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INFORMATION TECHNOLOGIES IN THE DEVELOPMENT OF SMALL RURAL BUSINESS SECTOR

Abstract

Making the SME sector a leading element of the structure of the modern, i.e. highly innovative, rural economy is possible under some conditions. Enterprises situated in rural areas have to, above all, function in as wide-ranging services sector as possible, they have to introduce networking to different dimensions of their activity and, most of all, they have to create conditions for continuous enhancement of knowledge and skills of their employees.

Each of the aforementioned conditions requires extensive use of information technologies. Unfortunately, according to research, only a small share of rural entrepreneurs in Europe seems to be sufficiently aware of the fact. Their rather widespread belief that a mobile phone and a computer with Internet access are absolutely necessary to run a rural business, goes hand in hand with a lack of awareness of the link between innovativeness and the use of the online education system (e-learning), which guarantees universal and affordable access to knowledge both to the entrepreneurs and to their employees.

In information society, along with a decline in economic importance of industry and increase in importance of services, agriculture is marginalised, while in the two former phases of development of civilisation (agricultural and industrial) it is recognised as the fundament of economy in rural areas. The economic system of the countryside undergoes reconstruction which covers, above all, redefinition of economic activity of its residents, especially but not only, working in agricultural holdings (Slee B. 1989; Kaleta A. 2008).

As a result of this redefinition, bottom-up initiatives in economic activity are more appreciated, which in turn causes more subjective share in transformation

of the economic system and thus in solving economic problems of families and local communities. The essence of the redefinition is expressed in the processes of deagrarisation and diversification of livelihoods. The former stands for quitting, by most of farmers, agriculture as the only or the main livelihood of a family and diminishing the importance of agriculture as a place of employment and livelihood for rural residents. The latter consist in differentiation of livelihoods of a farming family by taking up many forms of gainful activity[1].

The deagrarisation and diversification of livelihoods is somewhat naturally connected with the issue of rural business, most often linked to setting up and operation of small businesses (also SMEs – small and medium-sized enterprises), commonly recognised as the key factor of economic development of rural areas in the conditions of free market and the basic remedy for problems of their inhabitants with employment and sufficient incomes (Klank L. 2005).

Business activity in rural areas of Poland in the period of the system change

Many studies devoted to rural business, which were published in Poland after 1989, already at the time of system change, analysed mainly certain general characteristics and conditions of the phenomenon and only few of them attempted its empirical diagnosis (Hałasiewicz A., Kaleta A. 2000). Definite majority of the latter was and still is of local character, therefore precise estimation of the scale of rural business faced and still faces serious problems (Kłodziński M. 2014). The quantitative dimension of the phenomenon is communicated, primarily, via statistical data of the Central Statistical Office (*Polish: Główny Urząd Statystyczny*, GUS). The data is, however, characterised by delay and imprecision in separating from each other the real and fictional businesses, non-agricultural business from businesses linked to running an agricultural holding, businesses operating in rural areas from these in urban areas. Therefore, data reflecting the quantitative dimension of operation of rural business should be treated as estimates only, which rather illustrate trends than the reality. Form the scarce data, which were collected despite objective difficulties, it follows that the past quarter-

[1] In Europe, in the last several decades, the number of farms dropped from several dozen to ca. 14 million, primarily rather small (12.6 hectare on average) family farms employing from 1 to 1.5 people. In Poland, there were still over 2.2 million agricultural holdings in 2010, although eight years ago (2002) there were much more (by over 20%), i.e. over 2.9 million. It is expected that in the next years their number will be greatly reduced and around 2020 it will be below 0.7 million.

Another side of the same phenomenon is a large number of economically inefficient farms. In the countries of the European Union the annual production of nearly half of them is below EUR 1,200, which means that they can function at most as supplementary income of their owners (semi-subsistence farm) obtained from other sources. From the data collected in 2013 for a representative sample of Polish farmers it follows that already today only 18% indicates the agricultural holding as the main livelihood of the family. See: GUS – Informacja o wstępnych wynikach Powszechnego Spisu Rolnego 2010, Warszawa 2011; http://www.stat.gov.pl/cps/rde/xbcr/gus/psr_Info_wstepne_wyniki_psr_2010_300611.pdf;
A. Szeptycki, Z. Wójcicki: Prognoza wyposażenia polskiego rolnictwa w ciągniki, kombajny i samochody; http://www.pan-ol.lublin.pl/wydawnictwa/Motrol5/Szeptycki.pdf; Wieś polska – charakterystyka ludności rolniczej, BS/138/2013 http://www.cbos.pl/SPISKOM.POL/2013/K_138_13.PDF.

century – especially in Poland at the background of other of the so-called post--socialist countries – was characterised by a fairly high level of orientation of the rural residents at taking up business activities (Hałasiewicz A., Kaleta A. 1997). Already at the beginning of system changes 41.9% of Polish rural residents intended to set up their own company, if they have more money, the majority (61.1%) stated the need for achievements as their key motivation for work, which is one of the basic motives of taking up such activates (Fedyszak-Radziejowska B. 1996). This orientation was confirmed by the results of the "Polacy '95" study, which showed that every tenth rural resident (hence 5% of its non-agricultural population) declared having their own company, which meant that the rural entrepreneurship index was not worse than Poland-wide (Szafraniec K. 1998). Thus, it comes as no surprise that as early as in 2002 there have been over 350 thousand small and medium-sized businesses (46% more than in 1996) in Polish rural areas, which attests to the fact that their number grew gradually and rapidly, contrary to urban areas where their number actually decreased by 30% over the same period of time. Small and medium-sized rural businesses operated mainly in trade (19.5%), food processing (17.8%) and, to a smaller extent, in construction (5.1%) and transport (4.8%) (Klank L. 2005). By the end of the first decade of the 21st century, there were 1.67 million of such businesses in Poland, most of them on rural areas dealing mainly with provision of broadly-conceived services (Halamska M. 2013).

What is important, initiatives of this type, in the first decade of the 21st century, were taken up by 12.4% out of 1.5 million of agricultural holdings operating in Poland, mainly providing non-agricultural services on the basis of resources of their own agricultural holding (including machines and means of transport owned by them); but also economic services (e.g. linked to forest management); social services (e.g. recreation or welfare services); and communal services (maintenance of roadsides of local roads, disposal of waste and sewage, clearing of ditches and irrigation channels, snow removal from streets, roads and squares and their de-icing, etc.).

In the middle of the second decade of the 21st century, pointing to the SME sector as the leading element of the structure of the modern, i.e. highly innovative, rural economy, does not seem truly revealing. This sector gives raise to justified hopes for creation of an increasingly larger number of highly-qualified jobs. This is, however, possible under several conditions: businesses situated in the countryside have to, most of all, operate in the broadest possible sector of services, they have to network different dimensions of their activity and create conditions of continuous broadening of knowledge and skills of its personnel (OECD 2014). On the other hand, difficulties in fulfilment thereof are recognised as the basic barriers to the development of innovative rural business activity. The most acute ones include lack of or low level of education preparing to the social role of an entrepreneur and, above all, to the role of an employee of a modern business, not only a rural one. Only 60% of European companies offers vocational trainings to their employees (in Poland only 35%), rural entrepreneurs are even worse in the field. Consequently, they are usually perceived as poorly organised individualists not

willing to cooperate with other entrepreneurs (Halamska M. 2013) running companies, rather not associated with modernity and innovation (Kłodziński M. 2014).

It is also pointed out that each of the conditions essential for operation of an innovative rural business requires information and communication technologies (ICT). It is even more necessary in activities linked to elimination of barriers in development: small scale of the local market, spatial gap from large businesses, consumer markets, financial institutions, public services, highly qualified labour force, weaker pressure on participation in business networks and on raising the competences of the staff.

Information technologies in businesses operating in rural areas

We do not have, and probably we will never have, the data illustrating the real number of computers and other ICT devices operating in millions of businesses of the SME sector in European rural areas[2]. Also in rural areas it is hard to find companies without such equipment, but some of them (for different reasons) do not have broadband Internet access[3].

However, the newest research[4] demonstrates much more interesting findings on how to use the new media in the activity of rural entrepreneurs. It follows from the research that the applications – even though numerous – exhaust the possibilities offered to them, already now, to an insignificant degree. Because, the electronic media can support practically all areas of operation of a rural business, not only technological processes of manufacturing material goods or provision of different types of services but also – or maybe above all – broadly understood company management (marketing, sales, supplies, efficient use of assets, designing, gathering of information, servicing, etc.) and continuous training of employees (Table 1).

[2] But we know that in 2008 over half of rural businesses from the Netherlands (72%), Ireland (62%), Austria (59%), Belgium (58%), Malta (58%), Denmark (57%), Portugal (53%), and around half from Italy (49%), Finland (49%), Luxembourg (49%), the Czech Republic (49%), Slovenia (47%), Sweden (47%), France (46%), Cyprus (46%), Slovakia (45%), Greece and Estonia (42%), and Spain (40%) used ICT in company management processes. The situation was the worst in Poland (24%) and Lithuania (23%) (Countryrankings 2009, Table 10).

[3] In 2008, this kind of Internet access was at the disposal of the majority of rural businesses in all of the European Union countries, apart from Romania (44%). The greatest number was noted in France, Spain, Finland and Belgium (over 90%), slightly less in Latvia, Bulgaria, Poland and Lithuania (ca. 60%) (Countryrankings 2009, Table 4).

[4] In this part of the paper I will refer to the results of two of them, in which I participated:

- **Euracademy Observatory** (A European Observatory of the Use of ICT-Supported Lifelong learning by SMEs, Microenterprises and the Self-employed in Rural Areas – European monitoring of lifelong learning supported with ICT and targeted at small, medium-sized and micro enterprises and self-employed in rural areas) implemented in 2005-2007 in rural areas of Greece, Finland, Spain, Germany, Poland, Great Britain and Hungary;
- **E-ruralnet** (Network promoting e-learning for rural development) implemented in 2009-2011 in rural areas of Greece, Estonia, Finland, Spain, Germany, Poland, Portugal, Sweden, Hungary, Great Britain and Italy.

Both of them were funded by the European Commission under the Leonardo da Vinci and Lifelong Learning programmes.

Table 1

Potential areas of ICT application in the SMEs activity in rural areas

TYPE ICT / Support areas	INTERNET AND WWW SITES	E-MAIL	EDI (Electronic Data Interchange)	CDs AND DISC MEMORY RESOURCES	VIDEO CONFER-ENCES	MOBILE PHONES	NETWORKS
Marketing	Global promotion and advertising Selection of target groups	Mailing campaigns		Multimedia catalogues, brochures and presentations	Tele-meetings with contractors		
Sales	Sales, taking orders and making transactions	Price and product offers, taking orders	Business transactions, exchange of sale documents	Offer presentation, interactive information stands and product manuals	Offer presentation Tele-contacts with contractors	Mobile campaigns, direct access to the global customer	
Supplies	Identification of global supply sources and participation in tenders	Transfer of price offers and specifications	Business transactions, exchange of tender documents		Tele-contacts with contrac-tors		Planning deliveries in the JIT (just-in-time) system
Assets management	Access to market data and research, to job offers and innovative work organisation methods	Document transfer and internal communication of a company	Control of stocks and delivery process Control of general costs	Data storage and archiving	Tele-contacts with contrac-tors	Deliveries and ancillary services	Team work IT management system Project management

cont. Table 1

Designing and production	Access to market data and research	Networking		Databases, e.g., spare parts catalogues	Team work Management of customer needs		Team work Exchange of information sources
Use of information	Online publication Marketing research	Data exchange and transfer Team decision--making	Information management	Data storage and archiving		Data exchange and transfer Team decision-making	Cooperation at work Sharing knowledge and organising information
Servicing	Customer information Collecting information on customers and their needs	Contacts with customer	Exchange of comprehensive information	Customer information	Tele-contacts with customers	Contacts with customer and staff	Information exchange and customer help Monitoring work progress
Trainings	Interactive trainings	Online trainings		Interactive training materials	E-learning	Online trainings	Virtual communities of learners

Source: Prepared based on: Information Society and Sustainable Rural Development, Thematic Guide Two, Euracademy Thematic Guide Series, Athens 2003, p. 17.

On the basis of numerous examples showing how to use ICT in small and medium-sized rural businesses we also know that they are applied in each sector of economic activity, in agriculture, industry and services.

In the first of the aforementioned sectors of the economy, they are applied mainly in the so-called High Tech Agriculture, using the possibilities of microelectronics and information and communication technologies to maximise efficiency, limit the effort of a farmer and protect the natural environment. The Internet is starting to be a more and more indispensable working tool of each contemporary farmer, as the Internet provides information necessary to run a farm – starting from weather forecast updated every hour or advice on farming methods, to efficient management of its resources or marketing and sales of products manufactured at a farm.

Industrial activity in rural areas much more often takes on the form of highly specialised craft and handicraft than in large urban agglomerations. Businesses from the SME sector start their activity by creating a website which informs on their existence and production profile. Next, marketing comes into play, and then sales and search for suppliers of parts and components to the manufactured products, increasingly more often finalised with online transactions. Introduction of the electronic media to the organisation of production processes and management usually causes a raise in competitiveness of this type of companies and entry into previously unavailable outlet markets, sometimes going far beyond the local market.

The services sector is also very interested in the electronic media. The most spectacular example of ICT expansion in this area of economic activity is tourism, until recently recognised – not without a reason – as the fundament of the process of diversification of livelihoods of rural residents. All numerous operators of rural tourism – hotels, guesthouses, agritourist farms, travel agencies, inns, restaurants, car rentals, places renting kayaks, bikes and all other equipment serving broadly-conceived recreation, local museums, local chambers and other cultural institutions of the type and many, many more – toady, use mainly the Internet for their promotion. More and more of them accept electronic bookings and payments for their services. For small entrepreneurs from the branch direct access to potential customers, nearly from all over the world, eliminates or minimises the costs of intermediation of large travel agencies. Additionally, it facilitates the establishment of regional or local networks of service providers, which in turn extends the area of cooperation, e.g., by sharing offers or creating service chains.

Tourism, of course, does not exhaust the list of service providers operating in rural areas whose operation relies to a large, if not decisive, extent on ICT support. What is more, in the light of dynamically developing sector of ICT and tele-business services in the countryside and small towns the question is asked more and more often: is it possible to do any kind of business in rural areas anymore without access to a mobile phone, a computer or the Internet?

ICT in processes of raising qualifications of the employees of the SME sector

Mentioning before the basic weaknesses of rural businesses we pointed out significant limitations of their development opportunities, following from lack of or low level of preparedness of owners to the social role of an entrepreneur, and even more, care for gradual improvement of the level of qualifications of their employees[5]. What is worse, only a small part of rural entrepreneurs seems to put more store by this type of issues (Halamska M. 2013), and even smaller is aware of the possibilities of ICT in the process of elimination of the key barriers to the implementation of innovations to the economy in rural areas.

Undoubtedly, the so-called objective factors share some part of the blame for poor commitment of companies into the use of ICT as the basic instrument for improvement of the quality of the rural labour force. One of them is the previously signalled incomplete access to the so-called broadband Internet access (see footnote 3) without which it is difficult to imagine e-learning. Moreover, the fairly high level of prices for more advanced ICT services does not make it easier to a small rural company willing to train its employees in the online system. This overlaps with a rather conservative mentality of entrepreneurs. Almost all of them now overcame their reluctance to spend money on a computer with Internet access because they understood that it is as essential for running a company as a car, access to road, electricity or a sewage system, but relatively few of them realise that it is necessary to continually raise qualifications, even more by means of less conventional methods than these offered by the traditional school system[6].

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[5] Already at the early stages of information society development initiatives consisting in the use of ICT to counteract the situation have been noted. These took place in the rural areas of the United States, where – in the entire second half of the 20th century – problems with employment and finding funds for subsistence aggravated. These problems were caused not only by progressing concentration of jobs in large urban agglomerations but also lack of access to knowledge and information supporting rural residents to launch economic activity based on the resources of the local environment.

Small Business International Trade Program (SBITP), an organisation from Portland, reached out to these important needs of hundreds of thousands of people living in the rural areas of the Oregon state. Organised on similar principles as many other American consulting companies, when acting for small business (companies employing not more than 100 people) it started with a premise that small entrepreneurs, working primarily in the province, do not have the time and very often money to come for education and information they need to the cities, seats of universities, etc. It is, therefore, necessary to reach their places of work and residence with suitable trainings and information using for the purpose electronic equipment that they already have, back then mainly TVs and telephones, more rarely computers. Sine 1986 a company of few people, following these simple but very logical principles, has started to organise very successful entrepreneurship courses under remote learning system, using for the purpose the available cable and satellite TV networks. Moreover, it has organised and distributed a special database containing up-to-date economic information necessary to run a small business to which it connected computers of small entrepreneurs from the area of the entire state against a small fee (Kaleta A. 1996).

[6] Sceptical attitude of entrepreneurs from rural areas to e-learning was fully confirmed in the E-ruralnet research. Despite the same public subsidies to courses conducted via conventional methods and online methods, they definitely preferred the former type of trainings justifying their decisions by stating that

The responsibility should go also to educational institutions offering a limited number of trainings, courses and other forms of vocational education organised with the support of ICT and targeted at rural areas[7]. Although the market of such services develops dynamically throughout Europe[8] and their providers, both private and public, offer a constantly growing number of increasingly more diversified contents the catalogue of vocational trainings for the SME sector is dominated by business fundamentals and basic computer skills.

This is a sort of nuisance for the rural residents interested in raising their vocational qualifications, who notify a need for much broader scope of training offers covering also agriculture and foreign language courses. It should be added that only some part of service providers considers the needs of, specific under many aspects, local labour markets of rural areas and small towns. They justify their lack of wider interest in such customers with the so-called objective factors – primarily problems with ICT infrastructure in rural areas ill-equipped to education of the type and a large share of digital illiteracy of rural residents.

Some caution towards e-learning on the side of employers and institutions organising such trainings is less understandable in the light of opinions of employees of the SME sector from rural areas. In general, they are characterised by positive attitudes towards this new form of education, allowing, according to them, more flexible learning time, place and method, and significant reduction in learning costs. In addition, most of the people already having some experience with e-learning – just like most of the participants of conventional trainings – also highly rank the level of satisfaction of their own expectations after such courses[9], although they are far more critical thereof as it comes to real benefits and usefulness of the acquired skills in the context of their own professional careers[10]. Despite the fact that only a few of them derives real professional bene-

these type of courses are supposedly more effective and have a clearer impact on the development of a professional career of a worker (E-learning in... 2011).

[7] E-learning platforms (applied by 85% of providers of such services) are definitely in the majority, but websites, DVDs, CDs, video cassettes are also used; a small group of providers (8%) offers learning via a mobile phone. As evident, more conventional, in technological terms, forms of transferring contents are preferred, which also seems to be confirmed by a high share in training materials of texts for reading and PowerPoint presentations, animations, clips sent as e-mail annexes. More innovative forms of learning, like didactic games, are offered by less than 20% of service providers (E-learning na... 2011).

[8] Public subsidies supporting this type of education also play a considerable part. These were used by 67% of institutions dealing with provision of e-learning services throughout Europe (E-learning na... 2011).

[9] The E-ruralnet research shows that online trainings largely met the expectations of 20% of their participants, and sufficiently – 52%. Only 2% stated they learnt nothing from the trainings (E-learning na... 2011).

[10] Both the participants of e-learning courses and of these organised in more traditional forms indicate many real benefits from vocational trainings, including, seemingly as the most important one, the possibility to develop personal interests (44% and 50% of respondents, respectively). There is much less optimism in the opinions of nearly 50% of listeners of online and definitely less in the opinions of listeners of conventional courses (ca. 20%), for whom the participation in the courses meant only a loss of time. The same duality is noted in the opinions on the level of usefulness of acquired knowledge – 46% against

fits, a definite majority express willingness to re-use this form of education, claiming a number of improvements, most of which concern better matching of the contents of online trainings with the needs of workers and introduction of more innovative learning instruments. What is equally important, most of the respondents do not encounter any limitations impeding their participation in this form of education and barriers, which they do indicate, are not entirely consistent with the ones indicated by providers of e-learning services. As far as the latter focus mainly on the issues of infrastructural shortages and lack of digital skills, a vast majority of the former link the difficulties with mental issues: complicated sphere of learning motivation and different method of its organisation.

Pointing to the generally positive attitude of the employees of the rural SME sector to ICT-supported education, it has to be, however, remembered that most of respondents, who have any experience with it, is recruited from the better educated and younger group of the rural community. There are, of course, no reasons to continue this state of affairs. But its change requires actions for improvement and dissemination of the new form of education and reforms in the area of labour force policy-making in rural areas.

Conclusions

The significant and hard to compare with any other support, ICT systems support for technological and organisational dimensions of the SME sector operation in rural areas seems to be out of discussion. The usually universal conviction of an absolute need for a mobile phone and a computer with Internet access in order to run a company is accompanied by rather widespread – in almost all European Union countries – unawareness of the fact that the company's development is linked to the use of e-learning system guaranteeing general and affordable access to knowledge to millions of rural entrepreneurs, including also owners of larger and smaller farms, and dozens of millions of their employees. Contrary to the heads of large companies – especially these resembling corporations where the trend to limit funds for stationary trainings is clearer and clearer, which is linked to taking employees away from their work places – ICT is too rarely perceived as another instrument for optimisation of the costs of running the enterprise, including also a method to acquire knowledge and skills for yourself and your employees.

28% of listeners uses them often, and 36% against 34% uses them to a lesser extent. It can be surmised that traditional trainings bring more hard facts "here and now", while e-learning trainings are perceived more as investments into the future (E-learning na... 2011).

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