

Innovation paradoxes and SMEs

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Introduction

The ongoing economic crisis creates both short- and long-term pressures to change orientation of enterprises and other types of organizations. Preference for low-cost strategy leads to success only temporarily, but in the long term such a strategy may not be a priority. Currently, the organization lays the foundations of its long-term competitiveness (Fig. 1) by developing a combination of innovation, methods for streamlining the organization of work and increasing productivity. Innovation management is only one of the internal factors which can make an organization more dynamic. Innovation management must ensure rational and effective management of the process of innovation and thus respond flexibly to customer needs in accordance with resources available to producers.

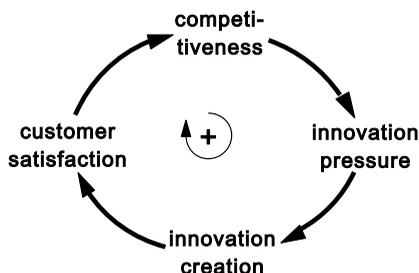


Figure 1. Basic innovation causality setting

Source: author

Innovation can be seen differently; and it is possible to observe them from different perspectives². You may, however, agree that the essence of innovation is the difference from what is already there or what was already there. If this difference is also economically profitable and, therefore, there are satisfied customers in sufficient numbers, then nothing stands in the way of its use as a basis for business. There are new ideas (ideas, knowledge) yielding profits translated into new products in the form of new goods, services or knowledge included in an innovation.

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² The paper presents part of results of research topic Modelling of innovation causal relations in SMEs (Modelovanie kauzálnych vzťahov inovácií v malých a stredných podnikoch – VEGA 1/0328/13).

Concept of Innovation

There are many different descriptions and definitions of innovations. One of possible approaches to this concept is such understanding of innovation as a specific type of a useful change. The change is specific with its different representations and forms which is new to its customer. The most significant attribute is novelty – novelty of goods, services, processes or solutions – which have never been used in the entire world. This we can understand as a broader view. Notion, idea with its realisation should go hand in hand. In this case, the idea is confronted and confirmed by its own realisation and vice versa – good realisation has very positive influence to generation of more new innovation hints and ideas.

It is possible to understand innovation also as a way for commercialisation of a novelty. In this case, the novelty is represented by changes in areas which are called by Tidd, Bessant a Pavitt (2007) as Innovation 4Ps:

1. Product innovation – changes in goods, services and ideas offered by a firm in way of product usage.
2. Process innovation – changes in ways of procurement, production, delivery etc. of a product realised mostly by changes in technology.
3. Position innovation – changes in product promotion, more generally in product marketing, by new market segmentation or looking for new groups of customers.
4. Paradigm innovation – changes in mental models of firms operations represented by new business models and by new ways of process organisation.

Each partial change as an innovation has always its main focus directed to one of the 4Ps. Areas of 4Ps are not isolated, but they interact and influence each other. In this way, it is not possible to say that an innovation is oriented exclusively to one of them. If we assume that an innovation has its measures and its magnitude, what is not described in this article, then an innovation has its magnitude higher than zero in every of the areas. Zhang a Xiao (2007) assume that there is an innovation trajectory among the areas. The trajectory has shape of a spiral moving through the areas. It means that there is not only one rotation for an innovation, but the innovation moves through the areas several times during its cycle of life in many rotations. What is more, the same novelty can represent itself in different ways, with different focuses, i.e. one novelty can be naturally interpreted by different groups as different kinds of innovations.

Process of Innovation

Innovation is a process and not a single issue. It is the process by which organizations direct their resources so as to obtain benefits from science, technology and marketing opportunities. The mission of the innovation process is to create a new product and put it on the market (Fig. 2). The whole process starts with the selection of appropriate ideas and identify possible benefits of a new product goes through various testing until its final commercialization of placing on the market. A particular innovation is realized by the project. The amount of concurrent innovative projects in an organi-

zation depends on the saturation of resources organization, namely the capability of organizations to manage innovative projects.

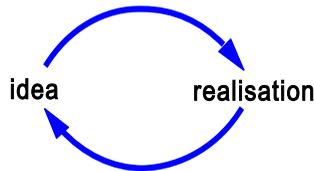


Figure 2. Basic innovation process

Source: author

Innovation process, e.g. by often cited Tidd, Bessanta and Pavitta (2007), includes the following elements:

1. Survey.
2. Choice.
3. Implementation.
4. Learning.

The above mentioned innovation process needs to be adjusted for small and medium-sized enterprises (SMEs). According to the research carried out so far, it can be concluded that the also SMEs undergo complex changes in business environment by the entry of foreign companies importing cheaper products or by moving production to lower-cost regions. Successfully overcoming the obstacles facing the SME innovation needs to understand and model the various factors and their relationships. Therefore, it was necessary to proceed to enhance the understanding of the process of innovation (Fig. 2) on the other elements of the innovation process in the innovation process of Four I (4 I), as illustrated in Fig. 3:

1. Impulse – motive; creation and innovation needs of its realization.
2. Invention – idea to change the existing model (product, process, business).
3. Imagination – preparing and translating the invention into useable form (as a project).
4. Industria – physical production and realization of imagination on the market.

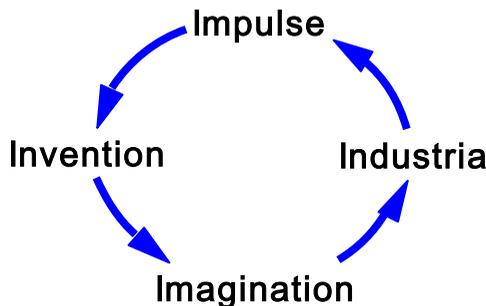


Figure 3. Innovation process – 4 I

Source: author

Paradoxes of Innovation

Mutual overlap and interaction between these areas of innovation are not in harmony only, but they are full of paradoxes, too. Examination of paradoxes as a way of mutual comparison of situations or behaviours and their contradictions (Encyclopedia Britannica 2011) allows finding new directions of thought in addressing the phenomenon. Life in firms is full of paradoxes, and life with innovation has no exception. As a result, success of firm and success of its innovations depend also on the ability to manage paradoxes of innovation (Lado et al. 2006). Solving of innovation paradox is fully in hands of top managers who has also many approaches and practical tools to disposition. Thus, innovation paradox is a challenge for management and modern organizations in particular for the strategic importance of innovation. It reflects in changes of priorities and related criteria from any short-term goals to long-term growth supported by innovations.

Multifactoring

Innovation, as it is mentioned, is something new, but it does not mean a new technology or skill or product only. It can be related to a new ways of managing, organising and marketing products or processes. A successful innovation is then a result of all the mentioned factors. Then, it is very hard to determine what factor is the only one behind a marketing success of a firm. Probably there are many factors (if not all) with its particular portion to it.

Participation and interaction of innovation factors can create a problem for large firms with their (more-less strict) procedures, and their needs for formal economical efficiency and evaluation (Fig. 4). Technical problem can arise with accounting and the elaborated system of analytical accounts. In this case, it can be very difficult to decide which and how big part of costs and receipts should go to which of accounts and to which of organisational units.

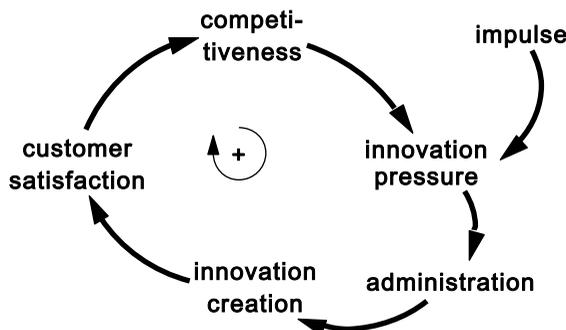


Figure 4. Positioning of administrative barriers

Source: author

Small and middle enterprises (SME) have the task less difficult. The question of life for them is number of collected impulses for innovation of a final product. In this way, it

has significant impact to strengthen the relation impulse (idea) – product compare to large companies. The earning is directly visible in accounting on the bottom line.

Funding

It is obvious to think about innovation as about general medicine (remedy) which can solve all problems (illnesses). According to Dunn (2011), generally preferred innovation stream is targeted to technology (process) innovations with its significant gap between technologies and economical with sociological areas. Politicians as an innovation understand, in line with previous arguments, a linear model of technological development. This understanding tends to placement regulation of resources into basic (scientific) research. The paradox stays in the existence of very strong basic research, but of very weak application of (scientific) knowledge. It is because, in addition to overrated technological ground, it is more important and underestimated how people understand the technology, how to cope with it and how it fits into their daily lives. These are criteria for technology accepting or repudiate. This is the main reason why it is important to connect technological, economical, researching and social policies.

Roles of SMEs are here twofold. The first role is based on its size – small teams and from it deducted flexibility is the basis for application part of innovation in finance demanding technological industries (pharmaceutical industry, electro-technical industry). The second role is based on creativity and very fast possible application of ideas (inventions). The right places for this role are industries with low demand for initial financial investment (e.g. software, services).

Specialisation

Development in technological areas makes everything (technologically) more complicated and less understandable. Less and less people can understand it what tends to more detailed division of labour and, consequently, to higher demand for specialisation and specialists. Generalists are no more needed and demanded (Fig 5). As a consequence, many employees with their knowledge and qualification are disabled from innovation processes, mainly from its application part.

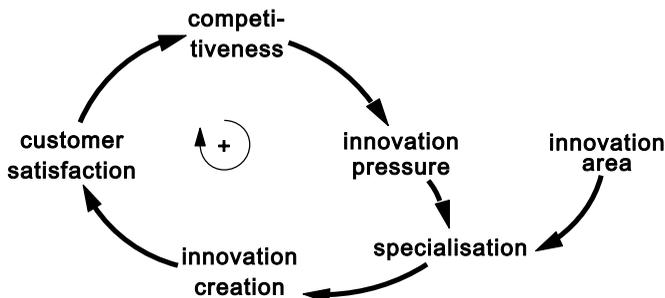


Figure 5. Role of specialisation

SMEs behave in opposite direction – one employee has several positions and roles contemporaneously. This is why such an employee can know and understand interactions among exiting processes. What is more, the employee can use many creative methods (e.g. the six thinking hats, shoes) intuitively as well as knowingly and wilfully, s/he can also analyse possible impacts and causes of innovative proposals. This approach can be less specialised, but more complex and holistic.

Efficiency

It is possible to say that very low number of realised innovation is the prime paradox of innovations. Amount of faulty invested costs to create an innovation without creation of incomes is up to 80 % (Lugtenurg 2011). It can lead to the fact that producers try to realise and to offer to customers innovated products with higher price. What is more, neither these innovated products do not satisfy needs of customers. Although it is essential to gain a competitive advantage for an innovation, in fact it jeopardizes its reputation and reputation of its producer (Fig. 6). Constant renewal and replacement of existing products has become the basic economic principle. Innovations and their impact on productivity and economic growth have thus become crucial especially for earnings and producers, but not for customers.

Effectiveness

A system related paradox describes Haour (2004). The paradox is based on basic systemic rule, that pressure on any single point (or element) of the system causes reaction on any other point of the system. Thus, for innovations: excessive pressure on creating more innovation is reflected in the reduction of innovations created as well as in their success. An explanation in this case is quite simple – excessive pressure associated with a formal setting of indicators to measure the innovation effort leads to, at least, formal fulfilment of those indicators. In this case, innovations are not brought to finished stage, or they are not ready for their realisation on a market respectively.

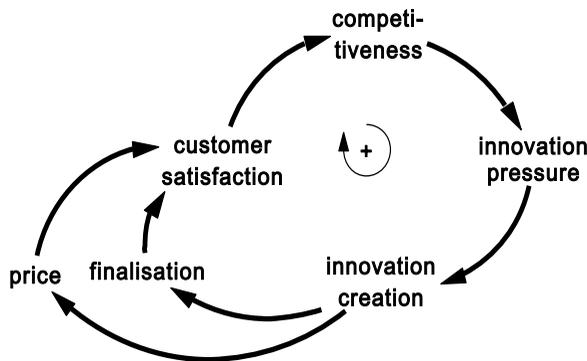


Figure 6. Factors of efficiency

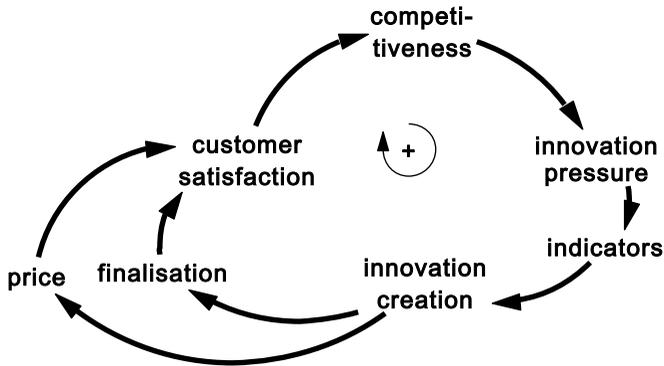


Figure 7. Factors of effectiveness

Source: author

Working conditions

Pressure on competitiveness, realised by innovations, leads to the creation of an artificial environment for innovation work teams. An organization, as a living organism, usually accepts these working teams as something alien; and, consequently, an organisation tries to reject them by its internal mechanisms – mostly organisational culture and bureaucracy (Fig. 8). It is necessary to change the management culture and particularly ways of process realisation, decision-making methods and particular approach to risk. As a result, the effort in the mentioned areas can reduce the impact of this paradox.

For SMEs, it is difficult to create a „bubble” of an artificial working environment. A relatively small number of very close relations among all employees, dependences and limited number of organisational goals makes whole organisations a one team. Conditions, privileges and benefits of innovation teams are simply distributed to all organisational parts thanks to often used matrix structure.

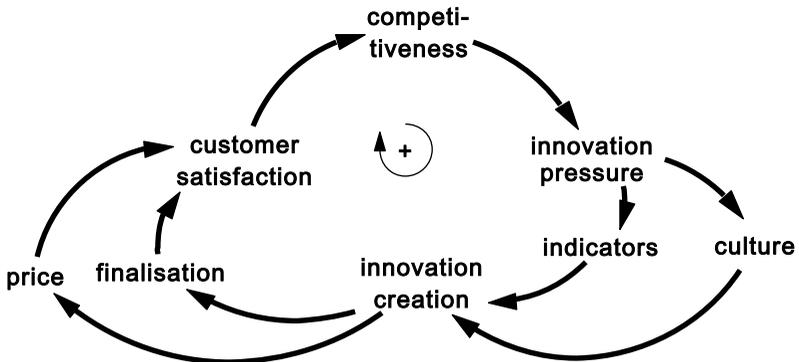


Figure 8. Role of culture in working conditions

Source: author

Regional disparities

The highest needs for innovations are in economically underdeveloped (peripheral) regions with low per capita GDP and high unemployment. The goal for it is realisation of the idea that organisations in such a region should have increased competitiveness; and the region should have lower unemployment thanks to innovations (Fig. 9).

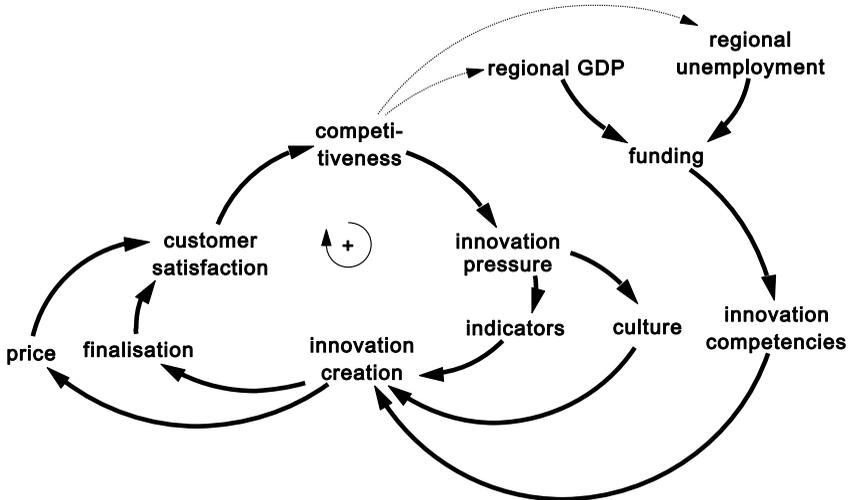


Figure 9. Role of specialisation

Source: author

Presented theoretical model has, according to Landabaso (2002), several obstacles for SMEs. The first one is in competencies to create an innovation by existing economically surviving organisations with no or only few under-paid de-motivated experts. The second one is in ability to claim public funding theoretically accessible equally to all. In reality, ability and competencies to claim public funding are higher on the side of organisation with higher economical potential. The third one is in allocation of claimed funds to research infrastructure and not to people and their motivation and creativity.

SMEs in peripheral regions are oriented to production with low added value and (cheap) to services. Low level of competencies to create or realise an innovation, to project preparation for public funding, and no special free capacity are the main reasons why negligible portion of possibly gained funds flows to developed (central) regions with seats of specialists and professional organisations.

Intellectual Property

Open innovations are based on the concept of co-operation of internal and external subjects (partners) with mutual sharing of know-how or sale of it respectively. An object of negotiations (i.e. innovation) can be shared or sold in full or per-partes according to needs, understanding and trust among partners. In this way of innovation

realisation, there are tensions among knowledge sharing (what, to whom, for what, when to share) with possible imitations and security linked to competitiveness (Fig. 10). Licensing is one of possible solutions to these tensions.

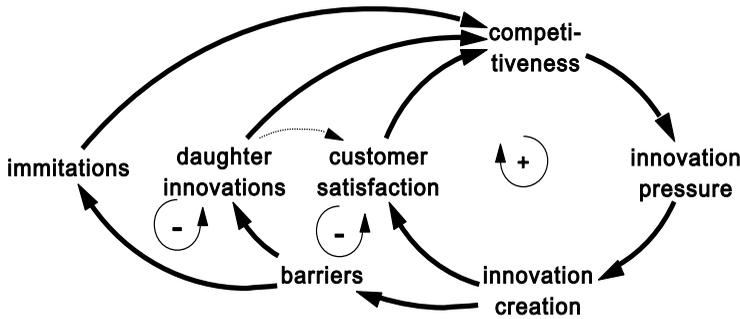


Figure 10. Causal links of open innovation

Source: author

On the other hand, imitations and free knowledge sharing can enhance and improve the original innovation concept as well as find a new market for it. In case of information leaking, a possible strategy then is distribute know how to as much as possible subjects just to eliminate competitive advantage of (narrow) scale. More competitive subjects represent less market dominance for one of them and less threats.

Scale

A successful innovation should result in stabilisation of market position at least. There are three possible scenarios for successful SMEs in case of commercialisation of an innovation: (i) to sell the company, (ii) to grow rapidly, and (iii) to stay apart. To sell the company with its know-how to a big competitor just represent resignation to future development and business. This solution is the solution for owners and their future, not the future of the innovation. Rapid growth causes moving of the company from SMEs (earlier or later) to large companies. In this case, the company is not a SME company – it is simply a company in transition with all problems related to it (as mentioned by Greiner, 1998). There are evidences when owner/s decided to keep the original SME in its size, and just to create and build a new “production” company (branch) for the innovation realisation. In this case, the SME company still keeps its size formally, but, in reality, it is a “research department” of the production branch.

Conclusion

Thinking about innovation is not straightforward thinking of new products or processes. It is important to know general setting of any innovation to general environment and to know factors which can support an innovation or can go against its results.

Innovations are also full of paradoxes. The paradoxes create different result as it is obvious or expected. The article gives a rough picture of several innovation paradoxes in form of causal schemes. A summary of thoughts presented in this article is in Fig. 11.

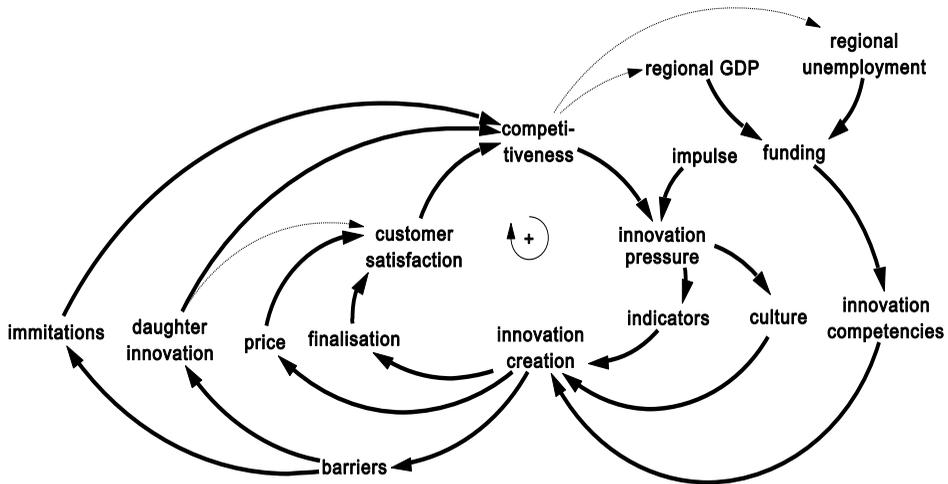


Figure 11. Causal links of innovation paradoxes

Source: author

SMEs with their lower number of specialists and simple structure are able to catch lower number of impulses for innovation, but they are able to track them and finish them successfully by realisation of outputs (products). Source of innovation impulses for SMEs can come not only from basic research, but mainly from needs for application of new ideas. This approach can be less resource-intensive what can be appropriate for peripheral regions. Life cycle of innovation is longer in SMEs, and it creates relatively enough time for innovation improvement.

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Paradoksy innowacyjne na przykładzie małych i średnich przedsiębiorstw

Streszczenie

Abstract: Obecnie burzliwe otoczenie przedsiębiorstw przynosi wiele koniecznych zmian innowacyjnych. Jednakże, wdrażanie innowacji w tych przedsiębiorstwach przynosi nie tylko planowane efekty i korzyści, ale również skutki negatywne. Ten artykuł prezentuje owe paradoksy czy skutki wdrażania innowacji, ich wpływ na małe i średnie przedsiębiorstwa czy możliwe reakcje, zachowania tych przedsiębiorstw.

Słowa kluczowe: zmiana, innowacje, paradoksy, małe i średnie przedsiębiorstwa