The Role of Absorptive Capacity of Financial Companies in Poland in Shaping Their Strategic Flexibility

Waldemar Glabiszewski, Dorota Grego-Planer, Katarzyna Liczmańska-Kopcewicz and Maciej Zastempowski

1.

***Abstract*—This empirical article is an attempt to assess the impact of structured absorptive capacity of financial companies operating in Poland on their strategic flexibility. The authors, based on the results of their own surveys conducted in the Polish sector of financial companies, prove that indeed the degree of development of the pro-technological absorptive capacity possessed has a strong influence on the achieved level of strategic flexibility. In addition, they verified that, contrary to the assumptions of the concept of George and Zahra, it is not the degree of development of the capacity to acquire and assimilate technological knowledge, which makes potential absorptive capacity, that affects most strategic flexibility of financial companies in Poland, but the capacity to acquire and use this knowledge.**

***Keywords*—absorptive capacity, financial services companies, management of knowledge, strategic flexibility, technology.**

I. Introduction

Today's reality is characterized by a high level of complexity and exceptionally high dynamics of various and less and less predictable changes causing a state of significant uncertainty, creates extremely difficult conditions for operation and effective competition for contemporary companies [15]. They must acquire special skills in moving in such a complex and demanding environment. They must be distinguished by high sensitivity and adaptability [4]. They need to be more involved in the search for increasingly effective instruments of competition, that means for different, new, and better ones [9, 10]. Moreover, they should use different and flexible strategies to face uncertainty and omnipresent changes in the environment [3]. These extremely difficult conditions lead to a situation where strategic flexibility, understood as the ability to cope with change [26], has become a key organizational requirement to ensure the ability to compete effectively [11]. Although there are many ways in which a company can achieve a competitive advantage, strategic flexibility - along with innovative activity - seems to be the most important in dynamically changing markets [1, 25]. The key factor of the so-shaped advantage is absorptive capacity, which, being a set of knowledge-based capabilities, determines the scope and scale of acquiring and using new knowledge resources, which should be reflected in more effective operation as well as in obtaining higher results [19].

Thus, on the one hand, the phenomenon of constant changes in the environment forces enterprises to conduct continuous observations and analyses as well as to learn, and on the other hand, the knowledge gained in this way leads to the introduction of subsequent, and usually increasingly deliberate, changes [7]. The quality as well as the number of these changes is a derivative of the degree of development of the company's absorptive capacities that determine its effectiveness in acquiring, assimilating and exploiting useful knowledge and modern technologies [21]. Thus, strategic flexibility along with its sources and ways to provide it, including absorptive capacity, have become an important area of research.

The phenomena referred to and the resulting consequences prompted the authors to explore the essence of the relationship between the company's absorptive capacity and its strategic flexibility and to verify it in the economic reality. Therefore, the main research objective of this article is to assess the impact of the degree of development of pro-technological absorptive capacity possessed by financial companies operating in Poland on the level of their strategic flexibility. The implementation of this objective was based on the results of a questionnaire survey developed by the authors and conducted in the Polish sector of financial companies.

The implementation of the objective formulated in this way is an attempt to answer the question whether the development of absorptive capacity achieved by financial companies allows them to increase the currently desired strategic flexibility in operations? And furthermore, which segments of this capacity play the most important role in this respect, and therefore, what capabilities should be of particular concern in the process of their development? As a result, the results obtained and conclusions drawn from them have the chance to gain the application value.

II. A Company's Absorptive Capacity And Its Strategic Flexibility - A Theoretical Approach

Strategic flexibility in management is a multi-dimensional concept that has a complex construction. It is most often perceived as the organization's capability to adapt to sudden and unpredictable changes in the environment that have a significant impact on the company's core business [17]. Strategic flexibility is very desirable, however, it must reach a

W. Glabiszewski, Nicolaus Copernicus University in Toruń, Faculty of Economic Sciences and Management, Toruń, Poland,

D. Grego-Planer, Nicolaus Copernicus University in Toruń, Faculty of Economic Sciences and Management, Toruń, Poland,

K. Liczmańska-Kopcewicz, Nicolaus Copernicus University in Toruń, Faculty Economic Sciences and Management, Toruń, Poland,

M. Zastempowski, Nicolaus Copernicus University in Toruń, Faculty of Economic Sciences and Management, Toruń, Poland,

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sufficiently high level. Modifying business strategies to meet emerging opportunities and threats is a very serious challenge for companies, since their strategies are generally characterized by small changes described as incremental [5]. The scope, number, magnitude, and time of changes introduced by the company affect the results obtained by them [18]. Therefore, these parameters must be adapted to the actual environment conditions as well as to the company's internal capabilities.

Strategic flexibility is particularly useful in a dynamically changing environment. It allows organizations to take advantage of suddenly emerging opportunities before they disappear and to counteract surprising threats before it is too late. Nadkarni and Narayanan have demonstrated empirically that flexibility provides a greater improvement in performance under rapidly changing conditions [13]. It impacts positively the effects obtained in the competition process, as it leads to [2]:

1. early adoption of improved innovative products that offer a competitive advantage,
2. early adoption of process technologies that improve efficiency even in mature industries,
3. combinations of resources that allow an organization to profit from scale economy and knowledge synergy before competitors.

Strategic flexibility is most often conceptualized as a capacity, or rather a combination of specific business capacities used to respond quickly and accurately to changes or opportunities in the environment, but also to anticipate them [6]. As follows from the essence of strategic flexibility, a fast response to dynamic and unstable changes in the environment is achieved by engaging resources in new directions of action, as well as by withdrawing them from existing applications [12]. Therefore, strategic flexibility can be achieved through the flexible use of resources and the reconfiguration of processes, that is, their flexible coordination [26]. Moreover, strategic flexibility is not limited only to adopting reactive or proactive behaviours, which are more demanding, and therefore must use additional, often more sophisticated capabilities [24].

In a competitive environment, the strategic flexibility of an enterprise should above all ensure the capability to react quickly to various activities and expectations of the entities operating in the environment, which are necessary to obtain or maintain a competitive position [18]. A question arises at this point, on what activities, entities, and phenomena should a given company focus its sensitivity primarily or in the first place? Dwyer *et al*. identified seven desired areas of change characteristic of strategic flexibility which include [6]:

1. development of core competencies – creation of competences that give the firm strategic options for meeting the demands of the future;
2. product development – firms promptly develop new products or upgrade existing, in response to market opportunities and changing technologies;
3. improved customer focus – in turbulent, dynamic environments firms improve their focus on customer performance directly and indirectly;
4. fostering innovation – firms position themselves to take advantage of opportunities for innovation;
5. stronger networking – firms improve networking capabilities with other enterprises, government agencies industry associations, local population and educational institutions;
6. improving risk management – firms develop risk management strategies to reduce a firm's exposure to risk;
7. promoting sustainable development – firms develop flexible responses to preserving the economic, social and environmental resource base.

As this environment is currently the dominant factor forcing companies to make changes, as well as a source of inspiration for their scope, their absorptive capacity becomes immensely important, which is responsible for perceiving the knowledge resources inherent in the environment and then their valuation, acquisition and exploitation [4]. As turns out, its task is not only to take over this knowledge but also to select it possibly quickly and careful, and then take action with a view to its adapting and assimilating for the purpose of future, especially pro-market use. Thus, a company's absorptive capacity directly determines the level of its flexibility in operation [19]. In other words, the direction of the development and exploitation of a company's strategic flexibility is dictated by its absorptive capacity. It is that capacity that determines the areas of the environment, which are analysed by the company. It also determines the ability to estimate the value available in the environment of knowledge, determines decisions relating to its acquisition, provides opportunities for its assimilation and transformation and finally the effectiveness of its use.

Absorptive capacity that is applicable in the process of knowledge transfer should be understood as the entirety of specialized resources, especially of an intangible nature, which enable a company to effectively acquire, assimilate, and use new and strategically valuable knowledge in order to achieve the intended results in the process of competition [8]. It therefore has a specific structure that determines the areas of capability and resources that provide them, in particular specific competences. The most aggregated components of absorptive capacity are the separated dimensions of the capability resulting from the definition used, and that is the capability to acquire, assimilate, and use new knowledge [4, 19, 23].

Zahra and George introduce two general categories of absorptive capacities, namely potential and realized, which perform separate but complementary functions [23]. Potential absorptive capacity includes the capability to acquire and assimilate external knowledge, which makes the company possessing it open to acquiring new knowledge and able to learn it. In turn, realized absorptive capacity is made up of the capabilities to transform and exploit knowledge, enabling the necessary transformation of the newly acquired knowledge and its purposeful use by including it in activities that allow achieving better results. To ensure the effectiveness of the absorptive processes, it is important to develop both types of skills. It is necessary to be aware of their dissimilarity and complementarity at the same time. Their differentiation enables us to answer the question why some companies fail as a result of changes occurring in the environment, while others that

operate under the same conditions are able to develop significantly.

The theoretical differentiation of the above categories of absorptive capacity is also important when assessing their unique contribution to building a company's competitive advantage. Zahra and George in their empirical research prove that companies with well-developed potential absorptive capacity have a better chance of having a competitive advantage due to greater flexibility in operation, while companies with better developed realized absorptive capacity should focus in the process of shaping competitive advantages on innovative activity [23]. The dependencies presented above are shown in Figure 1.

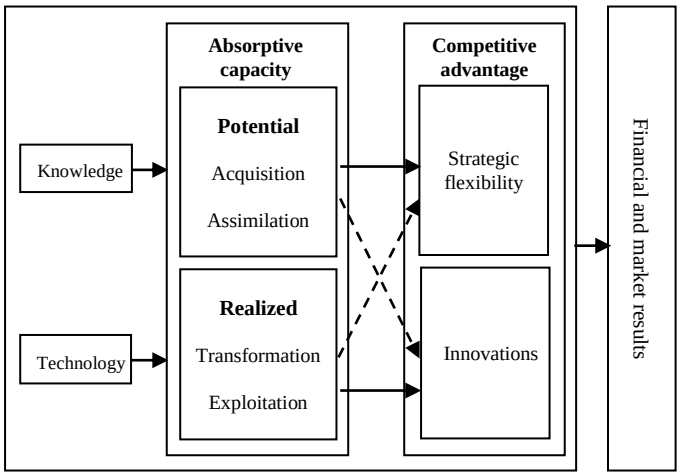

Fig. 1. Allocation of absorptive capacity.

As indicated in Figure 1, absorptive capacity is assumed to affect the level of strategic flexibility and the scale of innovation implemented by the company. Nevertheless, the impact of individual segments of absorptive capabilities on these effects may be diversified. Therefore, on the one hand, the degree of development of specific absorptive capabilities should determine ways to build and maintain a competitive advantage of the company. On the other hand, the → preferred ways of building a competitive advantage should determine the scope and intensity of developing specific absorptive capabilities.

III. Methodology of Empirical Research and Research Hypotheses

The empirical part of the article was written on the basis of research findings obtained in 2015-2016 by means of an online survey using a CSAQ-a Computerized Self-Administered Questionnaire [20], in which the respondents filled in a digital version of the survey questionnaire available online. It was sent to the heads of 155 commercial financial sector companies registered in Poland, namely all banks, property and life insurance companies, investment funds (TFI) and universal fund management companies (PTE). In total, 111 entities filled in the online survey questionnaire, constituting 71,6% of the population under study. Analysis is based on the results from 37 TFIs, 28 banks, 20 property insurance companies, 17 life insurance companies and 9 PTEs.

The research conducted was the primary source of data essential for realizing the article's main empirical objective, which was the assessment of the impact of the degree of development of pro-technological absorptive capacity of financial companies operating in Poland on the level of their strategic flexibility. In order to accomplish the main research objective set, the authors formulated the following three specific objectives:

1. assessing the development of pro-technological absorptive capabilities of financial companies in Poland;
2. assessing the level of strategic flexibility of financial companies in Poland;
3. assessing the impact of the degree of development of pro-technological absorptive capacity and its four aggregated capacity dimensions on the level of strategic flexibility of financial companies in Poland.

In attempting to accomplish their specific objectives, and at the same time the article's main research objective, the authors formulated and verified empirically the following two research hypotheses:

H1. The degree of the development of pro-technological absorptive capacity of financial companies operating in Poland influences significantly the level of their strategic flexibility;

H2. The degree of the development of the capability to acquire and assimilate technological knowledge has a stronger impact on strategic flexibility of financial companies in Poland than the capability to transform and use this knowledge.

The hypotheses formulated above directly result from the assumptions of the concept of absorptive capacity, whose main purpose is to provide the company - in addition to high innovation and competitiveness - the desired level of strategic flexibility [4, 19, 23]. The intention of the authors of this article was to verify the existence of this dependence in the reality of Poland's sector of financial services companies. At the same time, the identification and assessment of the dependence examined was deepened by identifying four specialized segments of absorptive capacity that is responsible for transferring new technological knowledge. Therefore, the absorptive capacity variable was estimated on the basis of the level of development of the capability to acquire, assimilate, transform, and, use knowledge. In turn, the strategic flexibility variable was estimated based on the number of changes in technologies applied by the companies surveyed, processes implemented and products offered by those companies as well as on the speed of their implementation.

The multidimensionality of the perception of flexibility, and hence the multiplicity of its characteristics, makes it difficult to assume objective values that allow its unambiguous identification. Therefore, when studying flexibility, it is necessary to include also subjective variables [16]. The strategic flexibility of the company is demonstrated by the scope of the changes undertaken, their number and speed of implementation, but also by the speed of reacting to emerging stimuli. For example, while examining the commodities

markets, Worren *et al.* measured the flexibility of companies operating on those markets through the prism of the number of market changes introduced and the speed of their implementation, which was a direct inspiration for the research presented in this article [22].

In order to verify the adopted hypotheses that reflect the research problem undertaken in the article, statistical and descriptive analyses of the obtained research results were carried out, reaching the observations and conclusions presented in the next part.

IV. The Impact of Pro-Technological Absorptive Capacity of Financial Companies in Poland on Their Strategic Flexibility

In order to verify the existence of the dependence between pro-technological absorptive capacity and strategic flexibility, already mentioned in the title, and thus confirm the validity of the H1 and H2 hypotheses adopted in the research procedure, it is necessary to first diagnose the degree of the development of absorptive capacity of financial companies in Poland taking into account its internal structure and the actual level of their strategic flexibility. Therefore, top management of the surveyed companies was first asked to estimate the level of development of capabilities responsible for the implementation of specific areas of activities envisaged under the next four stages of absorption of new technological knowledge, using a subjective rating scale ranging from 0 to 100%, where 0% meant that they were not developed at all, and 100% - they were developed to a maximum degree, i.e. fully developed. The average of the ratings of the four basic capability segments, i.e. those responsible for acquiring, assimilating, transforming and using new technological knowledge, is the resultant of the detailed capabilities that make up those basic ones. The results obtained in this respect are presented in Table 1.

The obtained results of the research indicate that the managers surveyed perceive a gap in their organizations – sometimes even a remarkable one – In the level of the development of the possessed capabilities to absorb new technological knowledge in relation to the expectations they assumed, mainly due to competitive pressure and market needs. The biggest deficiencies occur within the framework of identified capabilities to transform (reshape) the acquired technologies, which include the capabilities to adapt them to the prevailing conditions in the company and develop them in order to make them innovative. It is this highly specialized segment of absorptive capacity – actually considered to be the most demanding one – that the analysed financial companies considered their greatest weakness (average grade at the level of 53.0 points). In turn, the highest evaluation was given to the degree of development of the capacity to exploit the newly implemented technologies (72.1 points), and among them the most developed were the capabilities to operate them efficiently (76.3 points), i.e. reliably and consistently with the intended use. Nevertheless, according to the senior management, despite the relatively high level of their development, even they require further improvement in order to increase the efficiency of their use.

TABLE I: The Degree of the Development of Individual Segments of Pro-Technological Absorptive Capacity of Financial Companies in Poland

No.	Areas of capabilities within a company's absorptive capacity	Average grade
The capability to acquire new technologies		**69.6**
1	The capability to identify and assess one's own technological needs and possibilities	75.9
2	The capability to identify and evaluate in the environment potential technologies and their suppliers	68.6
3	The capability to use specific forms of transferring (acquiring from outside) technologies	68.1
4	The capability to cooperate with other entities in order to bring about technology transfer (the capability to establish and maintain relationships, negotiate, etc.)	65.7
The capability to assimilate the acquired technologies		**64.2**
1	The capability to learn the acquired technology	65.6
2	The capability to adapt to the acquired technology	62.8
The capability to transform the assimilated technologies		**53.0**
1	The capability to adapt the acquired technologies	54.1
2	The capability to develop the acquired technologies	51.9
The capability to use the newly implemented technologies		**72.1**
1	The capability to operate efficiently the implemented technologies (as intended)	76.3
2	The capability to exploit effectively the implemented technologies	69.0
3	The capability to generate the effects desired by the market through the implemented technologies	70.9

Source: author's elaboration based on survey results.

The next variable requiring estimation is strategic flexibility of the financial companies under study, the value of which is the resultant of four separate values, i.e. the frequency of changes in applied technologies, processes, and products offered on the market, and the speed of implementation of all these changes. Their value was determined by the surveyed managers who re-evaluated them using a percentage scale of <0%; 100%>, where the 0% change rate meant that no major changes were made in the last year, and 100% that all potentially important changes justified by the stimuli derived from the environment were implemented. In turn, in the case of their implementation speed, 0% meant that their implementation time was too long - unacceptable, and 100% meant that changes were introduced optimally quickly. The results obtained in this respect are presented in Table 2.

TABLE II: The Level of Strategic Flexibility of Financial Companies in Poland

No.	Parameters defining a company's strategic flexibility	Average grade
Strategic Flexibility		**63.1**
1	Frequency of changes implemented within the applied technologies	54.2
2	Frequency of changes implemented within the processes being carried out	66.8
3	Frequency of changes implemented within products offered on the market	70.2
4	The speed of implementation of the above-mentioned changes	61.3

Source: author's elaboration based on survey results.

Declarations of respondents suggest that they are not satisfied with their flexibility in operation. It turns out that their average capability to implement strategic changes is only 63.1%, assuming that 100% is desirable, i.e. optimal from the

perspective of the top management of the surveyed companies. The frequency of changes implemented within applied technologies was rated at the lowest level (54.2 points), which may result from the high capital intensity of these changes and the fact that the implemented technologies basically integrate many functions in financial companies. This means that decisions regarding such changes are made in many organizational units, which hinders and prolongs this process significantly. The frequency of changes implemented within products offered on the market was rated at the highest level (70.2 points), as these decisions are often made in one, or only in a few specialized organizational cells. However, it should be added that introducing changes within financial products, especially insurance products, is not so easy due to the financial risks they accumulate. Therefore, they require a lot of time-consuming analyses and special sensitivity.

In order to answer the target question about the impact of the surveyed financial companies' capabilities to absorb new technologies on their strategic flexibility, in the next step of the research procedure a statistical analysis of the dependence between the considered variables was carried out. Namely, we estimated Pearson's correlation coefficients for the diagnosed degree of development of pro-technological absorptive capabilities and the level of strategic flexibility. The obtained values of the coefficients are presented in Table 3.

TABLE III: PEARSON'S CORRELATION COEFFICIENTS FOR THE DEGREE OF DEVELOPMENT OF ABSORPTIVE CAPACITY AND THE LEVEL OF STRATEGIC FLEXIBILITY

No.	Variables	The level of strategic flexibility of the company
The degree of development of the entire absorptive capacity		**0.71**†
1	The degree of development of the capability to acquire new technologies	0.78†
2	The degree of development of the capability to assimilate the acquired technologies	0.63†
3	The degree of development of the capability to transform the assimilated technologies	0.58***
4	The degree of development of the capability to use the newly implemented technologies	0.71†

*** $p \leq 0{,}01$; † $p \leq 0{,}001$

Source: author's elaboration based on survey results.

The obtained values of Pearson's correlation coefficient indicate the existence of a strong linear relationship between the degree of development of the entire pro-technological absorptive capacity and the achieved level of strategic flexibility ($r \geq 0.7$). Thus, there is no reason to reject the hypothesis H1 that was assumed in this article. This means that the further development of absorptive capacity should provide financial companies with a significant increase in strategic flexibility that is so much desired nowadays.

The analysis of dependencies carried out in relation to the more precisely identified absorptive capacities indicates that the capability to acquire new technologies ($r = 0.78$) and the capability to use them ($r = 0.71$) have the strongest influence on strategic flexibility. In turn, the weakest impact had the capability to transform acquired technologies ($r = 0.58$) and the capability to assimilate them ($r = 0.63$). This makes the basis for rejecting the hypothesis H2, according to which the degree of development of the capacity to acquire and assimilate technological knowledge has a stronger impact on strategic flexibility of financial companies in Poland than the capacity to transform and use this knowledge. According to the concept of George and Zahra, this was to confirm that it is primarily a company's potential absorptive capacity which determines its flexibility in operation. The identified relations are presented in Figure 2, in which the thickness of the arrows reflects the strength of the impact.

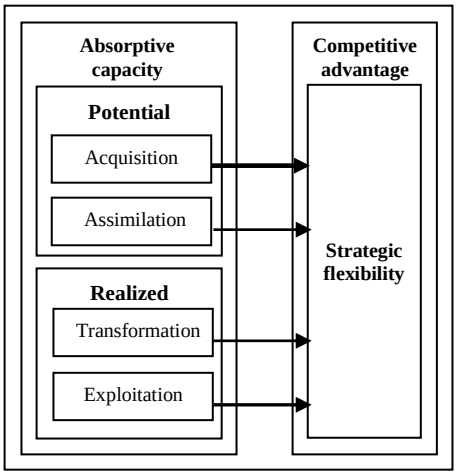

Fig. 2. Relations between absorptive capacities and strategic flexibility.

It turns out that in the conditions under which Poland's financial sector companies operate, their strategic flexibility is impacted most by the capability to acquire new technological knowledge and the capability to use it ultimately. The most important thing is therefore to be capable of acquiring new and useful knowledge, which can then be used in an effective and purposeful manner for the change introduced to maintain or increase a company's competitiveness. The capabilities to assimilate and transform knowledge are as important as the extent to which they facilitate the process of the knowledge use, without which acquiring this knowledge would, in principle, be meaningless.

V. CONCLUSION

Every organization operating in today's turbulent reality should within a conscious and purposeful process of organizational learning, systematically and permanently acquire and then effectively use knowledge, thus increasing its flexibility and level of adaptation to changes [8]. A special role in this respect is played by an organization's absorptive capacity, which determines its capability to constantly become enriched in useful knowledge, through the capability to identify the changes around and adequately initiate creative reactions.

The results of the empirical research presented in this article confirm that according to the hypothesis H1 the degree of development of pro-technological absorptive capacity of financial companies operating in Poland influences significantly the level of their strategic flexibility. Therefore, their further development – in fact justified from the point of view of its diagnosed level – should ensure a significant

increase in strategic flexibility that is so much desired nowadays, especially in the case of large financial corporations that are frequently rigid.

However, it turns out that contrary to the assumptions of Georg and Zahra, the capability to acquire and the capability to use new technologies have the greatest impact, and they should be the subject of special care in the process of shaping absorptive capacity [23]. This confirms a thesis that acquiring knowledge makes sense only when it can be applied afterwards, adapting thus to changing and increasingly demanding business conditions [14]. Therefore, absorptive capacity, which focuses on acquiring knowledge from outside, without anticipating its exploitation, seems to be not only incomplete, but even totally useless.

The acquired knowledge is useful for a company when it allows this company to generate added value and achieve satisfactory results in the process of competition [21]. From this perspective, the capabilities to absorb and transform knowledge also transpire to be important, since they allow the use of opportunities resulting from the acquisition of the new knowledge, making it useful from the perspective of creating and implementing desired changes [19].

The conclusions presented seem to be not only scientific in nature, but also have the application value, as they take the form of useful recommendations for business practice of financial companies. Moreover, they indicate the need to undertake further research, especially to identify the key components of individual segments of absorptive capacity that determine their driving force, and identify other factors that together with absorptive capacity determine increases in strategic flexibility

REFERENCES

[1] J. Barney, "Firm resources and sustained competitive advantage," *Journal of Management*, vol. 17, pp. 99-120, 1991. https://doi.org/10.1177/014920639101700108

[2] J.R. Baum and S. Wally, "Strategic decision speed and firm performance," *Strategic Management Journal*, vol. 24, pp. 1107-1130, 2003. https://doi.org/10.1002/smj.343

[3] D. Brozovic, "Strategic flexibility: A review of the literature," *International Journal of Management Reviews*, vol. 20, pp. 3-31, 2018. https://doi.org/10.1111/ijmr.12111

[4] W.M. Cohen and D.A. Levinthal, "Absorptive capacity: A new perspective on learning and innovation," *Administrative Science Quarterly*, vol. 35, no. 1, pp. 128-152, 1990. https://doi.org/10.2307/2393553

[5] L. Dwyer, D. Edwards, N. Mistilis, N. Scott and C. Roman, "Destination and enterprise management for a tourism future," *Tourism Management*, vol. 30, no. 1, pp. 63-74, 2009. https://doi.org/10.1016/j.tourman.2008.04.002

[6] L.M. Dwyer, C.L. Knezević, D.J. Edwards and T.A. Mihalic, "Tourism firms' strategic flexibility: The case of Slovenia," *International Journal of Tourism Research*, vol. 16, pp. 377-387, 2014. https://doi.org/10.1002/jtr.1931

[7] Ch. Evans, *Managing for knowledge: HR's strategic role*, Oxford: Butterworth-Heinemann, 2003.

[8] W. Glabiszewski, *Potencjał absorpcyjny przedsiębiorstw finansowych w Polsce w procesie transferu innowacyjnych technologii*, Toruń: Wydawnictwo UMK, 2016.

[9] W. Glabiszewski, M. Zastempowski, "The ability to assimilate technology as a source of competitive advantage of financial companies in Poland," *Journal of Competitiveness*, vol. 8, no. 4, pp. 61-71, 2016. https://doi.org/10.7441/joc.2016.04.04

[10] D. Grego-Planer and K. Liczmańska, "Factors, resources and motivators innovative of small and medium-sized enterprises in the kujawsko-pomorskie province," *AUNC Zarządzanie*, vol. 3, pp. 189-202, 2015.

[11] R. Hamlin, J. Henry and R. Cuthbert, "Acquiring market flexibility via niche portfolios: The case of Fisher and Paykel Appliance Holdings Ltd," *European Journal of Marketing*, vol. 46, pp. 1302-1319, 2012. https://doi.org/10.1108/03090561211248044

[12] H. Liu, X. Jiang, J. Zhang and X. Zhao, "Strategic flexibility and international venturing by emerging market firms: The moderating effects of institutional and relational factors," *Journal of International Marketing*, vol. 21, no. 2, pp. 79–98, 2013. https://doi.org/10.1509/jim.12.0047

[13] S. Nadkarni and V.K. Narayanan, "Strategic schemas, strategic flexibility, and firm performance: The moderating role of industry clockspeed," Strategic Management Journal, vol. 28, no. 3, pp. 243-265, 2007. https://doi.org/10.1002/smj.576

[14] I. Nonaka, H. Takeuchi, *The knowledge-creating company. How Japanese companies create the dynamics of innovation*, Oxford: Oxford University Press, 1995.

[15] H. Nowotny, P. Scott and M. Gibbons, *Rethinking science. Knowledge and the public in an age of uncertainty*, Cambridge: Polity Press 2001.

[16] M. Perez-Valls, J. Cespedes-Lorente and J. Moreno-Garcia, "Green practices and organizational design as sources of strategic flexibility and performance," *Business Strategy and the Environment*, vol. 25, pp. 529-544, 2016. https://doi.org/10.1002/bse.1881

[17] R. Sanchez, "Strategic flexibility in product competition," *Strategic Management Journal*, vol. 16, pp. 135-159, 1995. https://doi.org/10.1002/smj.4250160921

[18] K. Shimizu and M.A. Hitt, "Strategic flexibility: Organizational preparedness to reverse ineffective strategic decisions, *The Academy of Management Executive*, vol. 18, no. 4, pp. 44–59, 2004.

[19] G. Todorova and B. Durisin, "Absorptive capacity: Valuing a reconceptualization", *Academy of Management Review*, vol. 32, no. 3, pp. 774-786, 2007 https://doi.org/10.5465/amr.2007.25275513.

[20] R. Tourangeau, F.G. Conrad and M.P. Couper, *The science of web surveys*, Oxford: Oxford University Press, 2013. https://doi.org/10.1093/acprof:oso/9780199747047.001.0001

[21] P. Trott, *Innovation management and new product development*, Harlow: Prentice Hall, 2008.

[22] N. Worren, K. Moore and P. Cardona, "Modularity, strategic flexibility, and firm performance: A study of the home appliance industry," *Strategic Management Journal*, vol. 23, pp. 1123-1140, 2002. https://doi.org/10.1002/smj.276

[23] S.A. Zahra and G. George, "Absorptive capacity: A review, reconceptualization, end extension," *Academy of Management Review*, vol. 27, no. 2, pp. 185-203, 2002. https://doi.org/10.5465/amr.2002.6587995 https://doi.org/10.2307/4134351

[24] M.J. Zhang, "IS support for strategic flexibility, environmental dynamism, and firm performance," *Journal of Managerial Issues*, vol. 18, pp. 84-103, 2006.

[25] M. Zastempowski, "The innovative potential of Polish enterprises," *AUNC Zarządzanie*, vol. 1, pp. 27-37, 2014.

[26] K.Z. Zhou and F. Wu, "Technological capability, strategic flexibility, and product innovation," *Strategic Management Journal*, vol. 31, no. 5, pp. 547-561, 2010.