

CHAPTER 7

OUTLOOK FOR THE FUTURE DEVELOPMENT OF ENVIRONMENTALLY FRIENDLY ACTIVITIES AMONG HUNGARIAN COMPANIES

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As Hungary continues to integrate into the global economy, the focus on environmentally friendly activities among Hungarian companies is growing. The shift towards sustainability is not only a moral imperative but also presents significant opportunities for innovation and a competitive advantage in the business landscape. In this chapter, we present the future-oriented perspectives of Hungarian organizations regarding pro-ecological solutions, with a primary focus on sustainability approaches, especially in terms of packaging. The chapter also explores product improvement while simultaneously minimizing the negative impact on the natural environment. Through the analysis, we aim to comprehend the current perceptions of Hungarian organizations concerning the relationship between quality and pro-ecological solutions, their future development opportunities, and the factors that play a crucial role in these organizations' implementation of pro-ecological activities.

Keywords: quality, environmental consciousness, electromechanical industry, Hungary, future development

1. Introduction

In recent years, there has been a growing awareness among Hungarian companies regarding the importance of environmental sustainability¹. This trend is driven by various factors, including increasing regulatory requirements, evolving consumer preferences, and the escalating need to address global environmental challenges such as climate change and resource depletion². Organizations are adopting more sustainable practices, aiming to reduce waste and enhance resource efficiency. However, the extent and nature of these practices vary significantly based on company size and geographical location³. Larger corporations, often equipped with more resources, have been able to implement more comprehensive environmental strategies, while smaller enterprises are progressively adopting

¹ A. Csizmafy, Z. Ferencz, L. Kőszeghy, G. Tóth, *Beyond the Energy Poor/Non Energy Poor Divide: Energy Vulnerability and Mindsets on Energy Generation Modes in Hungary*, *Energies* 2021, 14(20), 6487.

² A. Buzási, B.Sz. Jäger, *District-scale assessment of urban sustainability*, *Sustainable Cities and Society*, 2020, 62, 102388.

³ V. Surman, E. Böcskei, *The SDG relevance-presence map of Hungarian SMEs - The relationship between the SDGs and the three pillar model*, *Cleaner Environmental Systems*, 2023, 11, 100144.

sustainable practices, albeit at a slower pace. As a result, Hungarian businesses are increasingly recognizing the value of incorporating environmentally friendly practices into their operations.

Companies are increasingly viewing sustainability as a driver of innovation and competitive advantage rather than just a compliance requirement. The adoption of ISO 9001:2015 has played a crucial role in this shift. This international standard for quality management systems has provided a framework for organizations to improve efficiency, reduce waste, and ensure quality, all of which contribute to broader sustainability goals. The adoption rates of ISO 9001:2015 vary, with larger companies and those in urban areas more likely to implement these practices, largely due to greater access to resources and expertise. Two-thirds of the organizations surveyed have already implemented ISO 9001:2015, and an additional 12.80% are in the process of introducing it. A less favorable ratio is observed in the case of the Environmental Management System (ISO 14001:2015), which is utilized by only about one-third (30.9%) of the respondents. With the implementation of an Environmental Management System, organizations can develop solutions that support the formulation of processes leading to environmental changes, aimed at enhancing innovativeness and competitiveness⁴.

2. Research method

In 2023, two surveys were carried out in the Visegrad Group nations as a component of the Qualitative-Environmental Aspects of Products Improvement project (IVF 22230264), funded by the International Visegrad Fund. The first questionnaire was surveyed among electromechanical industry companies regarding their pro-ecological behavior, sustainability, and the quality provided to customers. The second questionnaire targeted potential customers, complementing the information received from the organizations. In this chapter, we present the responses to the first questionnaire, focusing specifically on views related to future-oriented questions:

- Is the enterprise planning investment in pro-ecological solutions in the next three years? (Q19),
- Evaluate the importance (on a scale of 1-5) of the motives inducing company managers to undertake pro-ecological activities (Q22),

⁴ M. Urbaniec, *Implementation of International Standards for Environmental Management in Visegrad Countries: a Comparative Analysis*, Entrepreneurial Business and Economics Review, 2014, 2(2), pp. 65-76.

- To what extent (on a scale of 1-5) do you agree with the following statements concerning the importance of packaging features in the context of sustainability design of packaging for the Circular Economy (Q32),
- What is your opinion on the direction of the company's development? (Q35),
- During last 5 years determine whether the number of good quality and environmentally friendly products produced in the enterprise (Q36),
- Indicate what actions should be expected from the companies as the part of improving products and minimizing the negative impact on the natural environment (Q41),
- Which media are used to promote high-quality and environmentally friendly products on the market? (Q44).

3. Results and discussion

This subsection presents the research results of the survey related to the pro-environmental behavior of Hungarian manufacturing companies in the electromechanical industry, focusing on the future development of environmentally friendly activities.

At the beginning of the analysis, it is crucial to understand the plans of the analyzed organizations in terms of future investment in pro-ecological solutions. Figure 1 illustrates the distribution of these plans.

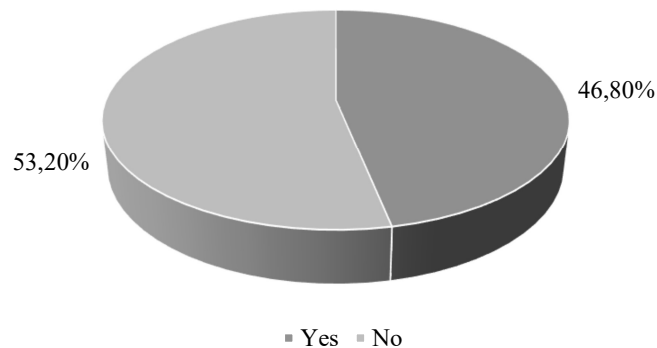


Figure 1. Future investment planning in pro-ecological solutions in the next three years (N=94)
Source: own study.

The distribution between organizations planning to invest (46.8%) and those not planning to invest (53.2%) in pro-ecological solutions is nearly equal. Although this concerns the short term, it appears insufficient given the rapidly changing environment and continuous environmental strain. There is a significant difference among organizations based on their location and range of activity. Proportionally, organizations headquartered in Budapest and engaging in international activities are planning to invest in pro-ecological solutions over

the next three years. They are followed by organizations conducting regional activities. Organizations operating at a national level, particularly those in small towns and localities, are the least likely to plan investments of this nature. There is also a correlation between organizations planning to implement ISO 9001:2015 and future investments. Specifically, those organizations currently in the implementation phase are more likely to plan investments in the coming years. In contrast, only 21% of the organizations that do not apply the standard plan such investments. Among those who have already implemented ISO 9001:2015, the ratio planning to invest is evenly split. The relationship becomes less clear in the case of ISO 14001:2015. All organizations who currently implementing this standard plan pro-ecological investments in the near future. However, a higher proportion (37%) of those that have not implemented the standard also plan such investments. Among organizations that already apply ISO 14001:2015, in this case, as well, the ratio planning to invest is evenly divided. Additionally, organizations that conduct quality improvement activities more frequently (once a year or more than once a year) are proportionally less likely to be planning investment in pro-ecological solutions in the near future.

The participants were asked to evaluate their motivation for implementing pro-ecological activities through 14 statements on a 1-5 Likert scale, where 1 represented “it is definitely not important” and 5 signified “it is definitely important.” 48 organizations did not complete this assessment, because they are not planning investment in pro-ecological solutions in the next three years thus the analysis in this matter is based on the responses of 46 organizations who are planning to invest in the near future. The evaluation of the responses is illustrated in Figure 2.

The participants considered the rational use of natural resources in production to be the most important, with this statement receiving the highest rating (a score of 5) from 19 respondents. Additionally, the statements regarding reducing the costs of negative environmental impact (e.g., compensation, penalties) and reducing the harmful impact of the product on the environment, taking into account Life Cycle Assessment (LCA) (noise, waste, sewage), were also marked as important. These findings suggest that both external and internal driving forces play a role in motivation. Factors related to financials generally received higher average ratings, while external societal pressure and national policy, as well as gaining new markets, although also receiving good scores, were ranked lower. It is interesting to note that although the statement regarding expansion into new markets was marked as “definitely important” by the highest proportion of participants, it still ranks among the lowest on average.

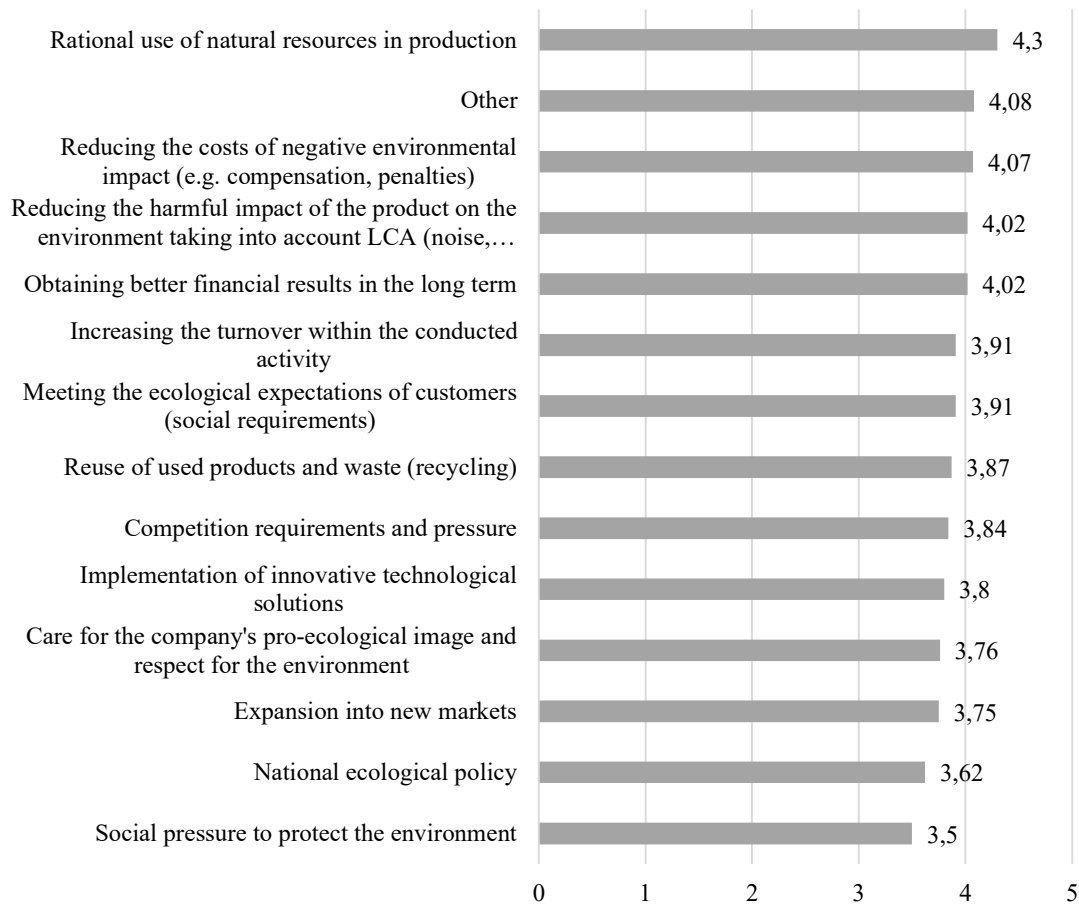


Figure 2. Importance of motives to undertake pro-ecological activities (means, N=46)
Source: own study.

Regarding the importance of packaging characteristics, the organizations were required to evaluate 20 statements on a scale ranging from 1 to 5. Each statement was related to the design of sustainable packaging. The evaluation of the responses is illustrated in Figure 3.

The topic of sustainable packaging is considered important by the responding organizations from the perspective of the circular economy. Based on the evaluations, there was a stronger agreement particularly with factors related to recycling and safety, as well as the higher production costs. In contrast, the statements related to savings received less agreement. However, even though these had the lowest averages, more than half of the respondents tend to view sustainable packaging merely as a marketing ploy without real value. Interestingly, although the focus of this section was on the sustainability design of packaging, there was not a strong consensus on the belief that the packaging should be ecological.

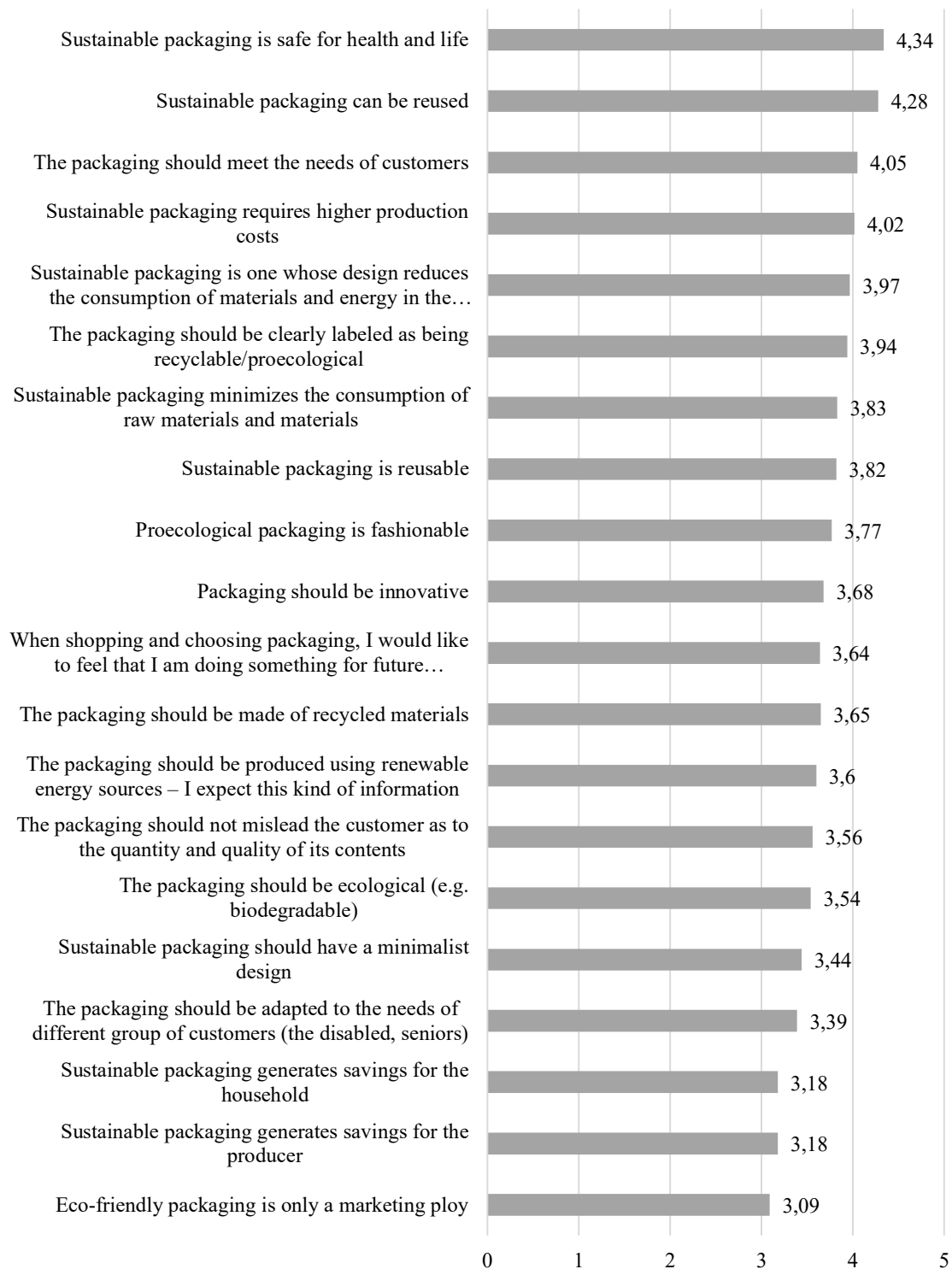


Figure 3. Importance of packaging features for sustainability (means, N=94)
Source: own study.

Regarding future directions, respondents were required to indicate how they expect their organization's performance to change in terms of product quality and environmentally friendly products. They were asked to specify whether they anticipate a decrease, increase, or stagnation in performance. The distribution of the received responses is presented in Table 1.

Table 1. Direction of the company's development (N=94)

Answer	N	%
It is hard to say	22	23.4%
The production of high-quality, but less environmentally friendly products is going to increase	20	21.3%
The production of more or less current quality but less and less environmentally friendly of products is going to increase	17	18.1%
The production of current quality & more and more environmentally friendly products is going to increase	14	14.9%
The production of more or less current quality but increasingly environmentally friendly products of is going to increase	21	22.3%

Source: own study.

The distribution of opinions is similar, with the largest proportion (23.4%) unable to express an opinion regarding the direction of development. However, the fewest (14.9%) stated that they could produce an increasing number of environmentally friendly products while maintaining the current quality. This suggests that organizations do not believe that maintaining or even improving quality would be compatible with the production of increasingly environmentally friendly products. This is supported by the opinions of those (21.3%) who expect to produce high-quality products in the future, but in a less environmentally friendly manner, indicating that in many cases, quality and environmentally friendly characteristics may have an inverse relationship.

This relates to a question that examines the change in the production of good quality and environmentally friendly products over the past five years. The rapid changes of recent decades and the negative impacts on the environment would suggest an increase in the number of environmentally friendly products. However, there is also the consumer expectation that good quality should not change but should evolve with technological advancements. The related opinions are presented in Figure 4.

According to the largest proportion of respondents (39.4%), there was no change in the production of good quality and environmentally friendly products in the past five years, and 31.9% were unsure whether there had been any change. The rates of increase and decrease appeared nearly identical in the responses, at 14.9% and 13.8% respectively. A correlation can be observed between the changes that occurred in the past five years and the direction

of the company's development. In cases where there was an observed increase in the production of good quality and environmentally friendly products in the past five years, there was a higher tendency to project an increase in the production of environmentally friendly products in the future. Conversely, in instances where there was a decrease in the past five years, there is a tendency to project a future decrease in the production of environmentally friendly products.

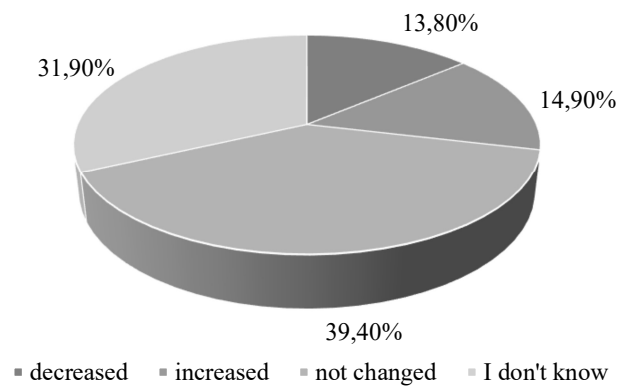


Figure 4. Changes in number of good quality and environmentally friendly products (N=94)
Source: own study.

In relation to the expected future actions, participants were required to evaluate 16 statements based on whether certain measures are anticipated and should be expected in order to improve products and minimize the negative impact on the natural environment. The results are thought-provoking, as in several cases, factors that should be considered fundamental were marked as not expected. The summary of the results is illustrated in Figure 5.

On average, actions requiring less investment received greater support, while those necessitating more organization and process transformation showed lagging support. "Compliance with the law" as an action was defined as the most expected by the participants, with 43.6% considering it "definitely can be expected," and not a single respondent considered it "cannot be expected." However, nearly a quarter of the respondents (23.4%) viewed the "implementation and functioning of an environmental management system" as not expected, and support was similarly low for a quality management system. This attitude was characteristic only of micro, small, and medium enterprises; none of the large enterprise representatives participating in the survey stated that these implementations "cannot be expected." In their case, "it can be expected" (a rating of 3) was the lowest. These differences are also evident on a geographical basis, with organizations based in small towns and localities showing a greater lack of support for the implementation of management systems.

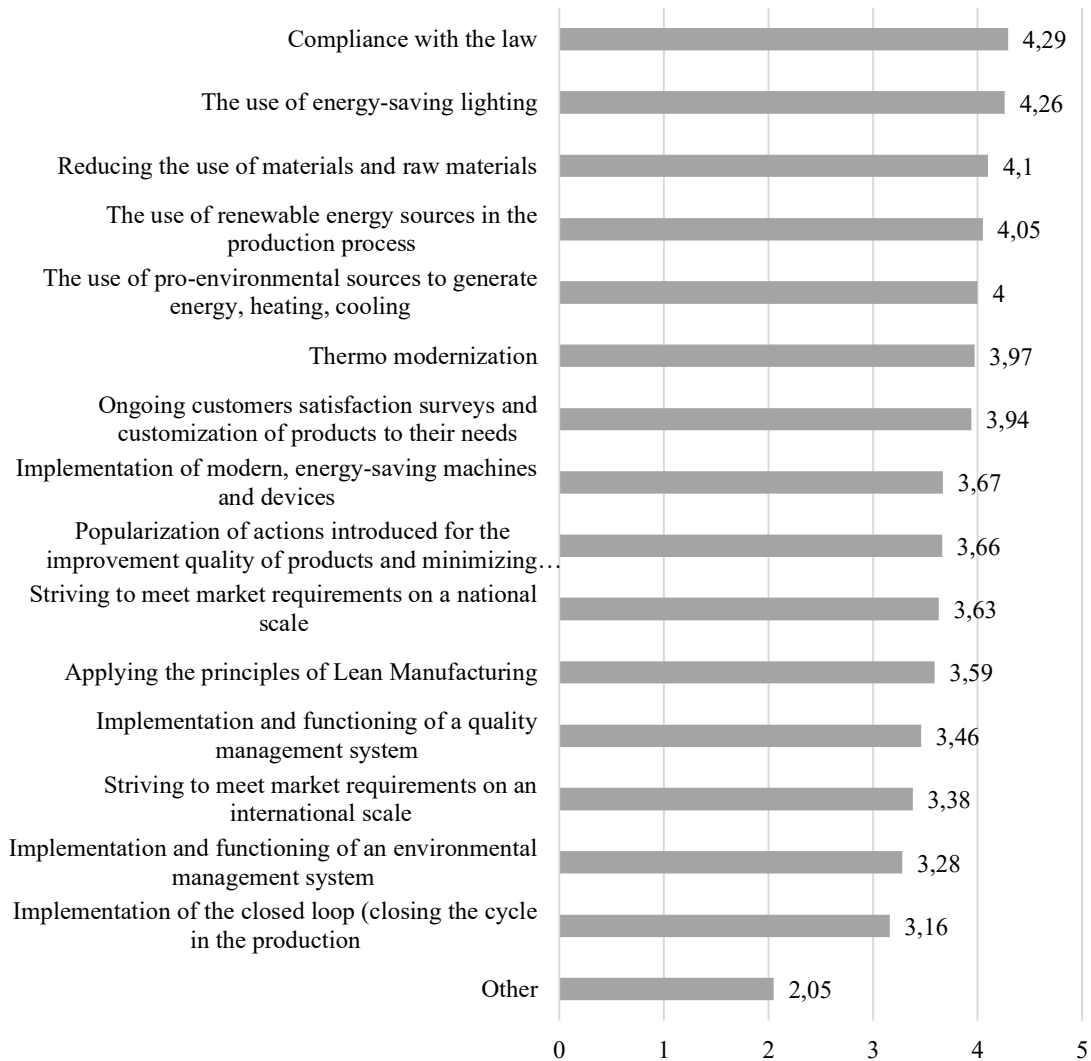


Figure 5. Actions should be taken for improving products and minimizing the negative impact on the natural environment (means, N=94)
Source: own study.

As the final question of the survey, organizations were asked about the advertising platforms they use to promote high-quality and environmentally friendly products. The responses received are illustrated in Table 2.

Nearly two-thirds of the responding organizations (63.8%) use only the internet as a tool for promotion, and only 19.1% utilize other media in addition to the internet. This shift in proportions is understandable, as nowadays people less frequently buy newspapers, listen to the radio, and many try to avoid television advertisements. Only 6.4% of the respondents considered satisfied customers as a suitable medium for this purpose. However, in the era

of online shopping and information gathering, the opinions shared by acquaintances about a product can be crucial in determining the outcome of a purchase.

Table 2. Media usage for promotion (N=94)

Answer	N	%
None of those listed	10	10.6%
Satisfied customers	6	6.4%
Television, the Internet	2	2.1%
Television, the Internet, newspapers / magazines	8	8.5%
Television, the Internet, newspapers / magazines, radio	2	2.1%
Television, the Internet, radio	1	1.1%
The Internet	60	63.8%
The Internet, newspapers / magazines	5	5.3%

Source: own study.

5. Conclusion

This chapter presents the results of the future perspective analysis based on a survey of Hungarian manufacturing companies belonging to SMEs in the electromechanical industry.

The analysis indicates that the opinions of the responding organizations are not uniform, with significant differences evident between organizations based on their location and range of activity. Generally, there is an awareness of sustainability issues, but maintaining the provided and perceived quality is a more crucial aspect in the life of these organizations than the introduction of pro-ecological solutions, which many believe could only be achieved at the expense of quality using their available resources. They tend to support actions that require less investment but create the appearance of environmental concern. Additionally, packaging issues are treated as a prominent aspect, an area that has become increasingly important in recent years, with the acquisition of necessary expertise and the initiation of professional training dating back to recent years. Therefore, it can be said that Hungarian organizations still have room for improvement in pro-ecological behavior, not by competing with quality, but by considering it as a complement that supports sustainability and encourages customers towards the market of environmentally friendly products.

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