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Profitable Production as a Socio-Economic Based on Supply Chain Management with Lean Production

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***Abstract*— The article discusses organizational, economic and managerial relations that determine the supply chain management and the system of elements of "lean production" in human resource management. The essence and interrelation of the management system of organizational behavior and elements of corporate Lean culture are revealed, the possible directions of the influence of lean production culture on the organizational behavior of employees, considering the specifics of the personnel management of a particular organization, are substantiated. It was concluded that the basis of the strategy of managing organizational behavior should be a "lean" approach, involving the creation of a corporate culture of lean manufacturing, conditions for managing group work, corporate communications, managing teams, and leaders able to unlock the potential of employees. The main principles of a lean approach are: "sustainable socio-economic development is transformation in the minds and actions of personnel" and "lean synergy is a factor and resource for increasing productivity".**

***Keywords*—** *lean production, supply chain management, technologies, human resource management, staff involvement, change management*

1. Introduction

Similar to the supply chain management, lean production emphasizes on time delivery to the right location at a minimum cost by eliminating waste, especially unnecessary inventories [1, 2]. Thus, lean production can be determined as the supply chain management at an operational level [3-6] or transaction-based supply chain management, focusing on information and material flows especially in the industry. Using new HR technologies in the practice of personnel management, complicating the processes of informatization and commercialization of production activities and the increasing diversity of human resources in an organization, corporate culture, effective internal communications and competent management as the main regulator and coordinator of organizational behavior become a key factor in the development of organizational behavior. Having qualified employees striving for team building, mutual aid and exchange of experience is a great superiority, as in today's socio-economic conditions, success in the market is ensured by the content of mobile, creative and talented staff. When addressing the problem of improving the efficiency and competitiveness of their activities, organizations need to focus on three basic elements - rational use of human resources, effective personnel management, efficient lean production, while maintaining the importance of a fundamental, strategic basis - personnel [7].

Developing and strengthening the culture of lean manufacturing is an important resource and regulator of managing organizational behavior of employees of organizations under the following conditions: the system of managing organizational behavior through training all categories of personnel aimed at solving strategic and tactical "lean" tasks and based on building open communications, corporate values staff and management activities; personal development system provides increased employee motivation; the higher the level of management of the corporate culture's value profile, the lower the resilience of personnel to new technologies of lean manufacturing.

2. Objectives

Based on the systematization of theoretical approaches, reveal the essence and interrelation of the main elements of the system of management of organizational behavior and elements of corporate Lean culture and develop a system of "lean" management of supply chain based on the development of a culture of lean production.

3. Methodology

Supply-chain professionals contribute to a company's bottom line by effectively and efficiently managing a

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complex network of people, resources, activities, and technology structures. An exceptional supply chain creates efficiencies and can create a sustainable competitive advantage. These efficiencies can increase revenue while decreasing costs. A well-managed supply chain provides companies with the ability to execute best practices in the following areas:

Demand Planning; Procurement; Logistics; Inventory Management; Information Systems; Compliance; Distribution; Risk Management and Contingency Plans.

This study is based on the conceptual provisions of lean manufacturing, the development of corporate Lean supply chain management of modern organizations, disclosed in the works of domestic and foreign scientists. As a methodological basis of the study, a systematic, dialectic and integrated approach to the study of the management of supply chain based on the use of relevant elements of a lean manufacturing culture was used. The research methodology is based on the use of a complex of general scientific and special research methods: logical, structural, functional, comparative analysis, theoretical modeling, expert evaluations.

4. Results

The concept of lean manufacturing was developed and successfully tested at Toyota (1948–1975), the foundation is an integrated socio-technical system of supply chain management philosophy and practice - TPS. It includes the organization of production and logistics, as well as interaction with suppliers and customers. The essence of TPS lies in the standardization of processes and the system of continuous improvements (kaizen) [8-10]. In foreign sources, “lean production” is usually viewed from the perspective of using a configuration lens, this is primarily an integrated socio-technical system, whose main task is to eliminate waste (losses) by simultaneously reducing or minimizing the variability of suppliers, customers and domestic factors [11, 12].

Supply chain management is a systematic approach to managing the distribution of goods from producers of raw materials, through manufacturers and eventually down to end users. Supply chain management affects manufacturing companies in a variety of ways, including the availability of inputs needed for production processes, costs and profitability of manufactured items, company infrastructure and ways in which companies interact with their suppliers and customers. Understanding the ways that supply chain management affects manufacturers from both a daily operational perspective and a strategic viewpoint is important for all managers and entrepreneurs in the industry. The main vector of “lean production” is aimed at eliminating actions that do not create value, that is, losses [13].

In our opinion, lean production is, first of all, the concept of business organization, focused on creating attractive value for the consumer through the formation of a continuous stream of value creation covering all the processes of the organization and their continuous improvement through staff involvement and the elimination of all types of losses. Lean manufacturing, in terms of application to educational institutions and government bodies, is a management concept based on the constant striving to eliminate losses in all areas of activity, by incorporating each employee into the optimization processes. Lean manufacturing involves not only the manufacture of products (lean manufacturing), but also management (lean management), the administration of all business processes, business flow of documents (lean office), production and experimental development (lean development). It should be noted that lean management, firstly, is an orientation towards the management of processes, flows, staff involvement through lean culture, mentality, value motivation, and secondly, it is lean organizational self-organization based on lean thinking. Thus, the concept of lean manufacturing covers all processes of the organization, including management processes, design processes, research and development, maintenance, logistics, etc.

Despite the functional multidirectionality of the idea of “thrift”, a significant role in its implementation is played by employees, as a strategic resource for the effective functioning and sustainable development of the organization. The concept of lean manufacturing focuses on the importance of respecting employees and creating ways to allow staff to think and propose improvements [14-16]. The manager will be able to achieve the goal of working together by multiplying his physical and intellectual strength through the collective power of subordinates and purposefully will use them. This is the task of the head of any management level. The inability to build interpersonal relationships, dislike for one’s partners and one’s self engender a lack of initiative, indifference and a feeling of permissiveness. Awareness of the need to urgently address the problem of improving people's behavior is the basis for optimizing the corporate culture in the organization and strengthening staff loyalty. Recently,

it has become relevant and prestigious to talk about the formation of employee loyalty to the organization and the development of strategic methods for retaining valuable employees [17].

The results of management of innovative potential largely depend on the effectiveness of management activities, which must be properly modeled and ensure the formation and implementation of the best development variant and competitive advantages. Among the ways to increase the efficiency of personnel development management based on the use of low-cost measures, it is worth mentioning the optimization of the management system through standardization and integration of management systems, the use of a progressive competence model of managers at the organizational level to form an organizational behavior management system [18, 19].

Organizational behavior is a multi-level system for studying the behavior of personnel and various groups in the internal and external environment of a particular organization, the formation and development of behavioral models, and the practical use of acquired knowledge and skills. The boundaries of organizational behavior are formed and strengthened in the process of mutual influence and close interaction of 4 factors: personnel, organizational and management structures, technology, external environment. All factors should be coordinated with the specificity of the personnel management of a particular organization. The main thesis is the characteristic of personnel in an organization; it is the level of individual responsibility and self-control over the final result of their work or their team, or the organization as a whole (Fig. 1).

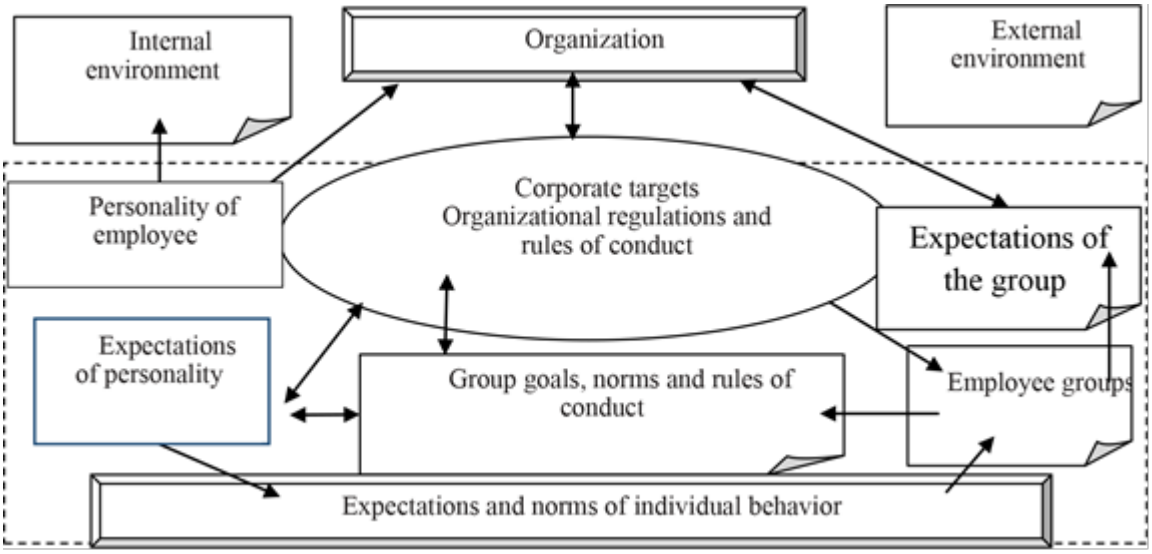

Figure 1. Possible areas of mutual influence (interaction) of the main subjects of organizational behavior (source: compiled by the authors)

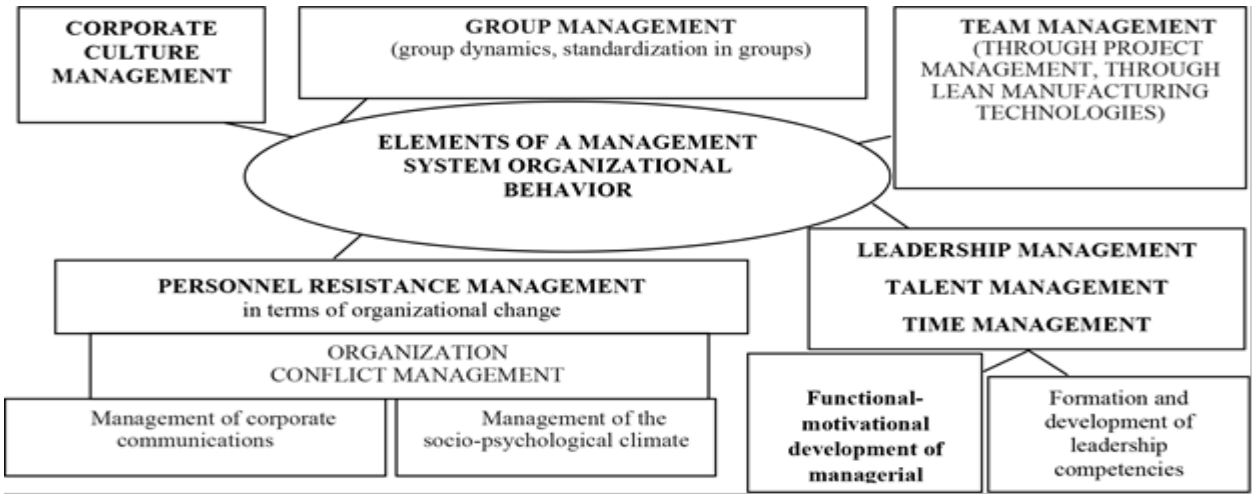

Figure 2. Differentiation of the main elements of the organizational behavior management system (source: compiled by the authors)

Management of organizational behavior and the formation of group behavior - targeted work in the field of HR-management. With some degree of conditionality, let us highlight the main elements of the system of management of organizational behavior, which, in our opinion, require a systematic approach in terms of implementation and optimization of personnel management (Fig. 2). HR managers must clearly understand and control certain patterns of personnel behavior through – team management, management of group work, management of corporate communications, management of corporate culture, management of leaders, management of staff resistance to organizational change, conflict management.

The Lean-philosophy of continuous improvements offers an alternative to large, long-term reorganizations being developed “from above” - less global, but continuous improvements that not only change things for the better, but also pass the opportunity to positively influence the conditions and results of their work to the employees themselves, turning them from passive performers to active participants (generators of ideas and rational proposals) of the totality of processes implemented in an organization [20-22].

As part of the study, it is necessary to define the boundaries of the “corporate culture of lean manufacturing” and to update the optimal elements that can form its core. We consider Lean-culture as a narrower concept regarding “organizational culture”. In our opinion, the basis of a Lean culture should be elements that can be developed and transformed to achieve common goals in one direction with lean management technologies, first of all, these are “personality culture” and “culture of behavior and communications”, then in ranking order : elements of “team building”, “organizational learning”, “commitment”, “leadership”, “lean thinking”, leadership style, “personal effectiveness of the manager”, “motivational personnel profiles”, “non-destructive systems” we are labor remuneration ”,“ self-motivation ”(Fig.3).

Thus, the essence of the corporate culture of lean manufacturing is that all elements of the culture structure of a particular enterprise correspond with the principles of lean manufacturing and develop in one system to achieve common “lean” goals. That is, the elements of Lean-culture should be systematically transformed in accordance with the principles and objectives of “lean management”.

The system of forming and developing a culture of lean production as a regulator of supply chain management should be coordinated by managers and personnel managers, and be regulated in the following boundaries. Strategic vector - staff development:

- social responsibility;
- leadership, teamwork, lin leadership, leadership standardization;
- visualization, a system of constant improvements;
- training system, motivation for improvements (proposals in exchange for requirements);
- production briefing (TWI), identifying and solving PDCA problems, organizing the RPM program, deploying a policy based on Hoshin Kanri;
- mutual trust and respect;
- safety and environmental friendliness of labor [23];
- effective marketing and personnel logistics throughout the entire life cycle, intensive open exchange of information;
- culture of corporate communications, delegation of authority, meetings, etc.

Operational vector - development processes:

- diagnostics / certification on the basis of FSCS;
- visual management and organization of workplaces, management of value streams, just in time, standardized work;
- universal production service (TPM), quick changeover (SMED); increasing equipment availability, unidirectional flow and leveling, embedding quality in the process;
- assault breakthroughs, statistical methods and Six Sigma [24];
- ling office and ling in design;
- effective logistics, lin-accounting, calculation of efficiency and many others [3, 12].

The first direction is the development of new technologies for the motivation of personnel in lean manufacturing. The boundaries of lean management: models of incentives for workers in the system of lean manufacturing. Basic requirements for a system of rational motivation and stimulation of work. Remuneration management technologies. Development of intangible incentives. Non-standard motivation in the system of lean manufacturing. “Traps” SSP and “funnels” MBO. From stimulation and performance management to self-motivation and value management of target states. Objectives: a systematic analysis of the dominant motives and needs of staff in lean manufacturing and the creation of a Lean-employee motivator map. Building a motivational profile of staff in lean manufacturing. Identification and critical assessment of opportunities to motivate and stimulate personnel in the conditions of lean manufacturing.

The second direction is the management of leadership in lean manufacturing. Personal effectiveness of the head. It is important to know the "pitfalls" when managing a team. Typical control errors and how to eliminate them.

The third direction is building effective communications based on strengthening corporate culture elements. Research vector: organizational culture as a resource for improving the system of personnel motivation and the formation of innovative teams (leaders). The problem of the role of culture in the management of staff motivation. Evaluation, development and adjustment of effective organizational culture. Training programs that increase the professionalism of managers in the field of organizational culture. Building effective communications based on the ideological subsystem of organizational culture. Positive feedback, goals and activities. Managing employee engagement: current practices and tools. Tasks: analysis of the passport of the organizational culture of a particular enterprise. The study of the information system of communications: analysis of information flows, evaluation of communicative efficiency (SCM). Development of a model of effective communications based on the strengthening of relevant elements of the corporate culture, which the employees themselves identified as necessary, valuable and desirable.

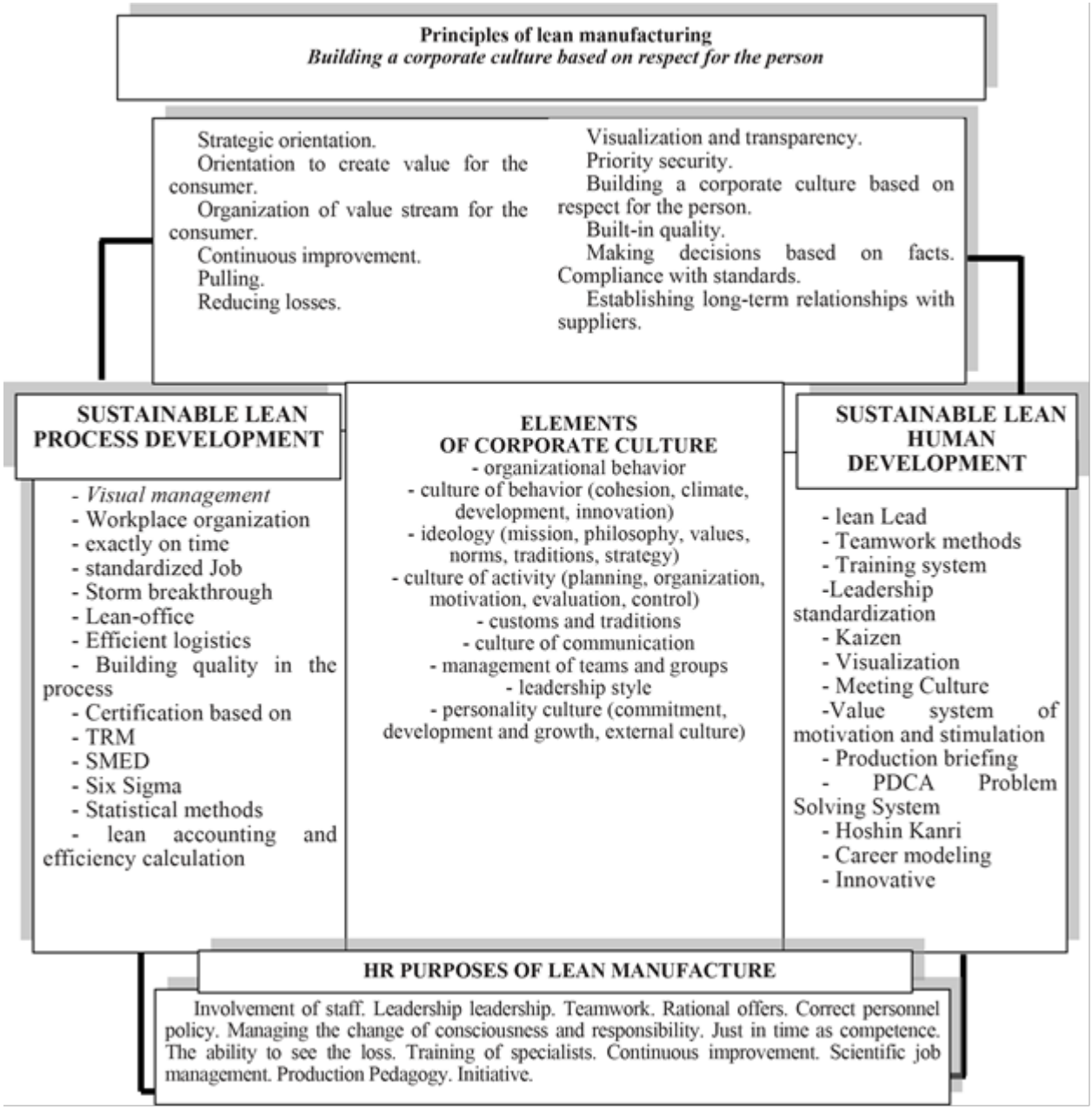

Figure 3. Basic characteristics of the structural-functional approach to the essence corporate lean culture (source: compiled by the authors)

The fourth area is talent management, time management, mind-management: mainstream operational leadership, motivation and improvement of intra-organizational communications. It is important to explore: talent management systems (TMS). The economic and social effects of implementing a talent management system. Time management systems. Time management rules. Rules of personal organization and self-discipline. Learning systems in terms of lean manufacturing. Culture of meetings, etc.

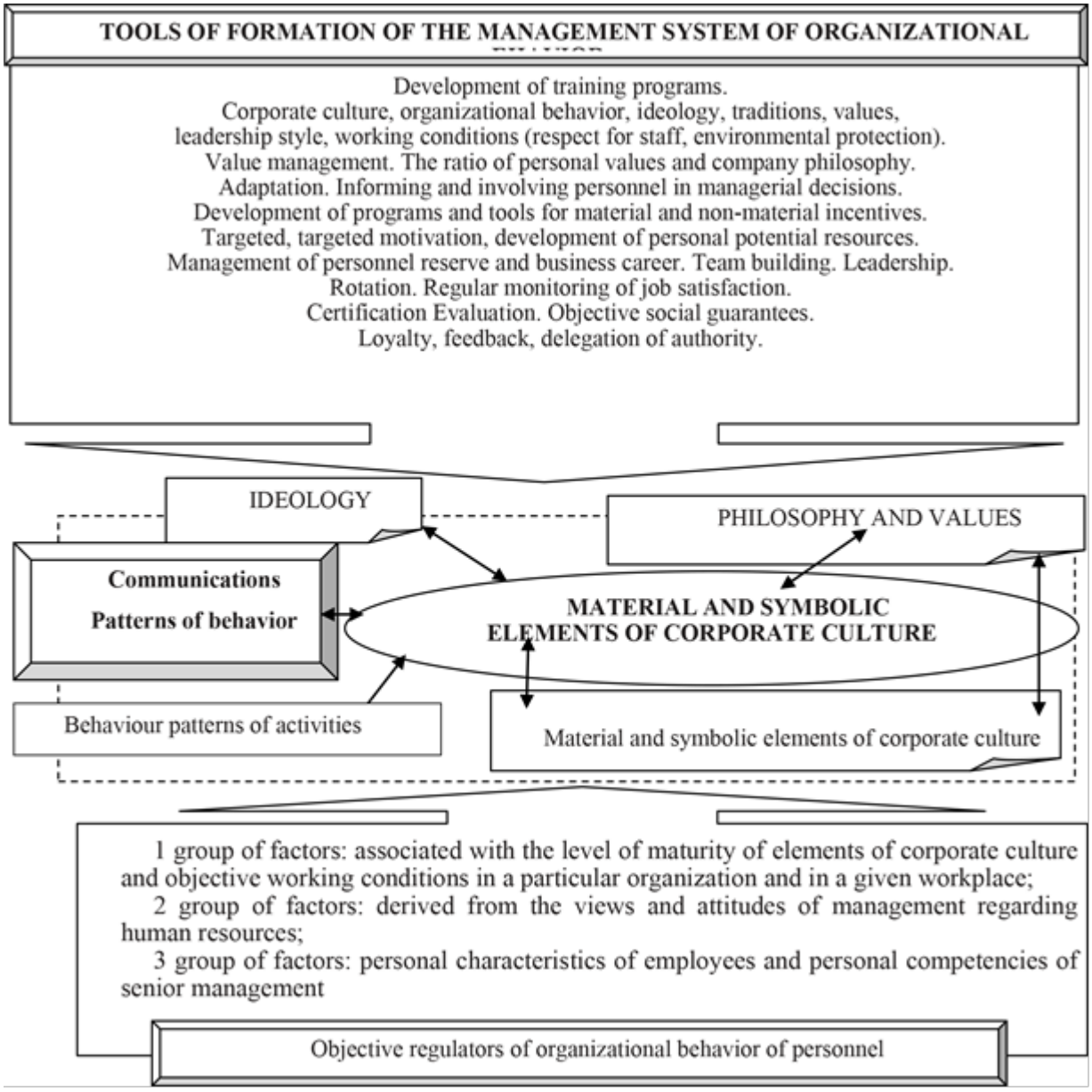

Figure 4. Areas of influence of lean manufacturing culture on the organizational behavior of staff (source: compiled by the authors)

Optimal areas of mind-management application: teamwork, time management, project management, training, etc. Objectives: development of a structural-functional model of talent management (TMS) based on an analysis of the dominant motives and needs of involvement in communication networks. Differentiation of the main elements of the organizational behavior management system allowed us to identify relevant elements that we consider as a socio-economic resource in the system of lean manufacturing development: corporate culture management, leadership management, talent management, loyalty management, organizational resistance management, organizational conflict management. The end result of effective management of organizational behavior, technologies and methods of strengthening corporate culture elements can be formulated as follows: personal effectiveness of a

manager, competent staff, loyal and highly motivated for the overall result, “lean thinking”, team building, organizational training, time management, adaptability to change. As part of the study, we consider the corporate culture of lean manufacturing as a multi-vector, changing economic and managerial resource that acts as a regulating factor determining the nature and direction of the mechanism for managing organizational behavior (Fig. 4). It should be noted that the strengthening of the regulatory and coordinating role of corporate Lean culture regarding organizational behavior is primarily ensured by the influence of top management (controlling) and motivational and targeted management influence.

Thus, the influence of lean supply chain management is manifested through the identification of personnel personal goals and corporate values with the goals (objectives) and ideology (philosophy / policy) of the organization through their adoption; through the implementation in the organizational behavior of each member of the collective norms and principles of lean management.

5. Conclusions

This study applies lean production technologies to improve the efficiency and effectiveness of supply chain management. The need for the development of lean production becomes especially important in the conditions of the transition of the Russian economy to an innovative path of development. Therefore, for the rational use and application of Lean-production tools in practice, supply chain managers of organizations need to develop an supply chain strategy that should include:

1) system of measures to streamline and efficient work activities of employees;

2) progressive competency model for talented workers;

3) program to reduce emotional burnout and psychological tension of the team;

4) program for managing corporate culture and organizational behavior based on the development of lean manufacturing.

The implementation of these areas for the development of lean manufacturing in the framework of the organization’s development strategy will help build the organization’s capacity to increase the competitiveness of both services (products) and personnel, create conditions for attracting and retaining high-potential employees, and accumulate the mechanism of teamwork and organize work to reduce losses and effective management of labor resources.

6. Recommendations

It is suggested that other processes should be considered to consider the personality and behavioral dimensions of individuals for economic and social laws, so that the subject in these dimensions can be fully examined in different dimensions.

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