

## GENERATIONS OF THE DEVELOPMENT OF IT OUTSOURCING IN POLAND

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### ABSTRACT

The paper presents a study on the development of IT outsourcing (ITO) in large organizations in Poland. Based on the generations of outsourcing development presented in the literature, an attempt was made to develop the generation of IT outsourcing. Three generations of ITO development have been identified. The main research assumption was formulated as follows: The development of the ITO industry is carried out in accordance with the generation order of ITO development. Three detailed assumptions were also formulated. Each of them was referred to activities and functions included in individual generations. In order to address the assumptions, questionnaire surveys of ITO companies were carried out. Our own studies and analyses made it possible to confirm the adopted main and detailed assumptions. Confirmation of the ITO development in line with the ITO generations testifies to the harmonious development of the industry. Possible directions for further research concern new forms of ITO services related to the third generation of the ITO field development.

**Key words:** IT outsourcing, Poland, generations of IT outsourcing

### INTRODUCTION

Dynamic transformations related to globalization processes led to the transformation of the economy and sharpened the need to introduce modern concepts of enterprise management. Implementation of strategic decisions in conditions of intensive development, growing competition and recurring crises contributed to the growth of enterprises' interest in outsourcing as a modern concept of enterprises management. There are many definitions of the IT outsourcing in the literature, starting from the definitions of Loh and Ventkatarman [1992] and Willcocks et al. [1995]. One of the definitions of outsourcing defines it as: "Management strategy, which consists in delegating duties and re-

sponsibilities for specialized tasks to an external company, most often not directly related to the company's profile. Thanks to the transfer of a function or process, the company has the opportunity to focus on the core business" [Szukalski and Wodnicka 2016].

In today's enterprises, IT outsourcing is now the norm, regardless of their size, the importance of ICT in their operations and the possession of their own material and personal resources in IT departments. Analysts and consultants at the national and international levels stress that IT outsourcing is still expanding its scope. The value of the global IT services market in 2013 amounted to USD 3.14 billion, of which 18.8% of the market value was generated by outsourcing services [Górecki 2016]. According to estimates of IT

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market analysts, the prospects for the development of the IT services sector in Poland are very good. It is estimated that outsourcing services will develop very dynamically and will reach 21.9% share in the market of IT services by 2018. The most dynamically developing category will be services of infrastructure hosting and client application management, which will be mainly supported by the use of solutions in the cloud.

The growth in the value of the IT market and the growth of the IT outsourcing industry may be reflected in the increase of IT importance in enterprises. The purpose of the article is to check the correctness of the assumptions made. At the beginning, the identification of generation of IT outsourcing and their characteristics will be presented. Next, on the basis of identified generations, the main assumption and detailed assumptions will be formulated, which will be verified on the basis of own research and the conducted analyses.

## THE DEVELOPMENT OF OUTSOURCING AND IT OUTSOURCING

The increase in the scope and size of IT outsourcing services was mentioned by many foreign authors of research already in the 1990s [McLellan 1995, Palvia 1995, Caldwell 1996, Lacity and Willcocks 1998]. They state that this increase will also take place in subsequent years, which they believe has been confirmed by the current results of the IT market analysis. The development of outsourcing is undertaken in publications of many authors. One concept of outsourcing development was presented by Kehal and Singh [2006]. The authors distinguished three generations of outsourcing development (Table 1).

Based on the presented concept of the generation of outsourcing, an attempt was made to develop the generation of IT outsourcing (Table 2).

**Table 1.** Generations of outsourcing development

Generation	Characteristics	Example
1	<ul style="list-style-type: none"> <li>– Commissioned activities, processes and business functions are perceived as not belonging to key competences, are peripheral and were previously performed on their own</li> <li>– Supplier exercises control over commissioned activities, integration of partners is required</li> <li>– In the situation of the asymmetry of the size and strength of the organization, there is a tendency to favour the company performing the service</li> <li>– The main themes of application are cost and employment savings</li> <li>– Functions that were outsourced include payroll processing, security, cleaning, catering</li> </ul>	Rank Xerox, which in 1994 ordered the management of its properties to CBX Ltd., which was motivated by lower costs and higher quality of services. The contract included maintenance and management of real estate, security and catering
2	<ul style="list-style-type: none"> <li>– It appeared in the mid-1980s</li> <li>– Actions similar to key competences are commissioned, having more strategic significance</li> <li>– The costs of effectiveness of actions are taken into account, but the more important motive is external access</li> <li>– Increased integration; outsourcing partners are in communication in order to achieve the synergy effect of resource and potential use</li> <li>– Organizations are looking for more than one partner wanting to increase strategic potential, prefer flexible cooperation</li> <li>– Maintaining necessary resources, conducting joint control of outsourced activities</li> <li>– Contracts have a certain degree of flexibility</li> <li>– Savings in total costs that increase revenue and profitability</li> <li>– In the automotive industry, outsourcing has shortened the life cycle of products, increased pressure not only to reduce costs, but also to improve quality and reduce the time of implementation of new models</li> </ul>	The phenomenon of commissioning by GlaxoSmithKline, Pfizer or Bayer (pharmaceutical companies), research services to specialist biotechnology companies. Customers' relations with service providers have changed, which due to their strategic nature have become partner relations.

**Table 1** – cd.

Generation	Characteristics	Example
3	<ul style="list-style-type: none"> <li>– Outsourcing covers activities previously recognized as key competences</li> <li>– The reason for the emergence of the generation is the constant and rapid development of technology</li> <li>– Generation is forced by the tightening of competitiveness and the need to quickly respond to customer needs in industries with intensive development; these are industries related to electronics (personal computers, mobile phones), fashion, and pharmaceutical</li> <li>– Outsourcing covers activities that create significant parts or entire value chains</li> <li>– Necessity to renovate the concept of own key competences in organizations</li> </ul>	<p>Virtual companies (Cisco System, Amazon, Dell) have commissioned most of the core business in their supply chains. Similarly, most of the clothing sector companies have evolved into companies designing and selling clothing collections. In contrast, virtually all production processes are performed by sub-suppliers with a cheaper work force.</p>

Source: On the basis of Kehal and Singh [2006].

**Table 2.** Generations of IT outsourcing development

Generation	Characteristics	Example
1	<p>Refers to business processes and functions not related to key competences. The main motive for using outsourcing was to reduce costs and employment by outsourcing simple and peripheral processes to suppliers. Among the functions that were outsourced were: projects for creating and modernizing applications, maintaining hardware and software.</p>	<p>EDS in the 1960s begins the implementation of contracts related to the storage of data of other companies. Customers want to achieve a greater return on investments in equipment purchase (hardware). The Polish state-owned enterprise ZETO (Electronic Works of Computational Engineering) established in 1964 in several large Polish cities. The company's task was to provide digital data collection and processing services from state institutions, organizations and enterprises. Then ZETO underwent many transformations. Branches in some cities have been closed, but to this day there are units which under the changed names provide IT outsourcing services.</p>
2	<p>Causes: the phenomenon of globalization (ordering production processes to countries where labour costs are lower) and widespread acceptance of the use of the Internet as a communication medium. Organizations have slowly begun to outsource processes similar to their key competences. The main reason was the growing competitive and rapid development of technology. These were cloud services.</p>	<p>IaaS (Infrastructure as a Service) – a model that provides the client with IT infrastructure (hardware), software and service. PaaS (Platform as a Service) – sale of a ready, often tailored to the needs of the user set of applications. It does not involve the need to purchase equipment or install software. SaaS (Software as a Service) – the client receives specific, selected software functions. CaaS (Communication as a Service) – the service provider provides a platform for telecommunication work environment. IPaaS (Integration Platform as a Service) – a platform that ensures integration between various services in the cloud. DaaS (Desktop as a Service) – in the model, the user buys from the hosted host a virtual machine, fully personalized and having exactly the specification that the client expects.</p>
3	<p>It covers part of the organization, it is a consequence of growing competition in sectors in which new technological opportunities are developing. These are some key functions, such as outsourcing of knowledge processes (knowledge process outsourcing KPO), shared services or global business services.</p>	<p>ITO development tendencies: automation and robotization, crowdsourcing, digital technologies, reverse outsourcing. The KPO's patron is India, which according to expert estimates accounts for 70% of industry revenues [Mishra et al. 2008]. Analysts in the IT market think that KPO can become a "Polish specialty", due to the competence and substantive preparation of employees (availability of qualified staff, the right number of researchers, knowledge of foreign languages) [Iwanicka 2016].</p>

Source: Own elaboration.

The development of IT outsourcing, similar to the previously presented development of outsourcing, takes place from the first generation, through the second to the third generation. The first generation appeared in the 1960s. Today, there is a second and third generation of ITO. However, organizations are beginning to use IT outsourcing from activities and functions included in the first generation. If they are satisfied with the application of the first generation ITO, they pass into the second and third generation. The use of IT outsourcing usually proceeds in accordance with the order of generation of ITO development, that is, from the first generation, through the second to the third generation.

## RESEARCH OF ITO GENERATIONS

### Purpose and method of research, research assumptions

The aim of the conducted research was to assess the state of development of the ITO sector in large organizations operating in Poland from the perspective of the ITO development generation. The main research assumption was formulated as follows: the development of the ITO industry is carried out in accordance with the order of generation of ITO development.

Based on that assumption, detailed assumptions were formulated. In the first one it was assumed that most organizations use forms of IT outsourcing included in the first generation, slightly fewer organizations use those included in the generation of the second, least organizations use forms of outsourcing included in the third generation. In the second, that most organizations use forms of IT outsourcing included in the first generation, fewer organizations use forms from the first and second generation in total, the fewest organizations use forms from the first, second and third generation combined. In the third, that the most intensive forms of IT outsourcing included in the first generation are used, while the ones classified to the second generation are less intensively used, the forms of IT outsourcing included in the third generation are least extensively used.

To assess the ITO development in Poland, a survey was carried out on a group of 200 large organizations, whose majority use ITO in their activities. The

questionnaire was a research tool. The questionnaire consisted of substantive questions and a data sheet regarding the organization under analysis and its IT department. Answers to questions were provided on the allocation scale. The answers were given by IT managers or IT specialists (76.5%) and other independent employees (23.5%). Statistic methods – licensed applications of Statistica 13.1 were used to develop the research material, MS Excel 2016 was used to prepare the graphs. The research was carried out in 2016.

It should be mentioned that in the literature of the subject, both in Polish and other languages, no studies of similar scope have been found.

### Characteristics of the surveyed organizations

The research involved large Polish and foreign organizations operating in Poland. The vast majority were enterprises with Polish capital. The organizations were included in the large group due to the average number of employees – over 250 employees. Turnover was not taken into account because in some organizations this is sensitive or secret information. The organizations represented various industries: industry, trade, services, logistics, education / research / science. Their structure was almost even, with the exception of administration and non-profit organizations, which participated in the study at 2% (Fig. 1).

Almost half of the organizations surveyed were established in the years 1981–2000, i.e. during the economic transformation in Poland, around 15% were created after 2000 and 25% before 1981. These were usually independent organizations that did not form part of the structure of other entities. More than half were located in metropolises, about 5% were in special economic zones.

Taking into account the characteristics of the surveyed organizations, it can be assumed that they were diverse.

### Reference to research assumptions

At the outset, activities and functions implemented using ITO were qualified for three previously separated generations of ITO development (Table 3).

In order to refer to the research assumptions using the available research material, statistical analyses



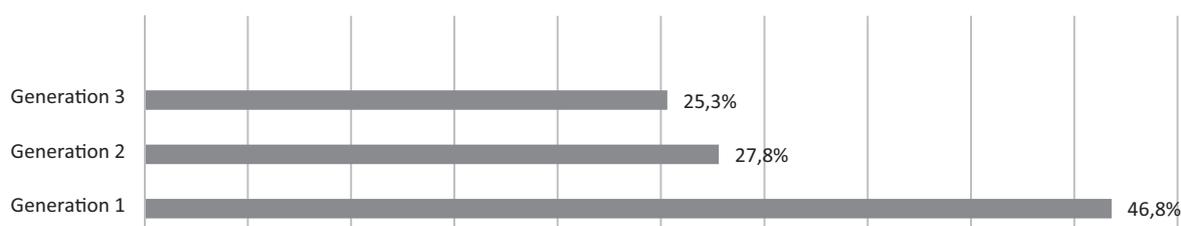
**Fig. 1.** Industry structure of organizations participating in the survey

Source: Own elaboration.

**Table 3.** Qualifying functions and activities for ITO generation

Generation	Functions and activities
1	A specific service or product offered to a specific sector Diversified services offered to diverse recipients Network & Telecoms
2	Infrastructure as a service Software as a service Platform as a service
3	Shared services and Centers of Excellence Global business services Employee outsourcing Outsourcing of a group of employees

Source: Own elaboration.



**Fig. 2.** The structure of organizations using ITOs from the first, the second and the third generations

Source: Own elaboration.

were performed and charts were made. Figure 2 presents the structure of the application of activities and functions included in individual generations of IT outsourcing.

Activities and functions included in the first generation of ITO were used by 46.6% of the surveyed

organizations, classified to the second generation by 27.8 and included in the third generation by 25.3% of organizations. The largest percentage of organizations uses functions and activities included in the first generation, a much lower percentage of organizations uses those included in the second generation,

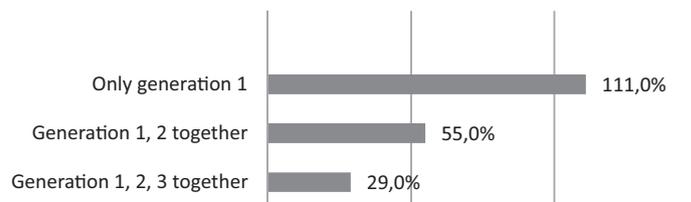
the lowest percentage of organizations uses functions and activities included in the third generation of ITO. The data confirms the detailed assumptions that the majority of organizations use activities included in the first generation, slightly fewer organizations apply activities included in the generation of the second and the smallest organization applies activities included in the third generation. Differences between the use of activities and functions included in the second and third generation are small. The data confirm the first assumption.

Referring to the second assumption, the information on the application of activities and functions classified as first, first and second generation com-

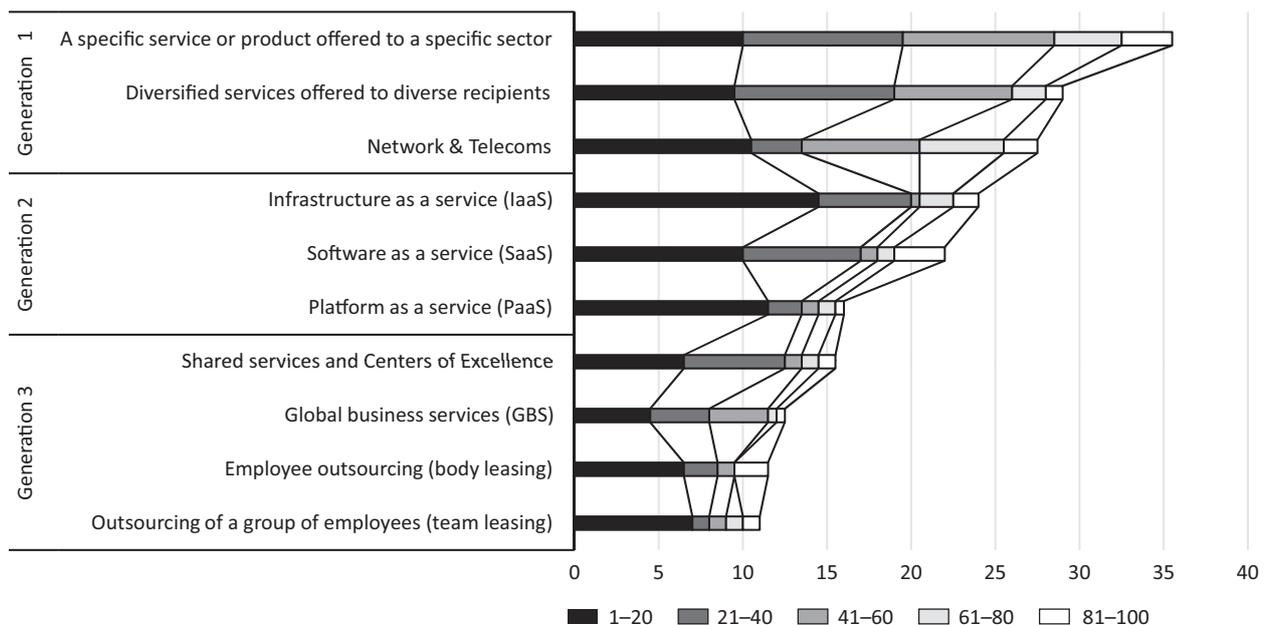
bined, first, second and third generation is summarized Figure 3.

In the examined group of organizations, 111 used functions and activities included in the first generation, 55 applied those included in the first and second generation simultaneously, and 29 organizations used functions and activities included in the first, second and third generations simultaneously. This confirms the accuracy of the second assumption.

Figure 4 presents the intensity of application of individual functions and activities classified to individual ITO generations. The intensity of application of individual ITO services companies was measured by percentage ranges 1–20, 21–40, 41–60, 61–80 and



**Fig. 3.** Organizations that use ITOs from generations: 1; 1 and 2; 1, 2 and 3, number of organizations  
Source: Own elaboration.



**Fig. 4.** The structure of the intensity of use of ITO services in the surveyed organizations (%)  
Source: Own elaboration.

81–100%. The respondents had the opportunity to mark selected forms of services (from 1 to 10), therefore, the structures do not add up to 100%.

The largest percentage of organizations (over 35%) used a specific service or product offered to a specific sector. The phenomenon of specialization takes place here. The supplier specializes in the provision of specific services and may offer them at lower price, but with more professionalism provide a specific sector (higher quality, competitive price, competitive conditions). The second most frequently used service (about 30%) were varied services offered to diverse recipients. In the case of these services, the phenomenon of specialization also takes place when the supplier specializes in the provision of diversified but relatively non-advanced services and, depending on the customer's needs, selects them in various packages. The third most-used service was Network & Telecoms (27.5%). This service is a type of business communication that provides comprehensive service to the organization by providing business telephone systems, lines and traditional and broadband connections, mobile telephony, IT services and IT solutions supporting system operation. Network & Telecoms belongs to business services in the initial stages of development of these services. About 27% of the surveyed organizations used this service.

Network & Telecoms belong to business services in the initial stages of development of these services. Approximately 27% of the surveyed organizations used the Network & Telecoms service.

The three listed ITO services were included in the first generation. These services were used by the largest percentage of the surveyed organizations.

The next forms of ITO services were used less frequently and with less intensity than those previously mentioned. These were functions and activities provided in the computing cloud. They are included in the second generation. These are the order: infrastructure as a service used by 24% of organizations, software as a service used by 22% of organizations and a platform as a service used by 16% of organizations. IaaS is a service providing the client with IT infrastructure, software and the necessary service. The customer is responsible for the programming environment, application and drivers. SaaS consists in providing the cli-

ent with specific software functions selected by him. The service includes elements of IaaS and additionally a programming environment. PaaS is a service for delivering a set of applications tailored to the customer's needs. The supplier deals with hardware, operating system, programming environment and applications. This model uses a configured server that can be accessed from anywhere in the world.

The forms of services provided in the cloud, included in the second generation, were used by a smaller percentage of organizations and with less intensity than from forms of services included in the first generation.

The smallest percentage of organizations and the smallest intensity used the forms of outsourcing included in the third generation. This generation includes two ITO forms belonging to business services. These are: shared services and centres of excellence and global business services. Shared services and centres of excellence were used by 15.5% of the surveyed organizations, global business services by 12.5% of organizations. Shared services in the IT area include a statement by the organizational unit of the shared services centre (SSC) of IT services of an ancillary nature for two or more entities within one capital group. The centre may function as a separate service unit within a given enterprise or as a separate entity linked to a parent company in capital. It is estimated that over 80% of international enterprises have shared service centres. They are most often created in the financial and logistic industries. The development of information technology has contributed to the creation of shared service centres, as tasks have been made possible without the need for direct contact between the supplier and the recipient of the service. The use of shared service centres brings the following benefits:

- unification and standardization of procedures and processes;
- greater efficiency of work;
- enabling better knowledge sharing in the organization and exchange of experience;
- unification of IT systems;
- reduction of the time of implementation of activities;
- unification and improvement of internal control;
- shortening the time of preparation of reports.

Shared knowledge sharing processes within a single capital group follow shared services centres.

Center of a Excellence (CoE) is a team or a department that includes a team of employees whose goal is to collect, prepare, develop and implement best practices, initiatives and new proven methods. Activities are carried out to improve the functioning of the organization as a whole or part thereof and to improve financial performance.

Center of Excellence is presented by KPO by indicating and implementing the best practices, initiatives and proven methods. The functioning of CoE enables the emergence of economies of scale and proper separation of limited resources for the implementation of the most important projects.

Global business services (GBS) are integrated systems supporting corporate business units within a single organizational structure. The most important features of GBS are:

- sharing and sharing of infrastructure, including technology platforms, reduction of duplication of services;
- implementation of the entire business process, including business strategy in business processes. The implementation of the entire business process also enables greater standardization and automation of activities;
- implementation of activities important from the company's point of view and high value: enabling cooperation, using best practices, sharing specialist knowledge.

The last third generation of ITO also includes employee outsourcing and group employee outsourcing, also known as personnel outsourcing. They were used in the surveyed group by 11.5 and 11% respectively. The business environment of modern organizations is changing dynamically and therefore the demand for specialized IT services is growing. Outsourcing of an employee or group of employees allows you to relieve your own IT specialists and gives you a chance to take a new approach to your projects. Both forms provide the opportunity to acquire knowledge from outsourced consultants or teams of specialists. The team can include a team of developers, testers, team leader, project manager and analyst. In addition to a group of specialists, they have the appropriate

technological resources and communication tools. Personnel outsourcing is the most effective form of acquiring high quality specialists for the implementation of specific orders and projects. Tasks can be performed in the form of remote work.

Figure 4 illustrates the evidence of the third assumption. The most intensely used forms of IT outsourcing included in the first generation, slightly less included in the second generation, the third generation of IT outsourcing forms are least used extensively.

The main assumption and three detailed assumptions have been verified positively. Confirmation of detailed assumptions also proves the main assumption. The development of IT outsourcing in large organizations in Poland takes place in accordance with the proposed generations of IT outsourcing. The main motive for using ITO at the beginning of the service is to reduce costs and employment. The service refers to processes and functions not related to key competences. The development of technologies, especially services provided in the cloud, then prompts organizations to use activities and functions included in the second generation. Activities and functions included in the third generation are used by organizations that are satisfied with the use of activities and functions included in the first and second generation. Some functions of key importance are commissioned then.

The use of IT outsourcing in line with the generation's development generation testifies to the harmonious development of the industry in Poland.

## **DIRECTIONS FOR FURTHER RESEARCH**

The development of the IT outsourcing industry makes the ITO research in the organizations of suppliers and clients of the service an issue of great theoretical and practical importance. ITO development trends: automation and robotization, development of digital technologies, the use of crowdsourcing, reverse outsourcing are new, possible research areas. IT outsourcing is rapidly changing due to the development of IT technologies themselves. Analysts in the IT industry confirm that ITO will continue to relate to transformations. Its functions and importance in the economy will grow.

## SUMMARY

The article presents a study on the development of IT outsourcing in large organizations in Poland. The survey was conducted on a group of 200 organizations, the majority of companies with Polish capital or foreign capital operating in our country. Using the generations of outsourcing development described in the literature, an attempt was made to develop the concept of generation of IT outsourcing. Three generations have been specified in the development of the ITO industry: I – referring to processes and functions unrelated to key competences, II – regarding services provided in the cloud computing and III – covering some of the key functions in organizations. Based on the conducted analyses, the main assumption has been proved that the development of ITO in Poland follows the proposed generation of industry development. Three detailed assumptions were also verified positively. The first one: most organizations use activities and functions included in the first generation, slightly fewer of those included in the second generation and the least uses forms classified as third generation. The second: most organizations use ITO forms belonging to the first generation, fewer organizations use the first and second generation forms at the same time, the smallest organization uses forms belonging to three generations at the same time. The third: the most intensive (the highest percentage) are the forms belonging to the first generation, less intensively (smaller percentage), forms belonging to the second generation are used, the least intensive (the smallest percentage) forms belonging to the third generation are used.

Confirmation of the development of ITO in Poland in accordance with the proposed generations proves the harmonious development of the industry in large organizations in Poland.

The IT services industry is growing dynamically. New specialized forms of services appear. Services are also provided on the floors. The main reason for the changes in the industry is the development of information technologies. The importance of the IT industry in the economy on a national and global scale is growing. Possible research directions in the ITO

area are primarily new forms of ITO services related to the third generation of IT outsourcing.

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## **GENERACJE ROZWOJU OUTSOURCINGU INFORMATYCZNEGO W POLSCE**

### **STRESZCZENIE**

Artykuł przedstawia badanie rozwoju outsourcingu informatycznego (ITO) w dużych organizacjach w Polsce. Na podstawie przedstawionych w literaturze przedmiotu generacji rozwoju outsourcingu podjęto próbę opracowania generacji rozwoju outsourcingu informatycznego. Wyróżniono trzy generacje rozwoju ITO. Główne założenie badawcze sformułowano następująco: rozwój branży ITO odbywa się zgodnie z kolejnością generacji rozwoju ITO. Sformułowano także trzy założenia szczegółowe, w których szczegółowo odniesiono się do działań i funkcji zaliczonych do poszczególnych generacji. W celu ustosunkowania się do założeń przeprowadzono badania ankietowe firm – odbiorców ITO. Zrealizowane badania własne i przygotowane analizy umożliwiły potwierdzenie przyjętych założeń. Potwierdzenie rozwoju ITO zgodnie z generacjami ITO świadczy o harmonijności rozwoju branży. Możliwe kierunki dalszych badań dotyczą nowych form usług ITO, związanych z trzecią generacją rozwoju branży.

**Słowa kluczowe:** outsourcing informatyczny, Polska, generacje outsourcingu informatycznego