technological factor* (equipment renewal, digitization, etc.);

2) **the growth of the labor productivity as an area** that is currently (during data collection) receiving increased attention in the enterprise.

The performed correlation analysis (see Appendix 1), considering **the size of the manufacturing enterprises** involved in the study (small, medium and large), revealed that:

1) **in the small enterprise group** (with up to 49 employees), labor productivity is related to:

- mutual cooperation between employees and management in the enterprise as a whole ($r_s = .356$, $p < 0.05$);
- decisions taken between employees within each unit/among function performers ($r_s = .428$, $p < 0.01$);

- formation of special work groups complex decision-making ($r_s = .347, p < 0.05$).

2) **in the group of medium-sized enterprises** (with 50 to 249 employees), labor productivity is related to:

- unilateral decision-making by the manager: the less characteristic the unilateral decision-making of the direct manager, the higher the labor productivity ($r_s = -.144; p < 0.05$);
- joint work of different departments on one task accomplishment ($r_s = .204, p < 0.01$);
- employees' ability to resolve conflicts ($r_s = .182, p < 0.05$);
- the need for staff participation and involvement in the development of the department's objectives and operational plans ($r_s = .155, p < 0.05$), the assessment of employees' individual performance ($r_s = .173, p < 0.05$), division of tasks and responsibilities ($r_s = .147, p < 0.05$) and the distribution of remuneration and resources ($r_s = .146, p < 0.05$);
- employees' innovation, intuition, initiative and the generation of new ideas ($r_s = .161, p < 0.05$) and the employees' openness to new ideas and changes ($r_s = .145, p < 0.05$).

3) **in the large group of enterprises** (with more than 250 employees), labor productivity is related to:

- communication among all staff and employees' mutual cooperation between different departments ($r_s = .455, p < 0.01$);
- employees' self-discipline ($r_s = .400, p < 0.05$) and taking responsibility for the accomplished work and the decisions made ($r_s = .360, p < 0.05$);
- precise and clear work tasks for employees ($r_s = .417, p < 0.05$);
- the employees' feeling that their ideas and suggestions are being heard and considered ($r_s = .389, p < 0.05$).

The results of the study also revealed that the relationship between the labor productivity and employees' mutual cooperation among different departments is typical in the groups of small enterprises ($r_s = .319, p < 0.05$) and large enterprises ($r_s = .404, p < 0.05$), whereas, the relationship between the labor productivity and employees' openness to new ideas and changes is characteristic of medium-sized enterprises ($r_s = .145, p < 0.05$) and large enterprises ($r_s = .364, p < 0.05$). As it has been revealed in the study, in the group of small enterprises, a correlation has been found between the growth of labor productivity and decisions made among employees within each structural unit/among function performers, while in the group of medium-sized enterprises it has been found that the fewer individual decisions are made by the direct manager, the higher the productivity.

The relationship between the labor productivity and employees' involvement in the development of their division/department's business plans ($r_{pb} = .152, p < 0.05$) and assessment of work performance in the enterprise/department ($r_{pb} = .150, p < 0.05$) and decision-making among employees within each division/department/

among the function performers ($r_s = .147, p < 0.05$) is also marked **in those enterprises where the products are produced only after receiving the order**. In the enterprises where the products are manufactured before the order is received, no connection has been found between the characteristics of the teamwork and labor productivity (see Table 2).

Table 2. Results of the correlation analysis of labor productivity and teamwork characteristics, considering the production organization of the enterprise's products – before or after the receipt of order (source: authors)

Your enterprise produces products: After the receipt of order	Spearman's rho	Labor productivity
Decisions are made among employees within each division/department among function performers	Corr. Coef.	.147*
	Sig. (2-tailed)	0.033
	N	211
	Point-biserial corr. coef.	Labor productivity
Over the past year, I have been involved in the development of my division/department's business plans	Corr. Coef.	.152*
	Sig. (2-tailed)	0.027
	N	211
Over the past year, I have been involved in the assessment of the performance of the enterprise/department	Corr. Coef.	.150*
	Sig. (2-tailed)	0.029
	N	211
Your enterprise produces products: Before the receipt of order	Spearman's rho	Labor productivity
Decisions are made among employees within each division/department among function performers	Corr. Coef.	-0.029
	Sig. (2-tailed)	0.829
	N	57
	Point-biserial corr. coef.	Labor productivity
Over the past year, I have been involved in the development of my division/department's business plans	Corr. Coef.	-0.246
	Sig. (2-tailed)	0.065
	N	57
Over the past year, I have been involved in the assessment of the performance of the enterprise/department	Corr. Coef.	-0.161
	Sig. (2-tailed)	0.231
	N	57

Notes: *. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Analysing the obtained results depending on the market size of the enterprises, it has been found that only in enterprises with a focus on **the international market** there is a relationship between the enterprise's labor productivity and unilateral decision-making: the labor productivity increases if the enterprise is less characterized by unilateral decision-making ($r_s = -.222, p < 0.01$) less typical for the enterprise's manager to make unilateral decisions ($r_s = -.188, p < 0.05$) and less typical that only

the enterprise's management participates in decision-making ($r_s = -.167, p < 0.05$) (see Table 3).

Table 3. Results of the correlation analysis of labor productivity and teamwork characteristics in manufacturing enterprises that mainly sell their products on the international market (source: authors)

The enterprise basically sells its products in the international market		
Characteristics of teamwork	Spearman's rho	Labor productivity
The head of the enterprise makes unilateral decisions	Corr. Coef.	-.188*
	Sig. (2-tailed)	0.026
	N	140
Your line manager makes unilateral decisions	Corr. Coef.	-.222**
	Sig. (2-tailed)	0.008
	N	140
Only the enterprise's management participates in decision-making	Corr. Coef.	-.167*
	Sig. (2-tailed)	0.049
	N	140

Notes: *. Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

The relation of labor productivity with the line manager's unilateral decision-making ($r_s = -.166, p < 0.05$) has also been revealed in those manufacturing enterprises in which employees have indicated **the human factor** (division of labor, mutual relationships, etc.) as the main one on which the labor productivity depends in the enterprise. It is also significant that the study has revealed the connection between the labor productivity and the formation of special groups for difficult decision-making ($r_s = .185, p < 0.05$) and the need to involve employees in the assessment of their individual results ($r_s = .202, p < 0.05$). In its turn, in enterprises where the technological factor is the main factor on which productivity depends in the enterprise, productivity is related to decision-making between employees within each structural unit/among function performers ($r_s = .192, p < 0.05$) (see Appendix 2).

Finding out the relationship between the characteristics of teamwork and labor productivity in a group of enterprises, where **labor productivity is an area that is already receiving increased attention** (at the time of data collection), it has been found that there is a connection between teamwork and the growth of labor productivity in those enterprises where not only *cooperation* is characteristic – cooperation of departments/function performers in task accomplishment ($r_{pb} = .155, p < 0.05$), mutual cooperation of employees and management within one department ($r_{pb} = .148, p < 0.05$) and mutual cooperation between employees and management in the enterprise as a whole ($r_{pb} = .143, p < 0.05$) but also *employees' involvement* – involvement in the assessment of work results ($r_{pb} = .154, p < 0.05$), assessment of achieved work results on a daily basis ($r_{pb} = .122, p < 0.05$) and

employees' opportunities to express themselves in meetings ($r_{pb} = .160, p < 0.01$), and *communication* – communication among the staff in the enterprise as a whole ($r_{pb} = .151, p < 0.05$) and conflict resolution ($r_{pb} = .128, p < 0.05$) (see Table 4).

Table 4. Results of the correlation analysis of productivity and teamwork characteristics in manufacturing enterprises, in which labour productivity receives increased attention (source: authors)

Characteristics of teamwork	Point-biserial corr. coef.	Labor productivity
Different departments work together on one task	Corr. Coef.	.155*
	Sig. (2-tailed)	0.011
	N	268
The enterprise is characterized by mutual cooperation between employees and management within one department	Corr. Coef.	.148*
	Sig. (2-tailed)	0.016
	N	268
The enterprise is characterized by cooperation between employees and management in the enterprise as a whole	Corr. Coef.	.143*
	Sig. (2-tailed)	0.019
	N	268
Employees are involved in the assessment of work results	Corr. Coef.	.154*
	Sig. (2-tailed)	0.012
	N	268
Disagreements and conflicts are resolved openly and constructively	Corr. Coef.	.128*
	Sig. (2-tailed)	0.036
	N	268
You have the opportunity to express yourself in the meetings	Corr. Coef.	.160**
	Sig. (2-tailed)	0.009
	N	268
Communication takes place among all enterprise staff	Corr. Coeff.	.151*
	Sig. (2-tailed)	0.013
	N	268
Employees' involvement/ participation in the assessment of the accomplished work results is required	Corr. Coeff.	.122*
	Sig. (2-tailed)	0.046
	N	268

Notes: *. Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Assessing the relationship between teamwork characteristics and labor productivity in a group of enterprises in which the growth of labor productivity receives increased attention, the results presented in Table 4 show that labor productivity is higher in enterprises with employees' involvement in performance appraisal, effective communication in conflict resolution, meetings and among all staff in general.

Also, researchers Noruzy et al. (2011) have previously indicated the relationship between communication, participation, clarity of the employees' role and autonomy and labor productivity in manufacturing enterprises

(Noruzy et al., 2011). Moreover, the authors (Noruzy et al., 2011) consider that managers should be encouraged to give their employees both professional autonomy and they should also try to give purpose and challenge to their employees' work.

Conclusions

Analysing the results obtained in the analysis of the most characteristic features of teamwork and the relationship between labor productivity, it can be concluded that the labor productivity of enterprises correlates with such characteristics of teamwork as "cooperation" and "responsibility". Performing the analysis of the characteristics of teamwork in manufacturing enterprises, where labor productivity has already received increased attention, it has been revealed that the characteristics of teamwork – within the framework of "cooperation", the enterprise's labor productivity is positively related to such work environment of enterprises which is characteristic of cooperation within one department and the enterprise in general, where different departments work on one task, involving and promoting the participation of employees in the assessment of the accomplished work results on a daily basis, implementing constructive conflict resolution and successful communication in general. Whereas, in enterprises where employees tend to depend mainly on the human factor, productivity increases if the line manager makes fewer unilateral decisions and if the enterprise pays more attention to the employees' involvement in the assessment of individual results. The importance of employees' co-operation is also reflected in the commitments that exist in enterprises where, from the employees' point of view, labor productivity depends mainly on the technological factor – including decision-making among employees within each division/department/among function performers. Manufacturing enterprises that sell their products in the international market also have a negative correlation between the growth of labor productivity and unilateral decision-making by managers. In large and medium-sized enterprises, the labor productivity is higher when employees are open to new ideas and changes, marking the relation between "trust" and labor productivity in manufacturing enterprises. In medium-sized enterprises, the fact that employees are innovative, endowed with initiative, take initiative and generate new ideas also has a positive effect on the growth of labor productivity. Whereas in large enterprises, self-discipline and employees' responsibility for their accomplished work and made decisions for the labor productivity increase are important. In all manufacturing enterprises, it is important to ensure that the subordinate gives their suggestions, but special work groups are formed for making difficult decisions - the more characteristic the work of this team in the enterprise's work environment, the higher the labor productivity in the manufacturing enterprise. The relation between collective decision-making and labor productivity

is evident in both small and medium-sized enterprises, where the labor productivity is largely dependent on the human factor. In large enterprises, the labor productivity is higher if everyone feels that their ideas and suggestions are heard and considered, and that communication takes place among all enterprise staff. The results of the study have revealed that the labor productivity is increased by the cooperation of different departments for one task performance in a manufacturing enterprise, thus in manufacturing enterprises it is necessary to promote cooperation among employees rather than managers, supporting decision-making among function performers and reducing unilateral decision-making at different levels.

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APPENDIX 1

Results of the correlation analysis of labor productivity and teamwork characteristics depending on the size of the manufacturing enterprise (source: authors)

Characteristics of teamwork	Spearman's rho								
	Size of the enterprise								
	Small			Medium			Large		
	Labor productivity			Labor productivity			Labor productivity		
	Corr. Coef.	Sig. (2-tailed)	N	Corr. Coef.	Sig. (2-tailed)	N	Corr. Coef.	Sig. (2-tailed)	N
Different departments work together on one task	0.271	0.083	42	.204**	0.004	194	0.276	0.127	32
Employees' mutual cooperation between different departments	.319*	0.040	42	-0.006	0.936	194	.404*	0.022	32
Cooperation among employees and management in the enterprise as a whole	.356*	0.021	42	-0.021	0.776	194	0.103	0.576	32
Decisions are made among employees within each division/department/between function performers	.428**	0.005	42	0.075	0.297	194	0.228	0.210	32
Your line manager makes unilateral decisions	-0.167	0.291	42	-.144*	0.045	194	-0.243	0.180	32
Special work groups are set up to make difficult decisions	.347*	0.024	42	0.084	0.242	194	0.193	0.291	32
Employees' ability to resolve conflicts	-0.065	0.682	42	.182*	0.011	194	0.279	0.122	32
Communication takes place among all enterprise staff	0.270	0.084	42	-0.036	0.614	194	.455**	0.009	32
Everyone feels that their ideas and suggestions are being heard and considered	-0.138	0.384	42	0.027	0.706	194	.389*	0.028	32
Employees are innovative, endowed with intuition, take the initiative and generate new ideas	0.209	0.185	42	.161*	0.025	194	0.110	0.551	32
Employees are open to new ideas and changes	0.084	0.597	42	.145*	0.043	194	.364*	0.040	32
Employees are self-disciplined	-0.151	0.339	42	-0.088	0.221	194	.400*	0.023	32
Employees take responsibility for the work they have done and decisions they have made	-0.278	0.075	42	-0.044	0.543	194	.360*	0.043	32
The work tasks are precise and clear to the employees	0.052	0.745	42	-0.056	0.434	194	.417*	0.018	32
The need for employees' participation and involvement									
In the developing of the department's goals and operational plans	0.117	0.459	42	.155*	0.030	194	0.117	0.525	32
In the assessment of the employees' individual results	0.019	0.905	42	.173*	0.016	194	0.091	0.620	32
In the division of tasks and responsibilities	-0.045	0.778	42	.147*	0.041	194	0.023	0.903	32
In the remuneration and resource allocation	-0.205	0.194	42	.146*	0.043	194	0.046	0.801	32

Notes: *. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 2

Results of the correlation analysis of labor productivity and teamwork characteristics in manufacturing enterprises, depending on the human or technological factor as a factor influencing labor productivity in the enterprise (source: authors)

Characteristics of teamwork	Spearman's rho					
	Labor productivity in your enterprise depends on:					
	The human factor			The technological factor		
	Labor productivity			Labor productivity		
	Corr. Coef.	Sig. (2-tailed)	N	Corr. Coef.	Sig. (2-tailed)	N
Decisions are made among employees within each division/department among function performers	0.088	0.267	162	.192*	0.048	106
Your line manager makes unilateral decisions	-.166*	0.035	162	-0.066	0.503	106
Special work groups are set up for difficult decision-making	.185*	0.019	162	0.150	0.124	106
Employees' involvement/ participation in the assessment of individual results is required	.202**	0.010	162	0.021	0.829	106

Notes: *. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).