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MANAGING SOCIAL INFRASTRUCTURE

The article talks about social infrastructure as a part of enterprise infrastructural management. It offers possible solutions for improving inefficient infrastructural management at the machine building plants of Ukraine, providing examples of the actual companies and their achievements. According to the authors interpretation the scope of social infrastructure covers personnel training, development programs, health care and recreation services for the company's employees and green infrastructure as a key element of the corporate social responsibility. As an outcome of the analysis a set of techniques and strategies were developed that should help managers better serve their employees, discover their best talents, maintain a safe environment in and outside the plant, create a positive image in the society and build a sustainable model for the future development.

Key words: Enterprise infrastructure, social infrastructure, personnel training, development programs, health care, recreation services, green infrastructure.

Introduction: Over the past two decades the changes in the economic system of post-Soviet states caused a steady slowdown in the manufacturing sector. Part of it could be referred to the broken supply and sales channels within the former Soviet Union republics. On the other hand, there is another major obstacle that lays internally – the lack of company's knowledge and management skills to rearrange available industrial facilities and adjust its operations to the need of the open competitive market. Most of the production plants in the post-Soviet countries inherited wide and inefficient network of social facilities such as hospitals, clinics, kindergartens, tourism camps and recreation centres [1, p.84]. Most of them were subsidized by the government and went in line with the social agenda of the communist party. However, after the Soviet Union collapsed and companies were headed by the new private owners, many of those infrastructural elements were given up. The fast development of the small and medium sized specialized companies created an opportunity for outsourcing and deeper concentration and specialization processes. Still there are some social functions that could not be outsourced as they foster company's culture, help to build its team spirit and boost morale. Social infrastructure is also responsible for the cooperation with the local community as well as building up a positive company's image among its customers, suppliers and employees. Another important side of social infrastructure goes along its environmental aspect as it's aimed at overseeing ecological impact of the companies' operations as well as adhering to the nationwide ecological standards.

Among the most recent publications done by European, American and post-Soviet countries scientists and practitioners, we should emphasize studies done by Eric G., Reznikowa A., Kuzmenko A., Romanenko S., Shrivastava P., Stuart H., Weitzman R., Pearson K. and many others who thoroughly studied management of human resources and "green manufacturing" at the production companies. Western scientists viewed infrastructural departments and their functions as a part of corporate social responsibility discipline, while others have emphasized large inefficiencies and redundancy of those units in the post-Soviet realities. However, both of them have not developed a set of ready to use techniques for restructuring and modernizing available resources into efficient and safe environment for both employees and outside parties involved.

Problem statement: To analyze existing methods and offer new techniques of human resource and ecological management to assist managers in adapting old infrastructural departments into efficient units that help employees discover their full potential while letting the company operate in the most sustainable way.

Research outcomes: Firstly, we would like to investigate the meaning of the term "enterprise infrastructure". The first mentioning of the word 'infrastructure' in English language dates back to the 1927 with the referral to the "the military installations of a country" [2]. Later this term was used to describe "the basic physical and organizational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise" [3]. In both cases, the meaning of the word 'infrastructure' was pointing out the fundamental and critical role of those underlying facilities, systems or assets in supporting and servicing organizations, cities or countries. However, defining infrastructure as a set of physical facilities or assets does not reflect any more the broad spectrum of all the challenges that modern infrastructure has to resolve. In today's world of "cloud technologies" and outsourced operations, infrastructure should be viewed from its "functional perspective" as a set of fundamental activities and operations that create a working environment for all the manufacturing, financial, marketing, or human resource activities at the plant, inside or outside companies' physical facilities, performed by its own or outsourced personnel [4, p.196-200; 5, p.34-35]. By separating infrastructure from its tangible assets, supporting teams or relative departments, we encourage managers to focus on the actual tasks and functions that those assets or people are called to perform.

The social infrastructure includes personnel training and development programs, health care and recreation services as well as green infrastructure. The former components are focused on the most critical companies' resource - human capital. It is especially important in the age of the global talent shortage [6]. Despite the high unemployment rates in the post-Soviet states, the number of available candidates has not improved due to the skills mismatch and aging population. The skills gap is especially severe in the machine-building industry with its automotive, energy, aerospace, defence and other sectors [7]. The biggest shortage is evidenced among skilled production workers, technologists, scientists and design engineers who are among the most critical forces to drive innovation and improve company's performance. With that in mind, employee training and development programs deserve special attention and revised management approaches.

Among the areas included into the social infrastructure we have emphasized a green infrastructure. The concept itself comes from the national environmental management which became popular in the US in the mid-1990s. The green infrastructure on the national level helps in adapting sustainable decisions in the land-use, planning clean water and healthy soils, as well as the more anthropocentric functions such as recreation. On the micro-level, green infrastructure means all the efforts that company undertakes to minimize energy, water, material consumption, reduces waste and eliminates air or water pollution, helps to maintain natural landscape around the factory [8, p. 23-24].

The main role of the social infrastructure is to ensure that such business function as building company's culture, developing its key employees, maintaining corporate social responsibility are permanently fulfilled. Both employees of the company and local community whom it serves should witness that company cares about them, meets and exceeds the standards of fair and sustainable business practises.

There is another economic incentive for the companies to develop employee training, recreation and health care programs which is the cost of a quick employee turnover. In today's highly competitive and quickly changing environment, the challenge of retaining highly skilled employees or developing their talents has become very serious issue in the global industrial sector [9, p. 46-48]. The specifics of machine-building sector prove that finding and recruiting a new ready-made staff is expensive and difficult endeavour. On the other hand, the time necessary to prepare a good technician or an engineer takes from five to about ten years depending on the industry complexity. Thus, retaining a good staff is economically justifiable decision and promises high ROI for the company's future sustainability. Managers have to keep in mind that motives which attract a candidate to a particular job are often different from the factors that keep that person in particular position. While salary certainly is a key consideration for potential employees, pay alone does not help to retain a highly educated and skilled technician in a job. Today employees are looking for a career package, including a comfortable company culture, career path, diversity of responsibilities, and a work/life balance.

There are some methods and techniques already practised or still in the process of establishing at the Ukrainian machine building plants that we have summarised and provided as an example of the good human development tactics.

1. Novokramatorsky Mashinostroitelny Zavod (NKMZ) located in Donetsk region in Ukraine has developed special employee training programs. They were designed in a way to help build up specific professional qualities and strengthen employees' soft skills. Thus, employers facilitate employees to achieve their goals and ensure they have a solid understanding of their job requirement [10].

2. The same company NKMZ has developed a good mentoring system integrated with a goal-oriented feedback that provides a structured mechanism for developing strong relationships within the organization and is a solid foundation for employee retention and growth. Within such mentoring system, the company pairs someone more experienced in an area of expertise with someone less experienced in a similar area, with the goal to develop specific competencies, provide performance feedback, and design an individualized career development plan.

3. Kyiv Central Design Bureau of Valves (KCDBV) located in the capital of Ukraine spends a lot of efforts instilling company's positive culture. KCDBV spreads a series of values such as honesty, excellence, positive attitude to challenges, respect, and teamwork that form a basis for the comfortable and conducive working environment. It is achieved through mutual free time programs where all managers, engineers and shop floor workers can meet each other in the informal environment and take part in the sports and social activities. The company also has a comfortable lounge area decorated with the pictures of mutual successes and after-work activities where all the employees can spend their coffee breaks and lunches [11].

4. Another popular instrument of the KCDBV managers is to provide coaching and feedback. The company's senior employees and managers often offer feedback and coaching to lower level employees so that their efforts stay aligned with the goals of the company and can meet expectations. During the first few weeks on the job, KCDBV human resource and functional managers provide short feedback to the newly hired personnel. Throughout the year both managers and employees provide each other with formal and informal feedback to reassure their personal goals and expectations are understood and aligned with the companies common goals.

5. Ivano-Frankivskiy Valve Plant (IFAZ) located in the western regions of Ukraine uses strong communication networks to build credibility. It lets communication to "flow up" through the staff advisory council which solicits and receives employees' opinions and suggestions and passes them on to the upper management [12]. The employees value that the employer listens and responds to their input to the company's strategic and day-to-day decision-making process.

6. Zavod Bolshevik a former "Soviet Giant" in the machine building industry located in Kyiv encourages referrals and recruits from within the company. It helps minimize confusion of job expectations. Current employees can realistically describe a position and the environment to the individual they are referring. Another way that helps Zavod Bolshevik to lessen the impact of turnover is by hiring from within, since current employees have already discovered that they are a good fit for the organization [13].

7. NKMZ stresses special attention to the personnel growth opportunities. The company provides workshops, software, and other tools to help employees increase their understanding of themselves and what they want from their careers and enhance their goal-setting efforts. According to the employees' survey conducted by the human resource office: "the employees value most the fact that organization is willing to make an investment in them and their career development".

8. KCDBV tries to develop its working schedules in the way that lowers stress from overworking creating work/life balance. This is achieved in the form of non-traditional work schedules (such as a compressed work week, telecommuting, and flexitime) and extra holidays. Thus, the employer experiences more productivity in the workplace because employees are less stressed, healthier, and thus, more productive. The company also encourages employees to set work/life goals, such as spending more time with their children, practise outdoor sports, etc. to achieve a healthy work/life balance.

9. KCDBV also fosters trust and confidence in their senior leaders. The company puts stress on developing strong relationships with employees from the start, so that lower level employees always trust that their upper management knows how to make the company successful. The younger employees are also encouraged to bring their ideas for the open discussion which is achieved by company's policies that help to get rid of authoritarian style in favour of democratic and consultative styles of management.

10. Very important aspect that lots of Ukrainian companies still lack and try to improve nowadays is showing employees' appreciation via compensation and benefits. Offering things like competitive salaries, profit sharing, bonus programs, pension and health plans, paid time off, and tuition reimbursement always sends a powerful message to employees about their importance at the organization. Thus, the rewards given to employees must be meaningful in the given economic situation in order to impact employees' perception of the organization and thus influence its retention efforts.

In conclusion, we would like to stress out that employees who feel valued and appreciated, provided with growth opportunities, work-life balance options, and have trust and confidence in their leaders create a backbone for the successful retention strategy, lower turnover costs, and helps to ensure company's sustainable future.

The other aspect of the social infrastructure that we wanted to describe separately is the idea of sustainable green infrastructure. The green manufacturing is a relatively new concept developed in recent years and also represents the sustainable development model for modern manufacturing industries [14, pp.86-89]. Green production refers to the business strategy that focuses on profitability through environmentally friendly operating processes.

According to the Hart and P. Shrivastava research in a study titled "Greening Organizations": "Green production focuses upon three fundamental goals: 1) minimize emissions, effluents, and accidents; 2) minimize the use of virgin materials and non-renewable forms of energy; and 3) minimize the life-cycle cost of products or services" [15, pp.186-187].

Some of the green manufacturing concepts used at the local Ukrainian machine building plants include:

1. NKMZ stresses importance on using green raw materials. That means reliance on recyclable and renewable materials to prevent unduly harm to the environment.

2. KCDBV launched a green production processes that include development of a new valve and packaging designs in order to reduce the impact on the environment by extending their operation life, reducing weight, lowering power characteristics etc. The company realized such activities are also helping to cut costs by lowering compliance, waste treatment, disposal, and raw material costs. Additionally, the company is changing its products in the way to make them easily disassembled so that high-value components that are not worn-out yet can be used longer.

However, environmentally sustainable company could be called the one that embraces changes on the deeper strategic level by modifying such business aspects as its mission and vision, competitive strategies, core technological systems, performance measurement, reward systems, organizational processes and culture. Unfortunately, none of the Ukrainian companies have gone that far to step into the era of green manufacturing.

One of the easy detectable issues of the machine-building companies in Ukraine is their high energy consumption and reliance on the natural energy sources like gas and oil which are not always available and are a subject to the growing market price and political speculations. That is why, we have decided to give couple hints on how energy consumption can be minimized by internal efforts of any machine-building plant.

1. Motor Shift

This method is based on the replacement of a single-speed motor with a variable-speed or servo drive. The energy which is returned from the drive when, for example, a spindle or any axis drive decelerates and can either be stored within the plant or used to power other energy-consuming equipment. Thus, that energy can be reused within a plant similar to how a hybrid vehicle's regenerative braking system helps charge the battery pack when the vehicle brakes or decelerates.

2. Machine selection

Machine tool selection provides an avenue for reducing energy consumption. Compared to building and machining with a stand-alone lathe and a stand-alone milling machine, a multitask machine can require less energy. For example, a machine that combines turning, drilling and milling operations in one machine gives a reasonable or substantial energy savings in both the use of space as well as what went into making and operating the machine itself. Thus, the savings include the floor space reduction and energy required to heat, cool and light it.

3. Cutting Cycle Times

A machine conserves energy when it is not making chips, but profitability comes from maximizing the amount of a machine's metal cutting time. Therefore, reducing cycle time is another method for reducing power use, and one way to achieve that is by machining at a high spindle speed.

One of the brightest examples of the green manufacturing in the automotive industry is demonstrated by the Volkswagen manufacturing facility in Chattanooga, Tennessee [16]. It has:

- LEED-aggressive facility. LEED means Leadership in Energy and Environmental Design and is a voluntary, consensus-based, market-driven program that provides third-party verification of green buildings. This program provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions;

- State-of-the-art waterless paint process to minimize emissions and waste;

- LED lighting and six-inch mineral rock wool panel walls to reduce energy consumption;

As a conclusion we must admit, that although the process of establishing a green production company can be quite tough and taking long time, the cost savings associated with pollution prevention efforts, coupled with marketplace benefits in the realms of reputation and consumer loyalty, can make a big positive impact not only for the environment, but also for the company itself.

Conclusions: Worsening performance of industrial sector in Ukraine and other post-Soviet countries urges for immediate actions to address its operation inefficiencies, specifically in its large and inept infrastructural departments. In this paper we decided to look at the machine-building plant infrastructure from the different angle. The concept of "infrastructure" was considered not from the perspective of its physical assets or employed resources, but from the fundamental functions that it has to accomplish. In the general view, infrastructure is needed to enable company fulfil its economic and social agendas. From the economic standpoint, infrastructure has to ensure that production process is going under the maximum efficiency rate, minimum idle time and maximum output; at the same time, good infrastructure provides favourable working conditions for its employees, boosts morale and loyalty to the company, and also carries out its corporate social responsibility function. With the high ecological footprint that most of the machine-building plants have right now, the ideas of environmental sustainability, reduced energy consumption and involvement in community services are getting extremely important for all the companies around the globe.

Through the concept of social infrastructure we wanted to stress the importance of the social function which company has to fulfil to create a positive image and succeed in a long-run. However, we believe that the ways manufacturing companies in Ukraine are carrying out those social functions are not always adequate to the needs and expectations of today's employees. The rising ecological standards and increasing resource prices are also requiring new approaches and strategies while conducting manufacturing activities. With this in mind, we collected a set of techniques and strategies that are already utilized or should be implemented at the machine-building companies to help managers better serve their employees, discover their best talents, maintain a safe environment in and outside the plant, create a positive image in the society and build a sustainable model for the future development.

Finally, we would like to add that the best in class social infrastructural management still cannot guarantee hundred percent employees' retention rate or lack of penalties for environmental damage. However, it can create a foundation and strong basis that enables company and its employees discover their full potential and act in the most efficient and sustainable way. A good infrastructure is like a smooth road which gives an access to the most difficult and desired destinations.

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