

Use of Organizational Analysis Methods for Evaluating Business Improvement Initiatives

I. Gregurec, M. Đuras Sekovanić i M. Tomičić Furjan
University of Zagreb / Faculty of Organization and Informatics, Varaždin, Croatia
igregure@foi.hr; mardjuras@foi.hr; mtomicic@foi.hr

Abstract - Contemporary methods for organizational analysis provide help to managers and business owners to determine company's relative position from a strategic perspective as well as influencing trends within their environment. These methods are usually applied for identifying insights into internal and external influence factors when organizations are entering a development cycle or have an initiative for business improvement. SWOT analysis, an acronym for Strengths, Weaknesses, Opportunities and Threats, as another, traditional management method, can be used for evaluating and presenting the results of identified insights. SWOT analysis can be used for determining the state or value of influence factors at one moment in time and can therefore assist in their evaluation for a specific “go – no go” decision for the planned improvement initiative.

In this paper method engineering of two modern design thinking methods as a source of SWOT elements will be presented. Moreover, a process model showing methods implementation is developed, including database entry of the influence factors, which can be used for creating a unique repository of the influence factors, so they can be reused for other related decisions. Implementation of the proposed procedure is presented through an illustrative case study, showing its practical use in the agricultural sector.

Keywords - management methods; method engineering; influence factors; innovation

I. INTRODUCTION

The complexity of organizations is increasing every day, due to large number of processes they must improve as well as data they must manage, in order to stay competitive and work successfully. That is steering companies towards exploring new management methods and using them on a highly frequent basis.

Within the management and improvement process, there are some influence factors which create uncertainties of how the planned - better way of working - is going to affect business. These uncertainties can be divided into “scenario uncertainty” where some external developments, that will affect the case of decision, are hard to be identified, or “structural uncertainty”, which describes the way of reaction of the organization in relation to the external factors [1].

This research has been conducted as part of the wider research in the project Competence Centre for Digital Transformation of the Food Industry in Rural Areas, which is funded by European Union through the European Regional Development Fund (ERDF).

The so-called SWOT analysis, an acronym for Strengths, Weaknesses, Opportunities and Threats, is one of the methods, which helps organizations to evaluate internal (inside the organization) and external (outside in the environment) factors, that influence the business technology, meaning the processes performed within and relations with its environment, in order for the organization to define a current state of point.

The origin of the SWOT analysis is credited to Albert Humphrey, a leader of a research project at Stanford University in the 1960s and 1970s, which aimed to find out why company planning failed [2], resulting with its today's common usage to assist organizations when making strategic plans and decisions [3].

Since the SWOT analysis enables the determination of values of critical influence factors at one moment in time (interpreted as qualitative or quantitative variables), it is crucial to identify those critical factors first, and then evaluate them in accordance with the improvement case they are connected to.

The source of the critical influence factors and potential SWOT elements can be scientific, professional, or other related existing contribution to the case, but also new management methods can be introduced, with the aim to help in factors identification.

In this paper, two contemporary methods as a source of influence factors, together with the SWOT analysis, will be presented, followed by their interconnection through a process model, which is showing methods implementation. Implementation of the proposed procedure is also going to be presented through an illustrative case study, showing its practical use in the agricultural sector.

II. ORGANIZATIONAL ANALYSIS METHODS

Contemporary management methods, that can be used for organizational analysis, are supposed to provide help to managers, business owners and other decision makers to determine company's relative position from a strategic perspective as well as influencing trends within their environment. The results of the analysis can then be used for improving the decision-making process.

In this paper, two management methods for business analysis have been chosen: Strategic landscape map and Strategy canvas. Those methods are a part of the Digitrans methodology [4], which is developed in order to support

innovation processes within organizations. The methodology has two main phases, innovation and transformation phase, and within the innovation phase, insight into current position of the business in relation to its environment and current trends which influence it, is supposed to be done. The selected two methods within this paper are a part of the insight, and for that reason they have been chosen as suitable for influence factor identification.

SWOT analysis can help assessing the maturity of organizations for accepting business changes and helps in strategic planning for making “go - no go” decisions [5]. So it is selected as suitable for evaluating the values of critical influence factors at one moment in time, in order to determine if the organization is ready for the desired innovation process.

A. Strategic landscape map

The strategic landscape map [4], shown in Figure 1, can help organizations „to identify and understand the current strategic landscape in relation to the current technology/legal trends, customer trends, competitor trends and the economic environment trends“.

Steps to be performed are [4]:

- Drawing a coordinate system / plan with four fields (upper left: technology/legal trends, upper right: customer trends, lower left: competitor trends, lower right: ongoing economic environment);
- Defining trends within the four groups in relation to company’s current business model and adding them into the coordinate system.

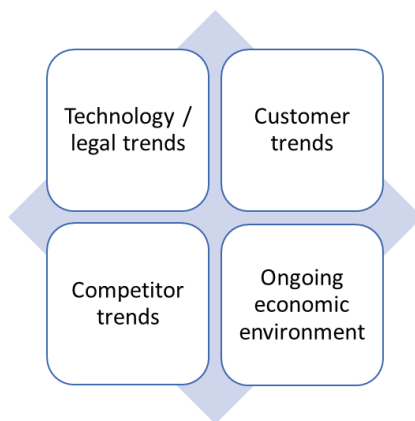


Figure 1. Strategic landscape map [4]

Technology and legal trends define standards and procedures that frame the way work is being done, as well as opportunities to improve business processes or their result itself using new technology advancements.

Customer trends show what needs, wishes and expectations, related to products and services, the target customer segments have, what could they want in the future (related to other identified trends) and which other, general, daily habits and routines can influence their view on the organization’s outcomes acceptance.

Competitor trends investigate what organizations, that are doing the same thing, are improving, and empowering and how they provide value for the customer.

Trends within the ongoing economic environment define other factors that influence organization’s work, but are related to the macroeconomic indicators affecting the industry the organization operates in.

B. Strategy Canvas

A creation of a strategy Canvas can help in identification of the company’s status of different influence factors in relation to how other stakeholders connected to the same outcomes, stand, but it can also help in determining the future steps for improvements [4].

“Blue ocean” is a term used in relation to business strategy planning, as the intention to, instead of competing with other “players” within the same industry, the company tries to go beyond competing and work together with competitors to achieve better demand coverage and increase profit by working in synergy [6]. The strategy Canvas can thereby help in determining the values of identified influence factors in relation to the competitors, so areas where change in strategy is needed can be identified.

Steps to be performed are [4]:

- Drawing a coordinate system / plan containing two axes (y: value scale, x: competing factors);
- Defining relevant competing factors and discussing to what degree the company and its competitors satisfy these factors;
- Collecting the findings and attaching them to the coordinate system;
- Discussing the value curves of the company and its competitors.

Figure 2. shows an example of the Blue ocean strategy Canvas, with potential areas identifies for strategic change.

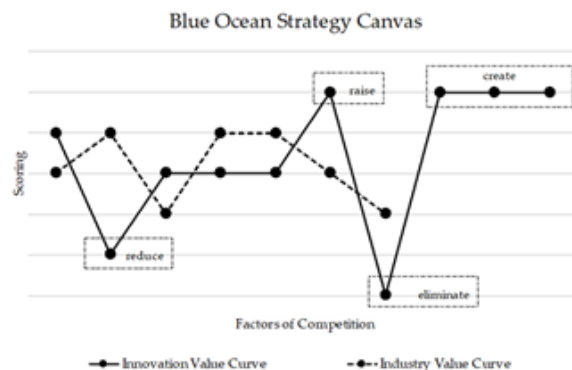


Figure 2. Blue ocean strategy [4]

Influence factors are mostly internal (like price of the product/service, quality, response time and similar) but can also include external influence factors. The scoring is usually set to a relative value between 0 and 100.

C. SWOT analysis

SWOT analysis enables organizations to evaluate multiple positive and negative, internal and external factors, that affect its success, whereby they are supposed to be included and help in the decision-making process [7] and afterwards be used in the strategic development process [8]. It is very important to identify and choose for evaluation only those factors that have a direct impact on the success and competitive advantage of the organization [9], so the analysis doesn't get diagnostic and hard to manage and monitor.

When all influence factors are identified, they can be evaluated as one of elements of SWOT (Figure 3).



Figure 3. Swot analysis of influence factors

If a certain influence factor is identified to be present in the organization, then it represents the internal strength

(S), if it is missing in the organization, then it represents an internal weakness (W). If a certain influence factor is realized or present in the environment of the organization, then it represents an external opportunity (O) and if a certain influence factor is not realized or present in the environment of the organization, then it represents an external threat (T). It is generally recommended that up to three (maximum five) influence factors for each SWOT category are evaluated for one decision. For the factors that belong to the same group (S, W, O or T), a mutual rank can be determined, meaning to identify the intensity of their influence on the decision. This process is called SWOT ranking and serves to ensure that further actions upon the decision can be prioritized and that resources for their performance will be spent rationally [9].

III. METHOD ENGINEERING PROCESS MODEL

Method engineering is a „continuous, evolutionary process that supports the adaptation of methods to changing technical and organizational contingencies and new development needs“ [11]. Main strategies that enable method engineering are re-use, adjusting or developing new methods [12]. Within this paper, three methods are interconnected into one procedure, so they fit the second method engineering group of strategies.

The procedure is a set of activities and it is convenient to represent it through a process model. The model (shown in Fig. 4) is developed as a Business process modelling notation (BPMN) process model using Bizagi Modeler [13]. Since most activities, shown in the model, can be performed multiple times, depending on the number of improvement initiatives, influence factors and SWOT elements respectively, they are all represented as standard loop elements. For the activity, which is related to influence factors identification, a storage within the database, which is been updated is also specified.

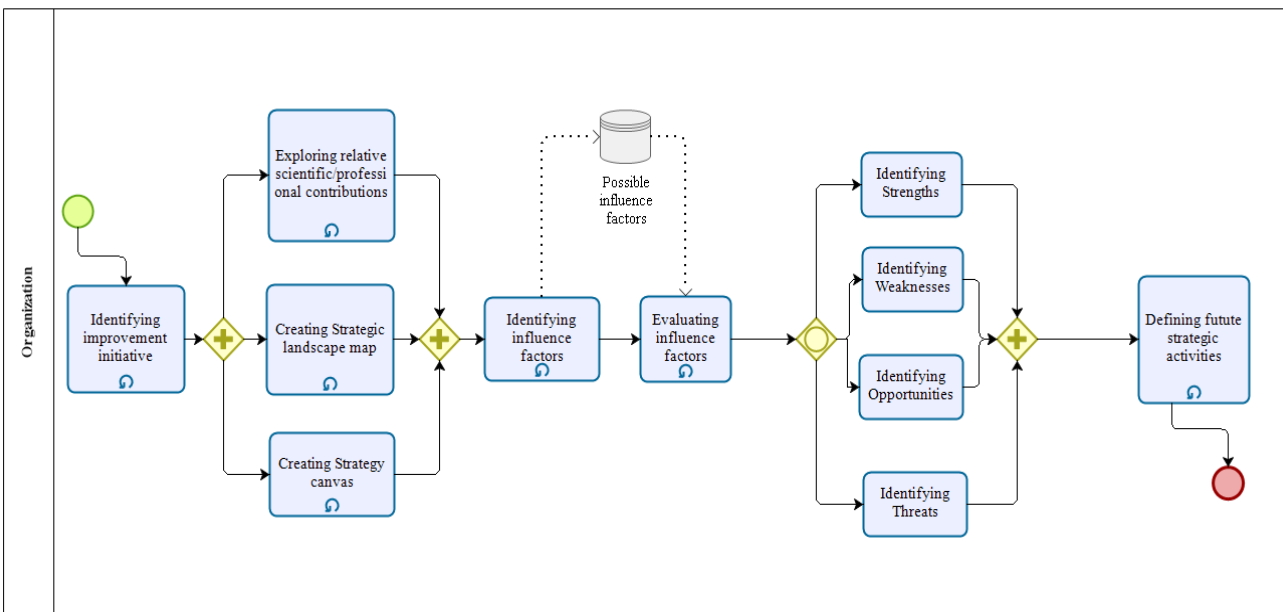


Figure 4. Process model of management methods

The process starts with the *Identification of the improvement initiative* for which the analysis is being made. After the improvement initiative has been defined, *Exploration of all (scientific and professional) related existing contribution* for influence factors identification is being performed, *Strategic landscape map trends are identified*, and *Strategic Canvas is created*. Based on the review and results of the management method's analysis, *Influence factors are being identified* and entered into the database. The influence factors are then *evaluated and identified as Strengths, Weaknesses, Opportunities or Threats* for the SWOT analysis. *Future activities for strategies towards the improvement initiative* can then be defined, and the cycle for a new improvement can start.

IV. ILLUSTRATIVE CASE STUDY

For presenting the previously described procedure on an illustrative case study, in this chapter, the management methods implementation in the agricultural sector has been analysed.

Improvement initiatives nowadays are mostly related to the use of digital technologies for better performance of business processes. This global trend has also affected the agricultural sector, which is the most conservative in relation to other industries in progressive technological development. Today, life demands that agricultural enterprises develop in modern technological formats, attract investment and highly qualified staff, and work to improve the competitiveness of agricultural products and labour productivity [14]. Digital technologies can lead to transformation in agriculture. These shifts improve production systems to ensure food production and optimize natural resources. However, small farmers or communities face significant barriers to using these technologies due to lack of knowledge [15]. Although digitalization of the agro-industrial complex has huge potential and the opportunities and benefits are recognized, the percentage of use of modern digital solutions is extremely low [16].

The improvement initiative, introduced in this case study, is dealing with the identification of the best ratio of food ingredients for farm animals to increase their weight. In order to implement the improvement, a database should be established, containing the existing recipes which can be enhanced with better ones. After the database is in use, and contains more and more data, additional analyses can be performed on them, working towards use of artificial intelligence for even better process improvement.

The initiative analysis is based on information from a real-life farm which have been gathered through an interview performed with one of the owners. The research is not comprehensive and has limitations regarding other factors that influence animals' weight, as well as the subjective opinion of the interviewee. Nevertheless, the purpose of this illustrative case study is not to make any decisions, but to show how the proposed procedure can be implemented.

A. Strategic landscape map - case

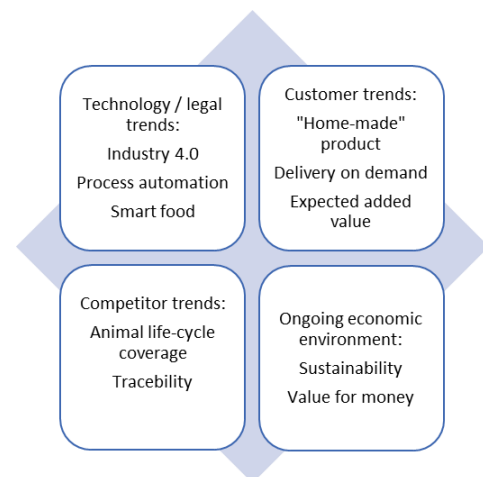


Figure 5. Strategic landscape map - case study

Figure 5 shows the strategic landscape map of the case. The source of the trends identified is the farm owner's opinion, as well as commonly known facts related to the agricultural sector.

Currently, the analysed farm implements automatic water supply for animals, but there is possibility to implement more complex technologies and process automation which leads to Industry 4.0. Farm can benefit by applying new and increasingly important concept of "smart food" as well. Further on, there are customer trends such as production of completely domestic, home-made products, on demand delivery of the product which, at the time of ordering, has specific characteristics (weight, maturity). Customers also expect added value of home-made product because industrial wholesale products are twice as cheap. Added value can be in the form of offering complementary products. Competitors trends are animal life-cycle coverage and traceability which leads to reduction of resource costs and better disease control. That leads to sustainability in the context of efficient expenditure of water, food and other needed resources for obtaining a product worth the asking price.

B. Strategy Canvas - case

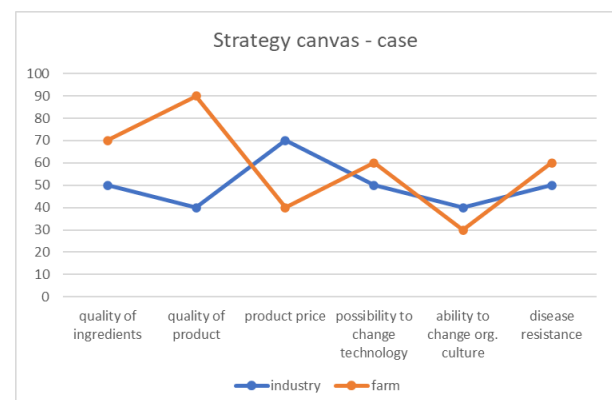


Figure 6. Strategy canvas – case study

Strategy Canvas on Figure 6 shows eight influencing factors on the work of the analysed farm

and their relations and comparison to others in the industry. The source of the factors as well as their identified values related to the farm and to the industry are owner's opinion, and they show only the potential evaluation, represented through graphs curves.

The first factor is the quality of ingredients and analysed farm uses better quality ingredients than ingredients used in the industry. Since the quality of ingredients used is higher, that is resulting with higher quality of the final product itself. With better quality of final product and usage of higher quality ingredients, the price of the analysed farm product is higher than the price of industry's product. Further on, both, the analysed farm and industry, have almost equally high possibility to change technologies which are used in business and production processes, whereby the analysed farm is slightly lower in that intention, since their processes are already fine as they are. Next factor is ability to change organizational culture. The analysed farm has a slightly higher ability to change organizational culture than the industry, due to rather small number of employees coming mostly from one family. Their ratio is 40 to 30. Disease resistance in the industry is evaluated slightly lower than in the analysed farm.

C. SWOT analysis - case

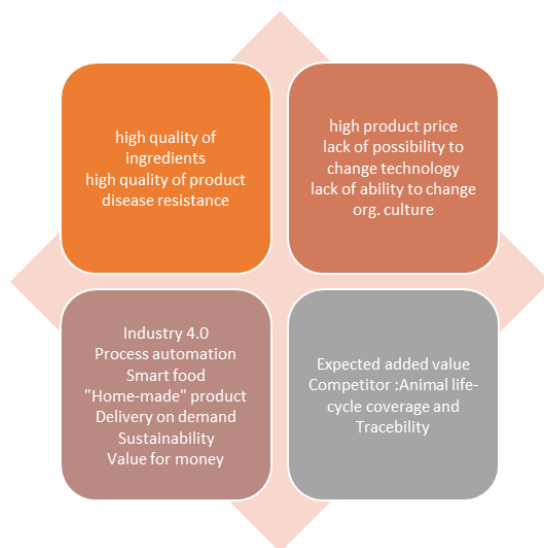


Figure 7. Swot – case study

Figure 7 shows the SWOT analysis of the analysed farm. Their position regarding which influence factor is which SWOT element is farm's owner opinion.

Regarding the strengths, the usage of high-quality ingredients in animal nutrition results in high quality of the final product. Also, since the farm feeds animals with high quality ingredients, animals in this case not only gain weight properly, but are also more resistant to diseases. First detected internal weakness of the farm is high price of the final product due to investment in better quality of ingredients. Also, it is more difficult to implement new technologies or upgrade already

implemented technologies because farm owners and employees are older age and are not prone to changes. This is also the reason why organizational culture and established behaviours are hard to change within the farm. The farm has the opportunity to initiate instalment of more automated processes while parallel using "smart food" which is positive change for animals, farmers and ultimately for product consumer. These changes lead to even better quality of "home-made" products and sustainable production with very low negative effects on environment. Due to implementation of more automated processes, animal husbandry is controlled better so each product is ultimately the same or very similar quality. That means that each customer will be satisfied and receive full value for money. External threat for the farm is primarily a need for value-added components in terms of faster and better product preparation before delivery. Also, offering complementary products would be an added value but, in that case, additional funding is inevitable. Another threat for the farm is the fact that competitors from the industry have access to technologies that cover the entire animal life cycle and established processes to trace product development through the whole production and supply chain. Also, life-cycle coverage and traceability mean that competitors have implemented automated processes and modern technologies for more efficient food dosing through different stages of animal development which leads to reduction and better control of ingredient costs.

V. DISCUSSION AND CONCLUSION

Management methods, that can be used for development of organizations and improvement of their processes, are mostly described in scientific publications, and include their theoretical justification and contribution. When they are supposed to be applied or implemented in real life cases, they then usually lack operational guidelines on how that should be done.

In this paper, Strategic landscape map, strategy Canvas and SWOT analysis have been presented as a mean to identify and review influence factors on initiatives for improvement. The implementation procedure is represented by a process model, whereby the activities performed in the given way can ensure help in the decision-making process through evaluation of influence factors and determination of their current values. The evaluated influence factors can be used to assess the readiness of an organization to achieve the improvement initiative. If the organization is ready, the pairing of SWOT elements can be helpful in generating strategies, activities to achieve those strategies and goals. They can then represent the strategic plan of organizational development and direct the behaviour of all employees in the desired improvement direction.

The proposed procedure is illustrated afterwards on a case study, explaining more how its operative utilization can be done. The influence factors are identified and evaluated for the improvement process in the agricultural sector, sourced by performing an interview with a domain expert. The agricultural sector was selected due its huge potential for improvement

through digital technologies, which are recognized within available literature, as well as its low level of implementation, due to barriers and problems it faces.

Limitations of the case study illustration are that it is based on subjective opinion of the farm owner which has been interviewed, rather than literature and desk research on available industry related studies which exist in the analysed industry. This examination is identified as further research on the topic, which could give a more realistic view of the method implementation. Then, the research could give a more detailed description of all the proposed activities, as well as its application on more examples and improvement initiatives.

If considering the potential upgrade of the procedure to a more automated way of making improvement initiatives evaluation, a base of scenarios and alternatives could be developed as well. This can be considered as a foundation for a sophisticated use of new technologies, like Artificial intelligence, which indeed searches the organization to meet the prerequisites for its implementation.

REFERENCES

- [1] V. A. Marchau, "Decision making under deep uncertainty: From theory to practice," Cham: Springer, 2019.
- [2] K. Nyarku and G. Agyapong, "Rediscovering SWOT Analysis: The Extended Version," *Academic Leadership: The Online Journal* 9(2), Article 28, 2011.
- [3] B. Phadermrod, R. M. Crowder and G. B. Wills, "Importance-performance analysis based SWOT analysis," *International Journal of Information Management*, 2016, doi:10.1016/j.ijinfomgt.2016.03.009, pp. 1-10.
- [4] Digitrans, *Inovation phase - Analysis Phase - Insight*, available at <https://digitrans.me/psm/innovation>, accessed 10 January 2021.
- [5] Ž. Dobrović, M. Tomičić Furjan, "SWOT Analysis in Strategic Planning Process – Meta-modelling Approach", *Proceedings of 2020 IEEE 10th International Conference on Intelligent Systems*, Bulgaria, pp. 574-579, 2020.
- [6] W. Chan Kim and Renee Mauborgne, "Blue Ocean Strategy: From Theory to Practice," *California Management Review* vol. 47, no. 3, Spring 2005.
- [7] I.C. Osita, I. R. Onyebuchi and J. Nzekwe, "Organization's stability and productivity: the role of SWOT analysis an acronym for strength, weakness, opportunity and threat," *International Journal of Innovative and Applied Research* 2 (9), pp. 23- 32, 2014.
- [8] I. Verboncu and A. Condurache, "Diagnostics vs. SWOT Analysis," *Review of International Comparative Management* 17(2), pp. 114-122, 2016
- [9] T. Sammut-Bonnici and D. Galea, "SWOT Analysis," in: *In Wiley Encyclopedia of Management*, vol. 12, Strategic Management View project, Professor Sir Cary L Cooper (eds), pp. 1-8, 2015.
- [10] Ž. Dobrović, "Strategic Planning under Uncertainty: Building the metamodel," *Journal of Information and Organizational Sciences* 25(1), pp. 11-26, 2002.
- [11] M. Rossi, R. Balasubramaniam, L. Kalle and J.P. Tolvanen, "Managing Evolutionary Method Engineering by Method Rationale," In S. Sarker (ed.), *Journal of the Association for Information Systems*, 5(9), 356, USA. 2004.
- [12] R. J. Mayer, J. W. Crump, R. Fernandes, A. Keen and M. Painter, "Information Integration for Concurrent Engineering (IICE) Compendium of Methods Report," *Knowledge Based Systems, Inc. Knowledge Based Systems*, USA, 1995.
- [13] BizAgi. Bizagi Modeler version 3.1., available at: <https://www.bizagi.com/en/products/bpm-suite/modeler>, accessed 5 January 2018.
- [14] A. Mironkina, S. Kharitonov, A. Kuchumov, A. Belokopytov, "Digital technologies for efficient farming", *IOP Conference Series: Earth and Environmental Science*, 578(1), Article number 012017, 2020.
- [15] J. A. Lopez-Morales, A. F. Skarmeta, J. A. Martinez, "Agri-food Research Centres as Drivers of Digital Transformation for Smart Agriculture", *Proceedings of the GIoTTS 2020 - Global Internet of Things Summit*, Article number 9119646, 2020.
- [16] T. Groher, K. Heitkämper, C. Umstätter, "Digital technology adoption in livestock production with a special focus on ruminant farming", *Animal*, 14(11), pp. 2404 - 2413, 2020.