

*Edward Stawasz**

INNOVATION CAPACITY OF ENTERPRISES – SELECTED ISSUES

1. INTRODUCTION

Innovations and innovativeness, i.e. changes, novelty, readiness and capacity for their implementation in practice, play an unquestionable role in the development of business entities, regions and whole economies. They also play an increasingly significant role in the global market under conditions of increased competition and transition to a knowledge-based economy. The most effective way to transform innovations into a permanent competitive advantage is building the innovation capacity, generally defined as the capability for continuous transformation of knowledge and ideas into new products, processes and systems that benefit companies since enterprises compete with their capabilities for development of new products rather than with new products¹. In this context, the innovation capacity of enterprises can be considered as an indicator of innovation success. Thus, the following questions arise: what creates the innovation capacity of enterprises and how it can be developed; why only some enterprises are capable of independently developing innovations and why some enterprises are more innovative than others.

The evaluation of innovation capacities of enterprises is of crucial significance for both researchers and practitioners of innovation management². In the recent years, numerous studies concerning the concepts, areas and strategies of building the innovation capacity have been conducted. They concentrate, among others, on determining the nature of resources and capabilities necessary to undertake innovations of various character, carried out in various types of environ-

* Łódź University professor, Ph.D., Department of Entrepreneurship and Industrial Policy, Faculty of Management, University of Łódź, 22/26 Matejki Str., 90-237 Łódź.

¹ B. Lawson, P. Samson, *Developing innovation capability in organizations: A dynamic capabilities approach*, "International Journal of Innovation Management" 2001, Vol. 5, No. 3, p. 377–400.

² See: G. Capaldo, L. Iandoli, M. Raffa, G. Zollo, *The Evaluation of Innovation Capabilities in Small Software Firms: A Methodological Approach*, "Small Business Economics" 2003, Vol. 21, p. 343–354; J. Baldwin, G. Gellely, *Innovation Strategies and Performance in Small Firms*, Edward Elgar, Cheltenham 2003; S. Conway, F. Steward, *Managing and shaping innovation*, University Press, Oxford 2009, p. 12.

ment by enterprises of different sorts and scales. The acquisition of organisational capacity that enables rapid response to changes in the environment as well as to the market, technology and business development is considered crucial. The effectiveness of innovation is connected with another capability of enterprises, the capacity to continuously mobilise their resources and adapt to changing business opportunities³.

The paper attempts to organise the concepts and areas as well as the specificity of the innovation capacity of enterprises based on literature review. The first part of the paper presents the concept as well as the types of innovation capacity of enterprises. The second part concentrates on the selected issues connected with the specific manner in which the innovation capacity is formed, in particular: the areas, models and factors that influence the innovation capacity which is different depending on the product life cycle and the character of the innovation.

2. THE CONCEPT AND TYPES OF INNOVATION CAPACITY OF ENTERPRISES

The concept of innovation capacity of enterprises is connected with resources and organisational capabilities of enterprises that enable to undertake innovations of the given character and scale as well as their effective implementation. The theoretical base is provided by Penrose's resource-based approach that distinguishes the resources at the company's disposal and the associated organisational competences as the primary determinants of the long-term enterprise performance. Thus, it is assumed that innovations and a competitive advantage are created within the enterprise and are the result of specialised, rare and inimitable resources and organisational competences, i.e. the capacity to make use of resources⁴.

The resource-based approach is further developed in Teece's theory concerning dynamic capabilities, i.e. capabilities for integration, reconfiguration and creation of resources and competences in response to rapid changes in the environment⁵. This concept places emphasis on evolution processes of organisational

³ See: M. Kodama, *Knowledge integration dynamics. Developing strategic innovation capability*, World Scientific, Singapore 2011, p. 47; J. Liao, J. R. Kickul, M. Ha, *Organizational dynamic capability and innovation: An empirical examination of Internet firms*, "Journal of Small Business Management" 2009, No. 3, p. 263–286; N. Hewitt-Dundas, *Resource and Capability Constraints to Innovation in Small and Large Plants*, "Small Business Economics" 2006, Vol. 26, p. 257–277.

⁴ R. M. Grant, *The Resource-based Theory of Competitive Advantage: Implications for Strategy Formulation*, "California Management Review" 1991, Vol. 33, p. 275–594.

⁵ D. J. Teece, *Technological Know-How, Organizational Capabilities and Strategic Management*, World Scientific, New Jersey 2008, p. 19–21; a wide review of definitions and functions of dynamic capabilities is presented in: J. Noori, J. Tidd, M. R. Arasti, *Dynamic capability and diversification*, [in:] J. Tidd (ed.), *From knowledge management to strategic competence Assessing Technological, Market and Organisational Innovation*, Ser. "Technology Management", Vol. 19,

competences in the context of dynamically changing markets and technologies and on the manner in which they affect the capacity of the enterprise to change its capabilities over a period of time, which results in positive outcomes. This approach is useful for the analysis of innovations and enterprise growth as it centres on the innovation capacity, creative knowledge accumulation and special relations with the environment⁶. According to the concept of dynamic capabilities, resources and competences as such are not sufficient since the development of technology and business requires capabilities to adapt to changing market and technological opportunities⁷. Specialised resources such as: physical (production capacity), technological (including R&D, patents), human, financial, networking (contacts, connections and alliances) as well as managerial resources (e.g.: in the area of planning and marketing, management style) create only the innovation capacity of enterprises necessary to create innovations. It is not the resources, however, that affect innovations and a competitive advantage but capabilities to transform resources and create new resource configurations which are critical in supporting the choice of new strategies⁸. Dynamic capabilities differ from resources and organisational competences – the reserve of available agents that the organisation possesses or controls – as capabilities refer to possibilities for the development of organisation's resources, *etc.*⁹ The concept of dynamic capabilities which emphasises the capacity to create inimitable resource combinations that concern all the functions of the enterprise has been recognised as promising in the strategic management, enriching the product-market position analysis. According to this approach, enterprises compete not by means of products but deeper factors, i.e. resources and capabilities to develop new products that cannot be easily imitated or seized¹⁰.

In the traditional concept of innovation, the innovation capacity or capability is understood as the contribution into the process of innovation (mostly in the form of formal expenditure on R&D) which results in innovations (new products,

Imperial College Press, London 2012, p. 8–9.

⁶ N. Hewitt-Dundas, *op. cit.*; C. L. Wang, P. K. Ahmed, *Dynamic capabilities: A review and research agenda*, "International Journal of Management Reviews" 2007, Vol. 9, No. 1, p. 31–51.

⁷ K. Obłój, *Tworzywo skutecznych strategii*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2001, p. 129.

⁸ O. J. Borch, E. L. Madsen, *Dynamic capabilities facilitating innovative strategies in SMEs*, "International Journal Technoentrepreneurship" 2007, Vol. 1, No. 1, p. 109–125; J. Liao, J. R. Kickul, M. Ha, *op. cit.*, p. 263–286.

⁹ K. M. Eisenhardt, J. K. Martin, *Dynamic capabilities: what are they?*, "Strategic Management Journal" 2000, Vol. 21, p. 1005–1121; H. Forsman, H. Rantanen, *Small manufacturing and service enterprises as innovators: a comparison by size*, "European Journal of Innovation Management" 2011, Vol. 14, No. 1, p. 27–50.

¹⁰ B. Lawson, P. Samson, *op. cit.*; R. Krupski (red.), *Elastyczność organizacji*, Wydawnictwo Uniwersytetu Ekonomicznego, Wrocław 2008, p. 87.

technologies). The linear innovation model, which emphasises technical and scientific knowledge as innovation sources, can be problematic though for smaller-scale enterprises where innovations are usually not based on the latest knowledge but are the result of many factors, including informal R&D and the use of external innovation sources, *etc.* Studies on SME innovations indicate that innovations are not necessary the result of formal R&D but of the development of the current business, cooperation with customers or optimisation of business processes; innovations often encompass informal R&D (experiments, teaching, evaluation and technology adaptation), which can cause difficulties in differentiating the development of innovations from other types of business activity, particularly in small enterprises where development work is integrated with the current business activity¹¹.

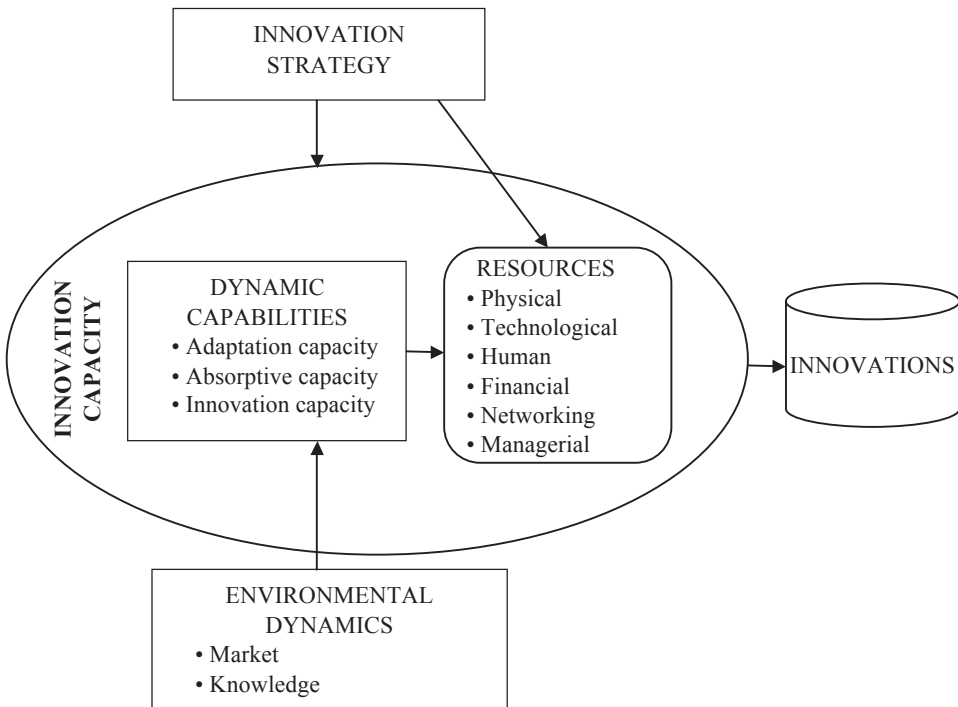


Fig. 1. Innovation capacity – innovations model

Source: the author's compilation.

¹¹ H. Forsman, H. Rantanen, *op. cit.*, p. 27–50; E. Stawasz, *Rozwój badań nad innowacyjnością małych i średnich przedsiębiorstw w Polsce*, [in:] W. Błaszczuk, I. Bednarska-Wnuk, P. Kuźbik (red.), *Nurt metodologiczny w naukach o zarządzaniu. 50 lat pracy naukowej prof. zw. dr hab. Zofii Mikołajczyk*, "Acta Universitatis Lodzianis", Folia Oeconomica 234, Łódź 2010, p. 124–125.

In the latest innovation models, the innovation capacity is presented as a complex, multi-factor and multi-area concept that encompasses numerous internal and external factors influencing an organisation, in which dynamic capabilities play a particularly significant role¹². It is defined as a highly integrated capacity to shape and manage a variety of skills and resources¹³, the capacity to continuously transform knowledge and ideas into new products, processes and systems that in consequence benefit companies¹⁴, the combination of internal and external factors affecting an organisation that are connected with its ability to undertake continuous innovations¹⁵, the capacity to continuously improve capabilities and resources at the company's disposal in order to explore and exploit opportunities for the development of innovations in response to market needs¹⁶, the capacity to transform resources into the strategies (objectives) of innovation, accumulate the existing knowledge, internalise and exploit external knowledge¹⁷, the capacity to transform resources and knowledge into innovations and growth, encompassing technological competences, dynamic/integrated capabilities and functional routines as well as entrepreneurship treated as an essential condition for the creation of innovation value¹⁸.

The innovation capacity affects short and long-term innovation achievements of enterprises. These relations though are most of all the result of the development of dynamic capabilities (see: Fig. 1). The environmental dynamics is the driving force of dynamic capabilities of an enterprise. The more dynamic the market and technological (knowledge) environment is, the stronger the driving force for enterprises to create dynamic capabilities, their particular abilities/components in response to external changes. The development of particular capabilities over time, similarly to company resources, is influenced by the innovation strategy of the enterprise. Dynamic capabilities may lead to better

¹² A wide review of definitions of the innovation capacity is presented in: J. A. Martínez-Roman, J. Gamero, J. A. Tamayo, *Analysis of innovation in SMEs using an innovative capability-based non-linear model: A study in the province of Seville (Spain)*, "Technovation" 2011, Vol. 31, p. 459–475.

¹³ L.-J. Chen, Ch.-Ch. Chen, W.-R. Lee, *Strategic Capabilities, Innovation Intensity, and Performance of Service Firms*, "Journal Services & Management" 2008, No. 1, p. 111–122.

¹⁴ B. Lawson, P. Samson, *op. cit.*

¹⁵ M Terziovsky (ed.), *Building innovation capability in organizations. An international cross-case perspective*, Imperial College Press, London 2007, p. 5.

¹⁶ H. Forsman, H. Rantanen, *op. cit.*

¹⁷ F. Huang, J. Rice, *The role of absorptive capacity in facilitating 'open innovation' outcomes: A study of Australian SMEs in the manufacturing sector*, "International Journal of Innovation Management" 2009, Vol. 13, No. 2, p. 201–220.

¹⁸ Y. Zhou, T. Minshall, C. Hampden-Turner, *Building innovation capabilities: An inquiry into the dynamic growth process of university spin-outs in China*, "International Journal of Innovation and Technology Management" 2010, Vol. 7, No. 7, p. 273–302.

innovative results on the part of enterprises when particular capabilities are developed according to the strategic choice made by the enterprises¹⁹.

Subject literature distinguishes two basic approaches to types of innovation capacity: a classical approach and a more modern one which is based on the concept of the absorptive capacity. The classical approach divides the innovation capacity into the internal capacity and external capacity based on the division of resources and competences into external and internal ones. The innovation capacity is seen as the combination of internal and external factors that are connected with the continuous implementation of innovations²⁰. Thus, the creation of effective innovation strategies requires building the internal and external innovation capacity, regardless of the importance and role of these two capacities in the process of innovation and their correlations. The formation of the internal innovation capacity is associated with the development of skills of management as well as other employees in the area of creating and implementing innovative solutions, formulating innovative strategies as well as building structures and organisational culture that facilitate the creation and absorption of innovations and building the financial potential for undertaking innovations, including R&D expenditure. The formation of the external innovation capacity encompasses monitoring trends in the area of technology, market and social changes, creating external cooperation network with numerous external partners in the field of innovations as well as availing of public aid for innovation. Access to external knowledge and to other resources and services as well as their absorption becomes an important factor in effective innovativeness of enterprises, particularly smaller-scale companies²¹.

¹⁹ C. L. Wang, P. K. Ahmed, *op. cit.*; A. Zakrzewska-Bielawska, *Relacje między strategią a strukturą organizacyjną w przedsiębiorstwach sektora wysokich technologii*, "Zeszyty Naukowe" 2011, nr 1095, (Politechnika Łódzka, Łódź), p. 112–113.

²⁰ See: J. Baldwin, G. Gellertly, *op. cit.*; O. Branzei, I. Vertinsky, *Strategic pathways to product innovation capabilities in SMEs*, "Journal of Business Venturing" 2006, No. 21, p. 75–105; P. Niedzielski, K. Rychlik, *Innowacje i kreatywność*, Wydawnictwo Uniwersytetu Szczecińskiego, Szczecin 2006; K. Poznańska, *Uwarunkowania innowacji w małych i średnich przedsiębiorstwach*, Dom Wydawniczy ABC, Warszawa 1998, p. 43; H. Romijn, M. Albaladejo, *Determinants of innovation capability in small electronics and software firms in southeast England*, "Research Policy" 2002, No. 31, p. 1053–1067; Y. Zheng, J. Liu, G. George, *The dynamic impact of innovative capability and inter-firm network on firm valuation: A longitudinal study of biotechnology start-ups*, "Journal of Business Venturing" 2010, No. 25, p. 593–609; M. Zastempowski, *Uwarunkowania budowy potencjału innowacyjnego polskich małych i średnich przedsiębiorstw*, Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika w Toruniu, Toruń 2010, p. 274.

²¹ A. Pullen, P. de Weerd-Nederhof, A. Groen, M. Song, O. Fisscher, *Successful Configurations of external SME characteristics to explain differences in innovation performance*, 16th Annual High Technology Small Firms Conference, HTSF 2008, Twente Enschede, p. 12; E. Stawasz, *Innowacyjność polskiego sektora MŚP w świetle badań własnych*, [in:] P. Niedzielski, R. Stanisławski, E. Stawasz (red.), *Polityka innowacyjna państwa wobec sektora małych i średnich przedsiębiorstw w Polsce – analiza uwarunkowań i ocena realizacji*,

The more modern approach to the innovation capacity is derived from the concept of dynamic capabilities and emphasises the capacity of enterprises to reconfigure their resources in the area of innovation as a response to the changing market and technological environment creating numerous challenges for business development²². Zahra and George's concept of the capacity for innovation absorption is the starting point in this case²³. The absorptive capacity is defined as the dynamic innovation capability which influences the nature and ability to maintain competitive advantages of enterprises. This concept is used to describe the capacity of the enterprise to recognise the value of new knowledge, to assimilate it and transform into a commercial outcome. In this approach, the concept of the innovation absorptive capacity combines both components of the innovation capacity – external and internal – by distinguishing four types of the innovation capacity that comprise the potential capacity, i.e. the capacity to evaluate and acquire external knowledge that encompasses: i) the capacity to purchase/acquire knowledge and ii) the capacity to assimilate knowledge as well as the realised capacity, i.e. the capacity to develop the acquired knowledge encompassing, iii) the capacity for transformation and iv) exploitation of knowledge. The potential capacity as well as the realised one play separate yet complementary roles in the innovation process. This distinction is important for evaluation of their unique contribution to the creation of innovation and a competitive advantage of enterprises – it allows to explain why enterprises differ among themselves in terms of innovation, why some are more effective than others in the use of their innovation capacity and what external and internal forces have a differential impact on the potential and realised capacity²⁴.

In reference to small-scale enterprises, Forsman presents an interesting classification of the innovation capacity based on the concept of absorption and the concept of a learning process²⁵. It distinguishes four types on innovation capabilities specific for SMEs: i) *entrepreneurial capabilities*: the capacity to identify opportunities, power of intention (combined with the strategy), propensity for risk, capacity for crystallization of objectives and knowledge for the purpose of balancing them with the resources, ii) *networking capabilities*: orientation relationship, susceptibility to network learning, ability and intentions to internalise

“Zeszyty Naukowe” 2011, vol. 654, “Ekonomiczne Problemy Usług”, nr 70, (Wydawnictwo Uniwersytetu Szczecińskiego, Szczecin), p. 37–58.

²² See: O. J. Borch, E. L. Madsen, *op. cit.*; D. J. Teece, *op. cit.*

²³ S. A. Zahra, G. George, *Absorptive capacity: A review, reconceptualization, and extension*, “Academy of Management Review” 2002, No. 2, p. 185–203.

²⁴ L.-J. Chen, Ch.-Ch. Chen, W.-R. Lee, *op. cit.*, p. 111–122; see also: A. Nowakowska, *Regionalny wymiar procesów innowacji*, Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2011, p. 42.

²⁵ H. Forsman, *Improving innovation capabilities of small enterprises: cluster strategy as a tool*, “International Journal of Innovation Management” 2009, Vol. 13, No. 2, p. 221–243.

partners' knowledge and capacity to create and maintain trust between partners, iii) *capabilities connected with current knowledge*: the capacity to modify and adapt external knowledge which facilitates its transformation into new knowledge combinations, iv) *managerial and organisational capabilities*: management and leadership skills, including the ability to manage change and projects as well as organisational skills associated with flexibility, speed of operation and ability to implement change. These four types of capabilities support/complement particular innovation capabilities that comprise the potential and realised capacity.

The combination of three types of innovation capacity based on priorities of innovation activity put forward by Wang and Ahmed²⁶ is an attempt to integrate the innovation capabilities presented above. They distinguish i) *the capacity to adapt innovations*, i.e. the ability of the enterprise to identify and exploit emerging market opportunities by the development of internal resources and skills of enterprises, with the emphasis placed on flexibility of resources and organisational forms, ii) *the capacity to absorb innovations*, focusing on the development of the ability to identify, assimilate, transform and implement external knowledge and iii) *the innovation capacity* in a broader sense encompassing both the development of internal resources as well as the absorption of external knowledge. In this approach, the innovation capacity is of the integrated capacity type and encompasses capabilities for developing new products and markets, innovation strategies as well as the capacity for a balanced approach in terms of innovation activities, behaviour, processes and allocation of resources that serve various types of enterprise activity²⁷.

3. FACTORS AND AREAS OF INNOVATION CAPACITIES OF ENTERPRISES

The innovation capacity of enterprises is presented in economic literature as a complex, multi-factor and multi-area concept that encompasses numerous internal and external factors influencing an organisation in the area of management, leadership and competences, marketing, technology and external relations²⁸, *etc.* A wide, comprehensive approach to areas/factors of innovation capacities is proposed by Lawson and Samson. It distinguishes the following seven areas²⁹: vision and strategy, competence base, information system and organisational intel-

²⁶ J. Liao, J. R. Kickul, M. Ha, *op. cit.*

²⁷ M Terziovsky (ed.), *op. cit.*; P. Robertson, G. L. Casali, D. Jacobsen, *Managing open incremental process innovation: absorptive capacity and distributed learning*, "Research Policy" 2012, Vol. 41, p. 822–832.

²⁸ See: S. Conway, F. Steward, *op. cit.*; M. Kodama, *op. cit.*; A. Spithoven, B. Clarysse, M. Knockaert, *Building absorptive capacity to organise inbound open innovation in traditional industries*, "Technovation" 2010, Vol. 30, p. 10–21.

²⁹ B. Lawson, P. Samson, *op. cit.*; see also: M Terziovsky (ed.), *op. cit.*

ligence, customer-orientated approach, knowledge management (creativity and ideas), organisational systems and structures, organisational culture and atmosphere in the organisation, technology management. These factors may have a varied impact on the outcome of innovation, particularly when they are considered in isolation or in different parts of the organisation, without taking into consideration the synergic relations that exist between them.

The significance of particular factors depends, among others, on the conducted or planned innovation activity, innovation orientation of the company, stages of the innovation life cycle, the scale of the enterprise, the type of the environment, *etc.* In the first case, the innovation capacity, hence the order and significance of particular factors, will be different in incremental and radical innovations, similarly in the case of different-scale enterprises that operate in the stable or turbulent environment.

The innovation capacity of enterprises ought to be considered in a broad context of their operation and development strategy. The models of innovation management encountered in literature emphasise the subordinate role of the innovation capacity in relation to the conducted innovation activity – it should be shaped according to the adopted innovation strategy³⁰. Building the innovation capacity of the enterprise is a key challenge on the road to achieve success in new radical ventures. This type of innovation capacity is also called the strategic innovation capacity, i.e. the organisational capacity to achieve continuous strategic (radical) innovations that constitute in creating new values in the area of technology and markets³¹. It refers mainly to business innovations that transform the current activities into a new business and have a major impact on the company performance.

In the case of the innovation strategy encompassing both the current activity of the company (mostly incremental innovations) and the new activity (radical innovations), the integration of both types of activity is a critical imperative for the creation of effective innovations (see Fig. 2). Managing both types of activity and innovations separately, hence also managing the creation and assigning of the innovation capacity to both types of activity, may have a negative impact on effectiveness of the innovations undertaken. In this context, the significance of the integrated innovation capacity, which covers both types of business activity in line with the overall company strategy and the challenges provided by the environment, is emphasised³².

³⁰ S. Conway, F. Steward, *op. cit.*

³¹ M. Kodama, *op. cit.*; J. Liu, A. Baskaran, S. Li, *Building technological-innovation-based strategic capabilities at firm level in China: A dynamic resource-based-view case study*, "Industry and Innovation" 2009, Vol. 16, No. 4–5, p. 411–434.

³² D. Kelley, E. Marram, *Managing a Growing Business*, [in:] W. D. Bygrave, A. Zacharakis (eds.), *The Portable MBA in Entrepreneurship*, Wiley, New Jersey 2004, p. 411; M. Kodama, *op. cit.*

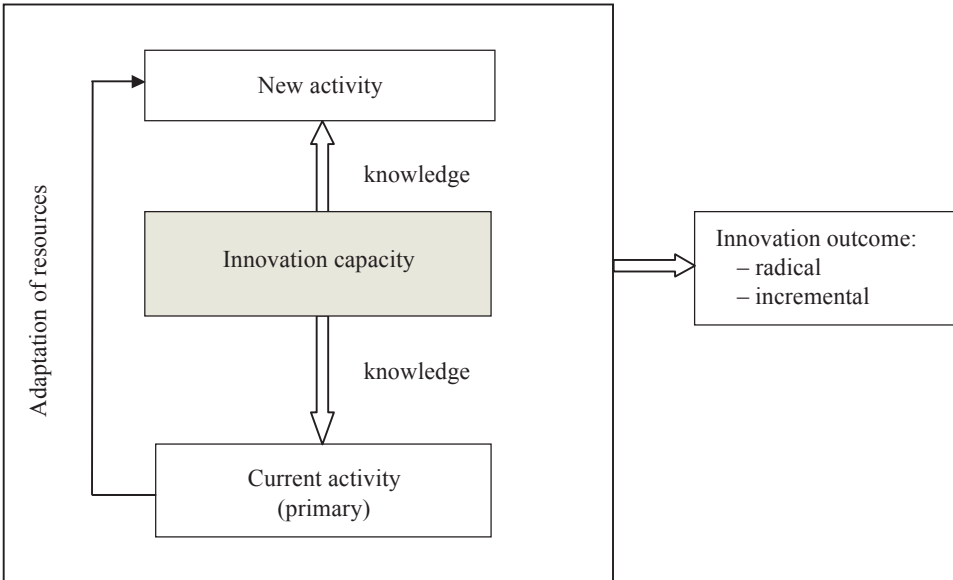


Fig. 2. Integrated model of innovation capacity

Source: the author's compilation.

The type of undertaken innovations in the radical and incremental innovation approach determines the scope and shape of the required innovation capacity since both types of innovations differ significantly. Thus, enterprises need other capabilities (including strategies, organisation, resources, technology, processes and leadership), different from the elements required for radical and incremental innovations. The development of radical innovations requires a breakthrough in the existing capabilities while the development of incremental innovations requires the improvement of the existing capabilities necessary to improve or modify the existing products, services and activity³³.

Another factor that differentiates the creation of innovation capacity of enterprises is their innovation orientation according to which enterprises are classified into enterprises that adapt innovations and generate innovations³⁴. Enterprises that adapt innovations absorb/assimilate the acquired knowledge and exploit opportunities to improve their products, services and technologies. They rely mostly on

³³ M. Varis, H. Littunen, *Types of innovation sources of information and performance in entrepreneurial SMEs*, "European Journal of Innovation Management" 2010, Vol. 13, No. 2, p. 128–154; H. Forsman, *op. cit.*; A. Pullen, P. de Weerd-Nederhof, A. Groen, M. Song, O. Fischer, *Successful Patterns of Internal SME. Characteristics Leading to High Overall Innovation Performance*, "Creativity and Innovation Management" 2009, Vol. 18, No. 3, p. 209–223.

³⁴ O. Branzei, I. Vertinsky, *op. cit.*

managerial and organisational capabilities in selecting and assimilating innovations. Enterprises that generate innovations, on the other hand, discover new market niches and generate an innovation outcome to effectively make use of them. Their activities are mostly based on creating technological knowledge and capabilities for market development and innovation commercialisation, hence abilities to acquire and transform knowledge in order to create radical innovations are of key importance. In this case, organisational culture of enterprises, characterised by a strong propensity for risk taking, customer and technology orientated approach, ability to quickly implement new solutions particularly significant for the development of small companies, plays an important role³⁵.

The classification of enterprises into the ones that adapt innovations and the ones that generate innovations to a certain extent depends on their scale and age. Enterprises generating innovations are usually small and younger entities than enterprises adapting innovations. In the case of larger-scale enterprises which place emphasis equally on generating as well as adapting innovations, the need to integrate both these types of activity arises. It is connected with the creation of a complex organisational structure encompassing operational units that generate and adapt innovations (concentrating mainly on technical issues) and the strategic unit that integrates both of these orientations (the emphasis on administrative innovations, organisational culture, strategy and structure, bonuses and leadership)³⁶.

The factor which differentiates the creation of innovation capacity of enterprises is also the life cycle of innovation (a new product), which allows to differentiate the innovation capacities of early and later stages of product development. The required innovation capacities of enterprises in the case of the absorptive capacity differ depending on the stage of product development – for example depending on whether the product is at the stage of early development or maturity stage. Early stages are characterised by capabilities to purchase/acquire knowledge and by the ability to transform knowledge whereas at later stages the stronger emphasis is placed on the development of the capacity to assimilate knowledge and exploit knowledge. This assessment is confirmed by numerous innovation studies on the significance and role of the selected factors/areas of the innovation capacity of enterprises. They indicate that early stages of product development require above all the development of many features of human resources such as the development of staff knowledge and interaction skills among employees, the propensity to participate in team work and learning, *etc.* as well as the ability to develop products and processes such as: internalisation of the acquired knowledge, sharing knowledge which enables the purchase and transformation of knowledge into new or improved products or technology. Later innovation stages require

³⁵ A. Pullen *et al.*, *Successful Patterns...*

³⁶ F. Damanpour, J. D. Wischnevsky, *Research on innovation in organizations: distinguishing innovation-generators from innovation-adopting organizations*, "Journal of Engineering and Technology Management" 2006, Vol. 23, p. 269–291.

the development of marketing and production competences of employees, ability to interpret and incorporate knowledge into current operations and capability to develop products and processes such as: knowledge internalisation, knowledge sharing that enables assimilation and improvement of products or technologies³⁷.

4. CONCLUSION

The concept of the innovation capacity of enterprises is presented in economic literature as a complex, multi-factor and multi-area concept that encompasses numerous internal and external factors influencing an organisation in the area of management, leadership and competences, marketing, technology and external relations. These factors may influence innovations in a varied manner, particularly when they are considered in isolation or in different parts of the organisation, without taking into consideration the synergic relations that exist between them.

Their significance depends, among others, on the conducted or planned innovation activity, innovation orientation of the company, stages of the innovation life cycle, the scale of the enterprise, the type and dynamics of the environment, *etc.* Based on the dominant factor, it is possible to distinguish different and distinct types of innovation capacity (see Tab. 1).

Table 1

Factors and areas, types of innovation capacity

Factors and areas	Types of innovation capacity
Character of resources and capabilities	Internal innovation capacity External innovation capacity
Primary scope of innovation activity	Adaptation capacity Absorptive capacity Integrated innovation capacity
Innovation orientation	Innovation capacity of enterprises adapting innovations Innovation capacity of enterprises generating innovations
Type of activity	Innovation capacity for the current activity Innovation capacity for the new activity
Type of innovations	Innovation capacity for radical innovations Innovation capacity for incremental innovations
Innovation life cycle	Innovation capacity of early stages of innovation development Innovation capacity of later stages of innovation development

Source: the author's compilation.

³⁷ C. E. Helfat, M. A. Peteraf, *The dynamic resource-based view: capability life cycles*, "Strategic Management Journal Management" 2003, Vol. 24, p. 997–1010; O. Branzei, I. Veritinsky, *op. cit.*; M. Kodama, *op. cit.*; D. Kelley, E. Marram, *op. cit.*

The wealth of factors, areas and types of innovation capacities brings about high requirements for innovation managers. The effective creation of the innovation capacity required for the needs of the undertaken innovations means, on the one hand, the necessity to adapt accordingly strategies and company structures and, on the other, the necessity to take into account varied determinants and challenges of external nature, market dynamics, technology and various relations with the environment.

REFERENCES

- Baldwin J., Gellletly G., *Innovation Strategies and Performance in Small Firms*, Edward Elgar, Cheltenham 2003.
- Bogdanienko J., *Możliwości zwiększania innowacyjności małych firm w warunkach globalnej konkurencji*, "Problemy zarządzania" 2007, No. 4, p. 74–94.
- Borch O. J., Madsen E. L., *Dynamic capabilities facilitating innovative strategies in SMEs*, "International Journal Technoentrepreneurship" 2007, Vol. 1, No. 1, p. 109–125.
- Branzei O., Vertinsky I., *Strategic pathways to product innovation capabilities in SMEs*, "Journal of Business Venturing" 2006, No. 21, p. 75–105.
- Capaldo G., Iandoli L., Raffa M., Zollo G., *The Evaluation of Innovation Capabilities in Small Software Firms: A Methodological Approach*, "Small Business Economics" 2003, Vol. 21, p. 343–354.
- Chen L.-J., Chen Ch.-Ch., Lee W.-R., *Strategic Capabilities, Innovation Intensity, and Performance of Service Firms*, "Journal Services & Management" 2008, No. 1, p. 111–122.
- Conway S., Steward F., *Managing and shaping innovation*, University Press, Oxford 2009.
- Damanpour F., Wischnevsky J. D., *Research on innovation in organizations: distinguishing innovation-generators from innovation-adopting organizations*, "Journal of Engineering and Technology Management" 2006, Vol. 23, p. 269–291.
- Eisenhardt K. M., Martin J. K., *Dynamic capabilities: what are they?*, "Strategic Management Journal" 2000, Vol. 21, p. 1005–1121.
- Forsman H., *Improving innovation capabilities of small enterprises: cluster strategy as a tool*, "International Journal of Innovation Management" 2009, Vol. 13, No. 2, p. 221–243.
- Forsman H., Rantanen H., *Small manufacturing and service enterprises as innovators: a comparison by size*, "European Journal of Innovation Management" 2011, Vol. 14, No. 1, p. 27–50.
- Grant R. M., *The Resource-based Theory of Competitive Advantage: Implications for Strategy Formulation*, "California Management Review" 1991, Vol. 33, p. 275–594.
- Gray C., *Absorptive capacity, knowledge management and innovation and entrepreneurial small firms*, "International Journal of Entrepreneurial Behaviour and Research" 2006, Vol. 12, No. 6, p. 345–360.
- Helfat C. E., Peteraf M. A., *The dynamic resource-based view: capability life cycles*, "Strategic Management Journal Management" 2003, Vol. 24, p. 997–1010.
- Hewitt-Dundas N., *Resource and Capability Constraints to Innovation in Small and Large Plants*, "Small Business Economics" 2006, Vol. 26, p. 257–277.
- Huang F., Rice J., *The role of absorptive capacity in facilitating 'open innovation' outcomes: A study of Australian SMEs in the manufacturing sector*, "International Journal of Innovation Management" 2009, Vol. 13, No. 2, p. 201–220.

- Jasiński A., *Innowacje i transfer techniki w procesie transformacji*, Difin, Warszawa 2006.
- Jong J. P. de, Freel M., *Absorptive capacity and the reach of collaboration in high technology small firms*, "Research Policy" 2010, Vol. 39, p. 47–54.
- Kelley D., Marram E., *Managing a Growing Business*, [in:] W. D. Bygrave, A. Zacharakis (eds.), *The Portable MBA in Entrepreneurship*, Wiley, New Jersey 2004, p. 405–426.
- Kodama M., *Knowledge integration dynamics. Developing strategic innovation capability*, World Scientific, Singapore 2011.
- Krupski R. (red.), *Elastyczność organizacji*, Wydawnictwo Uniwersytetu Ekonomicznego, Wrocław 2008.
- Lawson B., Samson P., *Developing innovation capability in organizations: A dynamic capabilities approach*, "International Journal of Innovation Management" 2001, Vol. 5, No. 3, p. 377–400.
- Liao J., Kickul J. R., Ha M., *Organizational dynamic capability and innovation: An empirical examination of Internet firms*, "Journal of Small Business Management" 2009, No. 3, p. 263–286.
- Liu J., Baskaran A., Li S., *Building technological-innovation-based strategic capabilities at firm level in China: A dynamic resource-based-view case study*, "Industry and Innovation" 2009, Vol. 16, No. 4–5, p. 593–609.
- Martinez-Roman J. A., Gamero J., Tamayo J. A., *Analysis of innovation in SMEs using an innovative capability-based non-linear model: A study in the province of Seville (Spain)*, "Technovation" 2011, Vol. 31, p. 459–475.
- Niedzielski P., Rychlik K., *Innowacje i kreatywność*, Wydawnictwo Uniwersytetu Szczecińskiego, Szczecin 2006.
- Noori J., Tidd J., Arasti M. R., *Dynamic capability and diversification*, [in:] J. Tidd (ed.), *From knowledge management to strategic competence Assessing Technological, Market and Organisational Innovation*, Ser. "Technology Management", Vol. 19, Imperial College Press, London 2012, p. 8–9.
- Nowakowska A., *Regionalny wymiar procesów innowacji*, Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2011.
- Obłój K., *Tworzywo skutecznych strategii*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2001.
- Poznańska K., *Uwarunkowania innowacji w małych i średnich przedsiębiorstwach*, Dom Wydawniczy ABC, Warszawa 1998.
- Pullen A., Weerd-Nederhof P. de, Groen A., Song M., Fisscher O., *Successful Configurations of external SME characteristics to explain differences in innovation performance*, 16th Annual High Technology Small Firms Conference, HTSF 2008, Twente Enschede.
- Pullen A., Weerd-Nederhof P. de, Groen A., Song M., Fisscher O., *Successful Patterns of Internal SME. Characteristics Leading to High Overall Innovation Performance*, "Creativity and Innovation Management" 2009, Vol. 18, No. 3, p. 209–223.
- Robertson P., Casali G. L., Jacobsen D., *Managing open incremental process innovation: absorptive capacity and distributed learning*, "Research Policy" 2012, Vol. 41, p. 822–832.
- Romijn H., Albaladejo M., *Determinants of innovation capability in small electronics and software firms in southeast England*, "Research Policy" 2002, No. 31, p. 1053–1067.
- Spithoven A., Clarysse B., Knockaert M., *Building absorptive capacity to organise inbound open innovation in traditional industries*, "Technovation" 2010, Vol. 30, p. 10–21.
- Stawasz E., *Innowacyjność polskiego sektora MŚP w świetle badań własnych*, [in:] P. Niedzielski, R. Stanisławski, E. Stawasz (red.), *Polityka innowacyjna państwa wobec sektora małych i średnich przedsiębiorstw w Polsce – analiza uwarunkowań i ocena realizacji*, "Zeszyty Naukowe" 2011, vol. 654, "Ekonomiczne Problemy Usług", nr 70, (Wydawnictwo Uniwersytetu Szczecińskiego, Szczecin), p. 37–58.

- Stawasz E., *Rozwój badań nad innowacyjnością małych i średnich przedsiębiorstw w Polsce*, [in:] W. Błaszczyk, I. Bednarska-Wnuk, P. Kuźbik (red.), *Nurt metodologiczny w naukach o zarządzaniu. 50 lat pracy naukowej prof. zw. dr hab. Zofii Mikołajczyk*, "Acta Universitatis Lodziensis", Folia Oeconomica 234, Łódź 2010, p. 123–136.
- Teece D. J., *Technological Know-How, Organizational Capabilities and Strategic Management*, World Scientific, New Jersey 2008.
- Terziovsky M (ed.), *Building innovation capability in organizations. An international cross-case perspective*, Imperial College Press, London 2007.
- Tidd J., Bessant J., Pavitt K., *Managing innovation. Integrating technological, market and organizational change*, J. Wiley & Sons, New York 2005.
- Varis M., Littunen H., *Types of innovation sources of information and performance in entrepreneurial SMEs*, "European Journal of Innovation Management" 2010, Vol. 13, No. 2, p. 128–154.
- Wang C. L., Ahmed P. K., *Dynamic capabilities: A review and research agenda*, "International Journal of Management Reviews" 2007, Vol. 9, No. 1, p. 31–51.
- Zahra S. A., George G., *Absorptive capacity: A review, reconceptualization, and extension*, "Academy of Management Review" 2002, No. 2, p. 185–203.
- Zakrzewska-Bielawska A., *Relacje między strategią a strukturą organizacyjną w przedsiębiorstwach sektora wysokich technologii*, "Zeszyty Naukowe" 2011, nr 1095, (Politechnika Łódzka, Łódź).
- Zastępowski M., *Uwarunkowania budowy potencjału innowacyjnego polskich małych i średnich przedsiębiorstw*, Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika w Toruniu, Toruń 2010.
- Zheng Y., Liu J., George G., *The dynamic impact of innovative capability and inter-firm network on firm valuation: A longitudinal study of biotechnology start-ups*, "Journal of Business Venturing" 2010, No. 25, p. 593–609.
- Zhou Y., Minshall T., Hampden-Turner C., *Building innovation capabilities: An inquiry into the dynamic growth process of university spin-outs in China*, "International Journal of Innovation and Technology Management" 2010, Vol. 7, No. 7, p. 273–302.

Edward Stawasz

ZDOLNOŚĆ INNOWACYJNA PRZEDSIĘBIORSTW – WYBRANE ZAGADNIENIA

Artykuł poświęcony jest przeglądowi literatury naukowej dotyczącej pojęć i obszarów oraz specyfiki zdolności innowacyjnej przedsiębiorstw. W drugim punkcie artykułu omówiono pojęcie oraz rodzaje zdolności innowacyjnej przedsiębiorstw. Zdolność innowacyjna przedstawiana jest w literaturze naukowej jako koncepcja złożona, wieloczynnikowa i wieloobszarowa, obejmująca wiele przyczyn o charakterze wewnętrznym i zewnętrznym organizacji, ze szczególną rolą dynamicznych zdolności, które umożliwiają zarówno podejmowanie innowacji o danym charakterze i skali, jak i ich efektywną realizację. W trzecim skoncentrowano się na wybranych zagadnieniach związanych ze specyfiką kształtowania zdolności innowacyjnej, a w szczególności: motywach, modelach i strategiach kształtowania zdolności innowacyjnej w zależności od cyklu życia produktu, charakteru innowacji, roli przedsiębiorczości w kształtowaniu zdolności innowacyjnej przedsiębiorstw. Czynniki te mogą mieć różny wpływ na wynik innowacji, zwłaszcza gdy są rozpatrywane w izolacji lub w różnych częściach organizacji bez uwzględnienia synergicznych relacji między nimi.