

ICT Solutions in the Activities of the Social Insurance Institution (ZUS) as an E-Administration. Evolution During the COVID-19 Epidemic (Case Study)

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Submitted: 16.12.2021 | Accepted: 17.06.2021

Abstract

Purpose: As a case study illustrating the relationship between crisis management capabilities and the use of ICT techniques and technologies in public administration, the following text presents the evolution of selected ICT-based solutions used in the activities of the Social Insurance Institution (ZUS) as an e-administration and their use in the conditions of the COVID-19 pandemic. The article describes chronologically the most important projects in this area implemented and developed at ZUS from 2016 to the end of 2020.

Methods: To achieve the objective a case study method has been chosen, i.e. a method of a qualitative nature, which, among other things, allows for: an in-depth description of an atypical phenomenon, and also on a broader and individualized analysis of the problem, allowing for its better understanding. The application of the case study method for presenting the impact of the pandemic (global crisis) on the use of information technology – in accordance with the assumption of using this method in the so-called narrow approach – made it possible to reconstruct the course of this relationship and its conditions. The case description was based on the analysis of legal acts, ZUS documents: annual reports on ZUS activities, strategic studies periodically prepared in ZUS, specifying the current objectives, directions and instruments of its planned development, information publications available on the ZUS website and thematic information available in the media.

Findings: Using the example of the changes in the use of new techniques and information technologies in the Social Insurance Institution, it was shown how the process of automation and digitization was accelerated under the conditions of the pandemic. As a result, ZUS played the role of the main entity implementing government aid projects under crisis conditions. It is also a leader in e-administration development.

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Suggested Citation: Uścińska, G. (2021). ICT Solutions in the Activities of the Social Insurance Institution (ZUS) as an E-Administration. Evolution During the Covid-19 Epidemic (Case Study). *Problemy Zarządzania (Management Issues)*, 19(3), 73–99. <https://doi.org/10.7172/1644-9584.93.4>.

Originality/value: The presented case study is an original paper, drawing attention to the potential of public institutions and conditions of its use in the global crisis situation. The added value of the study is the quotation of unpublished figures made available by ZUS. They enable an objective assessment of changes, the scale of described activities, as well as their effectiveness, measured e.g. by the number of activities, instruments and beneficiaries

Keywords: e-administration, ICT, crisis, COVID-19, Social Insurance Institution.

JEL: O3, O33

Rozwiązania teleinformatyczne w działalności ZUS jako e-administracji. Ewolucja w warunkach epidemii COVID-19 (case study)

Streszczenie

Cel: poniżej – jako opis przypadku ilustrującego związku między możliwościami zarządzania kryzysowego a wykorzystaniem technik i technologii informatycznych w administracji publicznej – przedstawiono ewolucję wybranych rozwiązań opartych na TI, wykorzystywanych w działalności Zakładu Ubezpieczeń Społecznych (ZUS) jako e-urzędu i ich zastosowanie w warunkach pandemii COVID-19. W treści artykułu opisano chronologicznie najważniejsze projekty w tym obszarze wdrażane i rozwijane w ZUS od 2016 r. do końca 2020 roku.

Metody: do realizacji celu wybrano studium przypadku, tj. metodę o charakterze jakościowym, które m.in. pozwala na: pogłębione opisanie nietypowego zjawiska, a także na szerszą oraz zindywidualizowaną analizę problemu, pozwalającą na jego lepsze rozumienie. Zastosowanie metody *case study* do prezentacji wpływu pandemii na wykorzystanie technologii informacyjnych – zgodnie z założeniem zastosowania tej metody w tzw. ujęciu wąskim – pozwoliło odtworzyć przebieg tej zależności i jej uwarunkowania. Do opisu przypadku wykorzystano analizę aktów prawnych, dokumentów ZUS, publikacji o charakterze informacyjnym dostępnych na stronie internetowej Zakładu oraz informacji tematycznych dostępnych w mediach.

Ustalenia: na przykładzie zmian w zakresie wykorzystania nowych technik i technologii informacyjnych w Zakładzie Ubezpieczeń Społecznych pokazano, jak w warunkach pandemii dokonano przyspieszenia procesu automatyzacji i cyfryzacji. Dzięki temu Zakład odgrywał w warunkach kryzysowych rolę głównego podmiotu realizującego rządowe projekty pomocowe. Jest też liderem w rozwoju e-administracji.

Oryginalność/wartość: przedstawiony opis przypadku jest opracowaniem oryginalnym, zwracającym uwagę na potencjał instytucji publicznych i determinanty jego wykorzystania w sytuacji globalnego kryzysu. Wartością dodaną opracowania jest przytoczenie niepublikowanych danych liczbowych, udostępnionych przez ZUS. Pozwalają one na zobjektywizowanie oceny zmian, skali opisywanych działań, jak i ich skuteczności, mierzonej m.in. liczbą działań, instrumentów i beneficjentów.

Słowa kluczowe: e-urząd, e-administracja, technologie informacyjne, kryzys, COVID-19, Zakład Ubezpieczeń Społecznych.

1. Introduction

The extremely dynamic development of information and communication technologies (ICT), linked to the increasingly common availability of broadband internet, has become a premise for using the potential of this change also in public administration. Among the declared objectives of building e-state, e-government or e-administration in Poland, there was no direct reference to situations requiring crisis management, and the epidemic

was certainly not among the expected threats. The implementation of new technologies in administration was – in general – justified by the need to improve the quality of customer service and efficiency in performance of its tasks¹, and the operational objective was to “replace paper culture with the electronic one”. Managers of public institutions stressed that this was the way to increase client satisfaction through a modern approach to process design and organization of resources. It was emphasized that in the new technologies implemented in the e-administration, the possibility of more effective management of public funds and coordination of inter-institutional activities are also important (Goreń, 2021, p. 31).

The global crisis caused by the COVID-19 coronavirus pandemic has radically changed the conditions of functioning of economies and societies. It modified the principles and forms of operation of organizations, the mode of decision-making or – in general – the ways of management (Weible et al., 2020, pp. 228–229; Oberoi & Singh, 2020). Crisis situations have occurred in both the private and public sectors at all levels. The negative impact of the pandemic was increased by its suddenness, the speed of its spread and – in fact – the surprise effect (Szyja, 2020). This is because mass morbidity was – in general – eliminated by widespread vaccination. For this reason, the probability of a global crisis in the form of a huge scale of morbidity and death was perceived as unrealistic, which in the field of management sciences is evident, among others, in studies on types of crisis threats (Stawicka, Wiśniewski, & Socha, 2011; Sienkiewicz-Małyjurek & Krynojewski, 2010; Kuipers & Welsh, 2017). Indeed, many publications do not explicitly identify pandemic threats. Even in the area of dynamically developing security sciences, the likelihood of its emergence has given way, under the influence of real events, to threats of terrorism or cybercrime (Kuipers & Welsh, 2017). At the same time, health threats tended to focus on local crises and issues of access to medical care (Kuipers & Welsh, 2017, p. 277).

Due to the unidentified source of the SARS-CoV-2 coronavirus, it is currently not possible to clearly attribute the crises caused by it to a single crisis type. However, the mechanisms of crisis management in public institutions described in theoretical works, where the crisis is perceived as a threat to the security of citizens (Sienkiewicz-Małyjurek & Krynojewski, 2010), have the form of largely universal principles. This fact and the flexibility of previously introduced operational solutions – including tools from the area of ICT, which were supposed to streamline the activities of administration offices as part of the development of the so-called e-government (Gonciarski & Mazur, 2017; MAiC, 2013)² – made it possible to apply them in the process of crisis management in the public sector in the conditions of a pandemic, allowing to mitigate its effects on citizens and the economy and to optimally implement statutory tasks by administration offices in a crisis situation.

The Social Insurance Institution is a public sector institution that has taken on a large number of additional, strategic tasks related to limiting the negative consequences of the pandemic in economic and social life – and at the same time fully implemented its basic duties towards citizens. It is one of the three main entities implementing the government anti-crisis programs, beside Bank Gospodarstwa Krajowego and the Polish Development Foundation. Its functioning seems to be a good example illustrating the relationship between crisis management capabilities and the use of ICT in public administration.

The Social Insurance Institution (ZUS) is – according to the statutory provision – “a state organizational unit with legal personality, carrying out tasks in the field of social insurance in Poland”³. Operating in the area of public finance, ZUS has the so-called critical resources at its disposal (see e.g. Walczak, 2009, p. 96 et seq.), bearing responsibility for the implementation of state guarantees in the area of social insurance, in particular with regard to the payment of insurance benefits. In fact, in implementing the obligations of the state, it bears responsibility for the social security of citizens⁴.

The Social Insurance Institution started building an e-structure using ICT solutions at the beginning of the second decade of the 2000s, bearing in mind not so much the objectives of crisis management as the need to improve the quality of customer service, reduce operating costs and streamline business processes (their computerization) (ZUS, 2010; ZUS, 2012). It was one of the first institutions in public administration to start implementing electronic solutions to improve customer service. In 2012, as a reward for its first initiative (Electronic Services Platform – PUE ZUS), ZUS received a title of ICT Leader, awarded by experts from the ICT industry who stressed not only the use of modern technologies, but also – which seems to be more important – a new way of thinking about managing an institution (PAP, 2012). Since then, ZUS has gradually introduced further ICT-based solutions and has consistently implemented its development strategy⁵.

However, a noticeable progress in the use of ICT in ZUS activities has been recorded since 2016. At that time, many reforms were implemented with a view to changing the method of collecting and settling social insurance contributions, introducing electronic handling of sick leaves, electronic data exchange between European social security institutions, and to facilitating contacts of institutional and individual clients with ZUS. These reforms were based on digitization and automation of processes (Uścińska, 2020a).

The explanation of the general mechanisms of operation of the so-called ZUS e-projects is important for showing their potential, which can be used in special, also crisis, situations. At the same time, the purpose of their introduction was indicated, which was originally not the efficiency of the institution under crisis constraints, and the purpose of their use under pandemic conditions was described. The evolution of ZUS Electronic

Services Platform, which was the first solution of this kind in the public sector, implemented in connection with the governmental program of building e-administration, is presented in this way. It was a baseline implementation for many ICT instruments consistently introduced by ZUS in subsequent years, the so-called ZUS e-projects, which are described further on. These are solutions related to the basic tasks of the Social Insurance Institution: collecting and recording insurance contributions (e-Składka), issue, circulation of and access to information included in medical certificates of temporary incapacity for work (e-ZLA), ZUS functioning in the system of EU institutions for social security and exchange of data in this area (the EU EESSI project, i.e. the System for Electronic Exchange of Social Security Information and the application wizard for certificates related to the social insurance of employees posted to work abroad, i.e. issuing the so-called A1 certificates).

The process of building the e-administration in Poland was quite slow. Apart from organizational and financial constraints, this was determined by a significant extent of digital exclusion of the society. Paradoxically, an unexpected and extremely difficult crisis, also for public institutions, caused by the COVID-19 epidemic, has significantly stimulated the process of implementing ICT solutions (Oberoi & Singh, 2020). The solutions which ZUS has been introducing for years with a view to performing its statutory tasks proved extremely useful. To a large extent, due to the possibility of using the previously developed ICT potential and thanks to quick decisions of the Management Board, which allowed this potential to be adapted to new, urgent challenges, ZUS was able – despite the restrictions caused by the epidemic – not only to carry out its statutory tasks in a consistent, steady way and without delays, but also to take over a prevailing part of the burden of organizational handling and paying benefits under the state programs for the protection of the economy, implemented during lockdown. This development of e-administration in crisis management is still ongoing. During the first wave of the coronavirus epidemic, the development of ICT solutions was even accelerated and substantial financial resources were allocated to this area. This was necessary due to an enormous scale of new, crisis tasks (Uścińska, 2020a).

Public sector institutions carry out huge tasks which require continuous modernization of their ICT. These have been continuously introduced, but the crisis caused by the coronavirus pandemic has, on the one hand, led to the implementation of new, hitherto unused methods of managing the functioning of the state and public institutions (narrow decision-making group, quick decision-making and direct implementation) and, on the other hand, has been a challenge for these institutions in the area of ICT. In 2020, there were many e-projects targeting millions of citizens. They were aimed at mitigating the impact of the COVID-19 pandemic, and, when properly managed, were used to upgrade ICT solutions. Using the example of the

changes in the use of new techniques and information technologies in the Social Insurance Institution, it was shown how the process of automation and digitization was accelerated under the conditions of the pandemic. This was also the result of courage and determination in managing and making decisions in this area under crisis conditions. However, the time of the pandemic was a circumstance favoring further development of digitization and computerization in subsequent areas of ZUS activity, of course with the use of timely and responsible management decisions. As a result, ZUS played the role of the main entity implementing government aid projects under crisis conditions. It is also a leader in e-government development.

The article describes synthetically the key ICT solutions implemented and developed at ZUS from 2016 to the end of 2020, drawing attention to the conditions and the way of their use in crisis for the implementation of various state aid programs related to the COVID-19 epidemic. The whole analysis ends with conclusions and recommendations, in which attention is drawn, *inter alia*, to the importance of the deliberate flexibility of these solutions, giving the possibility to use them in various crisis situations and for various purposes. Both the importance of strategic planning and the rapid and consistent implementation of such plans in ZUS development are emphasized.

2. Research Methods

According to M. Matejun (2011), “an important trend in management sciences is currently the use of qualitative methods, allowing for a more precise grasp of the specificity of phenomena and taking into account the influence of non-measurable or difficult-to-measure variables on management processes in modern organizations”.

To achieve the objective to which the following text has been subordinated, a case study method has been chosen, i.e. a method of a qualitative nature, which, among other things, allows for:

- a) an in-depth description of an atypical phenomenon. The atypicality of the described case results from the fact that ZUS is a public sector institution which started implementing the e-government program the fastest and to the largest extent, as well as a public sector institution implementing the largest range of activities that resulted from government aid, the so-called anti-covid programs, including especially the so-called anti-crisis shields⁶;
- b) a broader and individualized analysis of the problem, allowing for its better understanding (Slawinska & Witczak, 2008; Matejun, 2011, pp. 203–213).

The description of the changes introduced from 2016 in connection with the implementation of the ZUS development strategy allows for showing the importance of such features (elements) of public institution management as

the pace and consistency of implementation of planned activities, openness to new technological and organizational solutions, implementation of instruments with wide potential parameters of use, developed channels for the rapid flow of internal and external information, a clear division of tasks and competencies, and others.

The application of the case study method for presenting the impact of the pandemic (global crisis) on the use of information technology – in accordance with the assumption of using this method in the so-called narrow approach (Yin, 2009) – made it possible to reconstruct the course of this relationship and its conditions.

The case description was based on the analysis of legal acts, ZUS documents: annual reports on ZUS activities, strategic studies periodically prepared in ZUS, specifying the current objectives, directions and instruments of its planned development, information publications available on the ZUS website and thematic information available in the media. The numerical data illustrating the scale and dynamics of impact of the described projects are also an important element of the presented description. Some of the quoted information is available on the ZUS website in thematic tabs. The quoted unpublished data have been made available to the author by relevant departments of ZUS Headquarters.

3. ZUS Electronic Services Platform (PUE ZUS) – Base and ICT Development Potential During the Crisis Caused by the COVID-19 Epidemic

3.1. Electronic Services Platform as a Starting Point for Automation and Digitization of ZUS Services

The Social Insurance Institution provides services to over 25 million clients a year⁷, performing statutory tasks of different nature. It cooperates with many thousands of companies and institutions in Poland and abroad. The efficiency of this activity, bearing in mind all the stakeholders – as regards both the forms of cooperation and the pace of tasks performance – requires optimal use of modern solutions and coordination of activities of administration offices⁸. Due to the scale and variety of tasks, ZUS activities have perfectly fitted in with the objectives and directions of e-administration development in Poland⁹. In 2012, the Social Insurance Institution launched its ZUS Electronic Services Platform (PUE ZUS), which has been recognized by IT specialists as the best e-government project in Europe (ZUS, 2013, p. 4). This was a pioneering solution in public administration, and as a result ZUS has become the first Polish e-administration; although initially in a very limited scope of the functionality of this solution. However, already then, ZUS clients registered with PUE ZUS gained access to all their data stored

in ZUS databases. The first users registered on the Platform in mid-2012. In April 2015, a millionth user registered his account with PUE ZUS (ZUS, 2015).

Thanks to the cooperation with business and the media, PUE ZUS operated as expected. The information and promotional campaign of the Platform was conducted in most Polish TV stations and the largest radio stations as well as in Newsweek and Kurier TV. A special channel “Elektroniczny ZUS” (Electronic ZUS) was also launched in the YouTube movie service. PUE promotion, as well as the entire PUE project, was financed in 85% by the European Union under the Innovative Economy Operational Programme (ZUS, 2017a, pp. 45–47). In October 2016, the Electronic Services Platform of ZUS proved to be the most popular e-administration website in Poland and almost two thirds of the surveyed internet users declared their knowledge of this website. This was confirmed by the results of the opinion poll entitled “E-administration in the eyes of internet users” (online)¹⁰. Internet users stressed in this survey that it was very important for e-administration users to be able to settle their matters via the internet “from A to Z”, without confirming anything personally in the office. In response to these expectations and observing (in order to coordinate activities) e-projects of other public institutions, ZUS proposed to set up a trusted profile by e-banking – first on a pilot basis, and then successively providing this possibility to subsequent users of iPKO and Inteligo e-banking and other banks with which it has concluded appropriate agreements.

As the data contained in the annual reports on ZUS activities from 2016 to 2020 show, the platform has been developing over the following years in an evolutionary, systematic way, thoroughly prepared and tested. In this process, new functionalities are gradually added, which correspond to specific ZUS tasks, but also match the solutions introduced by other public administration institutions. Pensioners may verify the amount of their benefits, employees may check whether the employer pays contributions for them, and entrepreneurs have access to online settlements with ZUS. One can also use an old-age pension calculator, which will calculate the expected old-age pension on the basis of data recorded in one’s pension account and projections of future earnings (Uścińska, 2020a).

PUE ZUS functionalities have been adjusted to the needs of various groups of ZUS clients. With time, all persons who have opened an account on the PUE portal, apart from access to their data, also gained an opportunity to “contact ZUS the other way”: transferring insurance documents to ZUS, filing applications and receiving decisions concerning them, asking questions and receiving answers as well as making appointments (ZUS, 2018a; 2019; 2020f; 2021e).

Since 2016, ZUS computerization has been a key priority for ZUS development (ZUS, 2015a). Data contained in cyclical reports on ZUS

activities indicate that the potential of the platform is being used more and more extensively and dynamically. The following years have been a period of PUE expansion, with acknowledging, inter alia, the effectiveness and speed of information transfer, i.e. elements enabling operation in crisis (see e.g. Gołębiewski, 2015; Walczak, 2009). The lower costs of such transmission are also important. The platform is still gaining new users, which is happening with the large participation of ZUS employees, who are creating PUE accounts at the headquarters of companies.

As the 2017–2019 reports on ZUS activities indicate, since 2017, PUE ZUS has been used – as an alternative way to apply for support – in projects related to the payment of social and family benefits (e.g. the 500 plus child-support benefit). Many new functionalities were introduced in 2019 (e.g. an opportunity to file an application for a certificate of absence of arrears in contributions payment and to receive such certificate via PUE – it is an important document conditioning decisions in many external activities of companies).

Since 6 February 2020, almost on the eve of the announcement of an epidemic emergency, and then a state of epidemic connected with the introduction of the lockdown, a new method of signing documents – personal signature – has been made available on PUE ZUS¹¹. The signature was attached to key e-administration solutions: trusted profile (PZ e-PUAP) and qualified electronic signature, and in selected cases – the possibility of signing electronic documents with the PUE profile. Another solution advantageous for platform's clients results from gradually introduced compatibility of projects creating an increasingly wide range of e-administration in Poland (ZUS, 2020d).

Restrictions in social and economic life caused by the coronavirus epidemic confirmed the need to create new ICT solutions in public administration and to develop cooperation between institutions in order to ensure the compatibility of these solutions. During the epidemic, PUE ZUS, which has been developed in a systematic manner since 2012 and improved in terms of functionality and use of subsequent ICT mechanisms, proved to be a key element of the implementation of basic state aid programs limiting the negative effects of lockdown; also those activities and forms of support which are not related to the statutory tasks of ZUS (Uścińska, 2020a).

3.2. ZUS Electronic Services Platform (PUE ZUS) During the COVID-19 Epidemic

In March 2020, only ZUS had sufficient potential and experience in implementing ICT solutions on a nationwide scale, covering millions of clients. ZUS actively participated in developing state aid programs for the economy and labor market protection, in particular the so-called anti-crisis shields. It also became their main implementing agency. The proven functionalities of the PUE and the potential of the Complex Information

System (KSI) provided the basis for fast, large-scale actions, which determined the effectiveness of the support provided (Uścińska, 2020a).

Immediately after the announcement of the lockdown and the first anti-crisis shield (March 2020), ZUS was handling requests for exemptions from paying social insurance contributions (which concerns the area of ZUS statutory tasks). In addition, ZUS accepted requests for downtime benefits, solidarity allowance and other benefits and was paying them (Łuksza, 2020). The scale of additional tasks, including the payment of an additional care allowance for parents of children under 8 years of age, and the required pace of handling each of the support solutions have never been verified in any PUE test. As a result of the significantly increased activity of management and ICT teams and the involvement of executive teams, the support program was implemented based on nine successive anti-crisis shields (Biuro Prasowe, 2020).

Quick decisions of the ZUS Management Board and their immediate implementation, including those related to the adjustment of PUE functionality to the requirements of the support programs, as well as the technical capabilities of the platform, created with a view to its constant expansion and improvement, allowed the assumed tasks to be performed during crisis. From March 2020 to August 2020, ZUS paid out 2.5 million downtime benefits in the total amount of PLN 5.5 billion, accepted 2.1 million requests for exemption from contributions and considered requests of about 2 million persons in the amount of about PLN 13.5 billion, paid additional care benefits in the total amount of PLN 3.5 billion and solidarity allowances in the amount of PLN 1 billion. In parallel with these additional tasks, ZUS continued to carry out all its regular statutory tasks in the area of social insurance on time (ZUS, 2020e).

During the epidemic, ICT solutions, especially those using PUE ZUS, are moving towards dynamic automation of processes and electronic information exchange as well as sharing databases between administration offices. ZUS is also introducing solutions limiting – to a necessary minimum – the participation of clients in the process of establishing rights and paying benefits. For example, it obtains on its own, from the Civil Registry Office, certified copies of vital record needed to pay maternity allowances and funeral grants (ZUS, 2020g). The sending on an annual basis of millions of letters to insured persons with information about their account balance has been replaced, since July 2020, with the possibility of checking this information on PUE, and only persons who apply for it will also receive this information in the paper form. The Platform also allows for appointing a visit, and from October 2020, also e-visit in ZUS, at the same time prompting the address of ZUS unit which corresponds to the client's address (ZUS, 2020).

As a result of the positive results of downtime benefits payment by the Social Insurance Institution, ZUS has been entrusted with another obligation

outside its statutory tasks: payment of the solidarity allowance. Due to the fact that ZUS has databases enabling quick verification of entitlements, the request for this form of assistance could only be submitted electronically via the PUE ZUS portal (ZUS, 2020a). This portal was also made available to entrepreneurs involved in tourist trade and public benefit organizations to allow them to apply for participation in the Polish Tourist Voucher program (ZUS, 2020j). More than 18 thousand entities submitted via PUE their declarations for entry into the list of entities entitled to accept payments with the voucher by the end of 2020 and by June 2021 – more than 23,000¹².

4. ZUS E-Projects and Their Role During the Pandemic

4.1. The Rationale for Implementing ZUS E-Projects

Information from ZUS annual reports¹³ shows that since 2016, a number of reforms have been implemented in the Social Insurance Institution, related to ZUS main statutory obligations (change in the method of collecting and settling social insurance contributions, introduction of electronic handling of sick leaves, electronic data exchange between European social security institutions, measures facilitating contacts between institutional and individual clients with ZUS). These reforms were based on digitization and automation of processes, and their effects created the foundations on which, during the epidemic, solutions supporting the Polish economy were built in a very short time, ensuring – as experience during the pandemic has shown – the possibility of surviving an extremely difficult time.

During the epidemic, it was the automation of customer service that proved to be the key to the efficient functioning of the Social Insurance Institution (which was already an e-administration to such a large extent), and created the possibility of an efficient response to the expectations of the environment by quickly expanding the scope of tasks and the pace of service (Osiecki, 2020). Earlier implementation of ZUS e-projects, planned as development, long-term initiatives, changing (and/or modifying) their mechanisms according to the evolving needs of various stakeholder groups, significantly facilitated and accelerated the processes of their adaptation to new tasks, directly resulting from the COVID-19 epidemic (Osiecki, 2020).

4.2. e-Contribution

From 1 January 2018, the Social Insurance Institution has introduced changes to the rules for the payment and settlement of social insurance contributions (ZUS, 2019). Contribution payers were awarded by ZUS individual contribution account numbers (the so-called NRS), to which they pay contributions for social insurance, health insurance, the Labor Fund, the Guaranteed Employee Benefits Fund and the Bridging Pension Fund (depending on which insurance types and funds they are obliged to pay

contributions to) in one transfer. The work related to the preparation of the NRS was carried out in cooperation with the National Bank of Poland and its ICT system. A new method of electronic communication between ZUS and NBP was implemented, enabling automatic handling of statements containing analytical information about payments made. Technical assistance was provided to handle possible errors in ICT systems and in software as well as in files downloaded from the bank. The transition from the settlement system valid until the end of 2017 to the new system went smoothly and without disturbances (*ibidem*).

All information concerning the payer's account balance can be found on PUE ZUS.

The introduced solution proved to be beneficial in many areas. E-contribution made it easier for payers to conduct business activity by simplifying the procedure of due contributions payment (one transfer to one bank account instead of several transfers to several accounts), eliminating excessive information when filling in the payment document thanks to the introduction of simple identification of payments by the individual contribution account number, which reduces the possibility of error, faster and cheaper procedure of contributions payment, quick access to information on money paid to ZUS and its distribution among individual funds (ZUS, 2021c). For ZUS, the positive effects of e-contributions mainly include a much smaller number of incorrectly filled transfers (from several thousand per month to several dozen or so). The smaller number of incorrect payments translated into a much smaller number of investigations which were initiated in the case of incorrect transfers, which was labor-intensive and generated costs (ZUS, 2017).

In the context of crisis management, the e-contribution should be assessed as a solution enabling the efficient, coordinated management of financial resources (Walczak, 2009, pp. 95–96). It resulted in “sealing” to large extent the contributions collection system and thus improved the financial condition of the Social Insurance Fund (SIF), from which most benefits are paid to persons insured. During the first two months of operation of the described solution (i.e. until the end of February 2018), revenues from contributions were by almost PLN 3.5 billion higher than in the same period of 2017. The SIF has improved financially, which means lower expenditures on benefits from the state budget (ZUS, 2018b).

The implementation of the e-contribution also facilitated the identification of payments and their faster settlement on the payers' accounts. Organization of accounts allows, *inter alia*, for their quick assignment to a person (payer), and the streamlining of procedures related to the collection and settlement of contributions enables further development of services for clients as well as simplifies and improves the efficiency of the social insurance system. This, however, required significant changes in the Complex Information System of the Social Insurance Institution and the preparation of ZUS employees

for handling e-contributions. The information system allowed for handling mass payments and carrying out an automatic distribution and settlement of payments on payers' accounts. The new software assigns NRS numbers and allows for sending notifications about their assignment. At PUE ZUS, the payer may check his or her NRS, see how his or her contribution was distributed and what is the balance of his or her account (ZUS, 2020f).

Simultaneously with the implementation of e-contributions, contribution payers' counselors were appointed. They operate in the customer service halls and assist the clients in registering their business activity as well as inform them about the rules of reporting to insurance, the amount of contributions and the rules of completing and correcting documents. This group of counselors also provides all information about the payer's account available on PUE. To a large extent, contribution counselors play the role of an "emergency solution" when the payer is unable to use the e-contribution function (MRiPS, 2018).

The simplification of the method of social insurance contributions payment during national lockdown facilitated the possibility of settling the payers' obligations towards the Social Insurance Fund without the need to contact ZUS in person. At the same time, payers who have problems with using ICT solutions have an opportunity to take advantage of the counselor's support in a ZUS branch. When restrictions on visits to institutions and offices were introduced, ZUS indicated the possibility of using the Telephone Service Centre (COT), but also introduced e-visits (Uścińska, 2020a; ZUS, 2021a) – the possibility of booking online contact with a ZUS employee in a specific case – which met with rapidly increasing interest. The rules for settling contributions and organizing accounts thanks to the e-contribution gave the payers an opportunity to quickly assess their entitlements to take advantage of the exemptions from paying insurance contributions proposed by the government. From the perspective of ZUS and the government, the up-to-date – thanks to NRS – Central Register of Contribution Payers made it possible to precisely assess the scale of necessary costs of assistance granted to entrepreneurs with regard to insurance burdens. Moreover, the current information on the status of payers' accounts allowed for the reimbursement of overpayments, resulting from periodic exemptions from contributions payment, without submitting applications for this (ZUS, 2021).

The organized balance of insurance accounts also proved to be a key element in assessing the economic condition of the country. Changes in the number of contributions paid are the basic source of information about the existence or liquidation of companies, about changes in the labor market or about the amount of salaries. From the perspective of ZUS, this information is an essential element in assessing the condition of the Social Insurance Fund – its balance sheet and the amount of the budgetary subsidy, necessary to ensure the Fund's financial liquidity (ZUS, 2021b). This knowledge is crucial to guarantee the Fund's solvency, which has often been asked about

in the media debate in recent months in the context of the security of benefit payments to pensioners (Sawulski, Magda, & Lewandowski, 2019; Raudner, 2019).

4.3. Electronic Certificate of Incapacity for Work (e-ZLA)

Another ICT solution implemented in ZUS, which proved to be crucial during the state of epidemic, are the electronic medical certificates of incapacity for work (the so-called e-ZLAs), i.e. sick leave certificates issued electronically.

The possibility of issuing e-ZLA existed from 1 January 2016. However, most doctors have not used this solution and issued sick leaves in the paper version (ZUS, 2017a). The employee was obliged to deliver such a certificate to ZUS within 7 days from the date of its issue, and the issuing doctor had to periodically submit one of three copies of the certificate to ZUS, which recorded the certificate and entered it into the relevant database (ZUS, 2016).

In order to improve the flow of information on sick leaves to each of the parties concerned: employee, employer, doctor and insurance body, from 1 December 2018 the legislator introduced an obligation (used from 2016 as a voluntary solution) to issue sick leave certificates only in the electronic form (ZUS, 2019). A doctor fills in an electronic form, which is connected to the ZUS information system. After filling in the form (this happens automatically to a large extent thanks to ZUS databases), the doctor signs the certificate. There are 3 possibilities to sign it. The first one is a ZUS certificate (in operation since 1 December 2017), renewed every 5 years and downloaded by the doctor from PUE ZUS (ZUS, 2018a). The second possibility is a qualified electronic signature, which is issued by authorized certification centers. The third possibility is a signature confirmed by the ePUAP trusted profile, which replaces the handwritten signature in electronic documents. This free method of confirming identity is used in electronic administration systems.

It should be noted that various electronic devices may be used to issue electronic certificates of temporary incapacity for work, e.g. notebooks, tablets and mobile phones, which does not limit doctors to work in a doctor's office only. Moreover, the process of issuing a certificate is supported by a wizard which guides the doctor step by step, and the system verifies, inter alia, the correctness of the dates entered, which is important for the payment of benefits for the time of sickness. The completed e-ZLA form is submitted electronically to ZUS, which shares it with other stakeholders, including employers. A doctor may issue a certificate for a patient, a certificate for a carer, a certificate for a previous period and may also cancel the document issued (ZUS, 2018).

E-ZLA, as an obligatory solution, was introduced with some resistance of the medical community, which indicated, inter alia, the local restrictions

on internet access (in response, ZUS introduced emergency procedures, inter alia, allowing the e-ZLAs to be sent to ZUS within 3 days from the date of their issue) and the insufficient digital skills of some medical staff, because a large proportion of doctors are over 60 years of age (ZUS came up with a proposal of training the medical staff, also allowing the e-ZLA certificates to be issued by medical assistants of doctors authorized to issue them) (see e.g. ZUS, 2018; Janoś, 2018). The cooperation of ZUS with the Ministry of Health and with business contributed to the modernization and adaptation of the so-called cabinet applications to the requirements of e-ZLA (ZUS, 2020f).

Since 1 December 2018, electronic certificate has been an obligatory form of medical certificates of incapacity for work. On the occasion of this project, ZUS has for the first time entered into a very extensive interaction with clients and for the first time has undertaken so many activities outside its own facilities.

The main measure of project effectiveness is the 99% share of electronic certificates among all medical certificates of incapacity for work issued in a given period. For comparison: one year before the statutory obligation to issue e-ZLA was introduced, only 6.4% of medical certificates of incapacity for work had been issued in the electronic form¹⁴.

During the epidemic, the benefits resulting from the use of e-ZLA (a solution, which is inter alia embedded in a broader system of medical care, coordinated and interoperable therewith; see Gołębiowski, 2015) proved to be difficult to overestimate in many dimensions; also in the context of their functioning in the system of changed principles of medical care and the prevalence of teleadvice or televisits introduced by the Ministry of Health. Without e-ZLA, these solutions, necessary when personal contacts must be limited, would have extremely limited possibilities of application. Automatic, quick transmission of information about sickness, quarantine or the use of child-care leaves to ZUS and to the employer has made it possible to pay benefits efficiently and has facilitated optimal management of employment in companies and institutions. An employer who has a profile established on the Electronic Services Platform receives immediate information about the employee's absence. What is also important, employees have been released from the obligation to deliver certificates to their employer who has a profile on the PUE. If the employer has not set up such a profile, unfortunately, such an obligation is still incumbent on the employee, although the seven-day deadline does not apply here. That is why, among other things, ZUS provides employers with information on the possibility of setting up accounts at PUE ZUS and offers online support in this process¹⁵.

The multitude of cases and the volatility of the law increases the risk of ZUS employees' mistakes in customer service. For this reason, inter alia, since 30 September 2020, a general application (POG) has also appeared at PUE ZUS: a form by means of which an explanation, a complaint or an

application may be submitted to ZUS. Such a letter may be accompanied by an attachment of a certain size (up to 5120.00 KB) (ZUS, 2020i). This is one of the last ICT solutions introduced by ZUS by the end of 2020 in the crisis mode, when it is necessary to limit personal contacts with the client. Projects of this nature were included in ZUS development strategy (ZUS, 2015a), but the crisis challenges for the functioning of ZUS as a public institution during the restrictions resulting from the epidemic speeded up their implementation, taking into account, however, the possibility of their modification and extension of the scope of functionality – a margin for flexible reaction in unexpected conditions (Ratajczak, 2021).

5. Suitability of ICT Projects Related to the International Activities of ZUS During Epidemic

5.1. E-Projects in the Implementation of International Tasks of ZUS

The above-described components of ZUS information system focus on its national tasks. However, when due to the epidemic the direct accessibility of the institutions for their clients is restricted, ICT-based solutions have become of significant importance. Thanks to them, ZUS can carry out these tasks on an ongoing basis, and this also concerns its statutory international obligations. Their performance results, inter alia, from ZUS's function as a 'competent institution' in relation to the obligations of the state in ensuring the realization of EU rights and freedoms, including the freedom of movement of citizens, residence and work in other EU countries and ensuring the right of Polish citizens abroad to social security benefits. The scope and forms of ZUS's activities in this area generally result from regulations and decisions of international institutions, but ZUS also undertakes its own projects aimed at improving the quality of customer service, e.g. by applying ICT solutions¹⁶.

5.2. Electronic Exchange of Social Security Information (EESSI)

From 1 July 2019 the Social Insurance Institution – as the first among competent institutions from 32 countries – introduced the system of Electronic Exchange of Social Security Information (EESSI). This project resulted from the need to implement the regulations on the coordination of social security systems in the European Union and the European Economic Area EFTA countries (ZUS, 2019a).

The system allows for faster and more efficient cooperation between social security institutions of EU Member States in handling individual cases, and facilitates the process of controlling receivables and eliminating abuse in the use of benefits. Prior to the implementation of EESSI, appropriate modifications were made in the Complex Information System of the Social Insurance Institution (KSI) and its operation was subjected to multiple tests,

both within domestic relations and in contact with a foreign institution (ZUS, 2021f).

EESSI is a working tool designed for 8 thousand national social security institutions (the so-called contact points), which annually serve a total of over 14 million beneficiaries (EC, 2020). The system is used for the exchange of data on benefits (pensions, allowances) and the application of legislation (including issues related to the posting of workers, which concerns workers from Poland, to the largest extent in the EU). The system also covers health benefits provided by the National Health Fund, family and unemployment benefits, for which the Ministry of Family and Social Policy is responsible. In addition, ZUS tasks include the transfer of information related to the social insurance of farmers and insurance in uniformed services. The electronic exchange of data concerns information, documents and declarations (scans) necessary for the handling of cases (EC, 2020; Frączak, 2021).

The use of ESSI is a classic departure from paper documentation in favor of its electronic form. Social security institutions of EU Member States exchange standardized documents in this way on the basis of jointly agreed procedures. Thanks to an electronic register of all EU social security institutions, electronic documents are sent to competent officials in another Member State.

The electronic exchange of information has shortened the handling of cases. Standardized forms make it possible to eliminate errors, to obtain correct and complete data quickly and to remove language misunderstandings. EESSI has allowed for better quality and more efficient operation of the institutions (the system is not aimed at direct customer service) (jk, 2019).

Restrictions introduced due to the spread of coronavirus in the case of Poland, among others, seriously disrupted the possibility of performing work by cross-border employees (living in Poland and working in a neighboring country). They also aroused anxiety among employees and employers as to the employee rights and social rights to which they are entitled in quarantine. In such unexpected situations, uncertainty arose as to the previously binding procedures. Cooperation between institutions within the EESSI framework provided a guarantee of continuous, fast, secure and standardized electronic exchange of information and the possibility – despite the restrictions introduced due to the pandemic – of handling cases concerning cross-border cases of social security coordination.

Between 1 July 2019 and 31 May 2020, a total of around 10,000 electronic documents were sent and received. In the fourth quarter of 2019, there was an increase in the number of messages exchanged due to the launch of production exchanges by successive EU/EFTA countries on selected business use cases (BUC). Since 1 June 2020, following the start of exchanges for all EESSI processes, there has been a rapid increase in the number of documents received, reaching 207,000 documents. However, the potential

of EESSI is still to be exploited: the target daily number of exchanged messages could be around 5,000¹⁷.

5.3. Application Wizard for A1 Certificate

In pursuing its development strategy, ZUS considers the implementation of automation and computerization of processes related to the improvement of customer service quality to be a priority, also during epidemic (ZUS, 2015a, p. 8). The pandemic highlighted the importance of the availability (understood in a multidimensional way) of an electronic procedure for dealing with matters “from beginning to end”, while minimizing the involvement of contribution payers and insured persons.

The information published on the website of the Social Insurance Institution (News) shows that before the introduction of restrictions in Poland as a result of the state of pandemic, as well as during the pandemic, ZUS developed and then implemented further ICT projects to improve its operations. While implementing EESSI, ZUS joined the international network of cooperation between institutions; since the end of September 2020, it has launched its own project – related to the performance of work abroad by Polish citizens – extending the scope of automated customer service activities. New solutions have been implemented at PUE ZUS for persons who apply for the A1 certificate confirming their social insurance coverage in Poland (ZUS, 2020h).

Since 5 February 2020, ZUS has made 7 new applications for the A1 certificate available to clients, corresponding to different situations. The procedure of issuing the A1 certificate had thus far included the submission of paper applications in selected branches of the Social Insurance Institution. Since 30 September 2020, clients who wish to obtain the A1 certificate can do so at PUE ZUS, where they have access to all applications related to the issue of the certificate (ZUS, 202h). Electronic forms have been implemented in a new simplified version and have the form of a wizard which guides the client through the process of filling in an intuitive way. The system automatically recognizes, on the basis of the information provided, which type of application is appropriate for the situation. The wizard, which is a new solution in ZUS, meets the current needs and procedural limitations resulting from the sanitary regime and restrictions caused by the coronavirus pandemic. It enables application for A1 in the most typical situations related to professional activity abroad (posting of a worker to another EU, EEA Member States or Switzerland, temporary transfer of an activity as a self-employed person or performing an activity as an employed person in another country or an activity as a self-employed person in several EU, EEA Member States or Switzerland) (ZUS, 2020c).

During the pandemic, such advantages of the solution as the speed of customer service and the efficiency of ZUS units responsible for issue of A1 certificates were strengthened. The creation of a set of documents in the

wizard significantly shortens the time needed to complete the application, which was positively received by the payers. The shorter service time means at the same time the release of employment potential and the possibility of its use also for the new ZUS tasks, imposed by the crisis state aid programs.

Within four months since the introduction of the possibility to apply for the A1 certificate electronically with the use of PUE, ZUS has received 130,000 applications concerning this matter, which, in the context of restrictions on labor mobility caused by the pandemic, is a significant number¹⁸.

The introduction of an electronic procedure for obtaining A1 certificates in such a difficult period has many positive aspects. The solution is tested in extremely difficult circumstances, and, at the same time, the necessary safety margin has been maintained, because the conditions for potential modification of the solution are more favorable, as we are dealing with an external restriction on the possible scale of application for these documents. Until the return to full freedom of movement for workers and conducting business activity abroad, it is possible to eliminate possible errors in this solution with limited side effects.

6. Summary, Conclusions and Recommendations

The COVID-19 epidemic have contributed to the emergence of multi-faceted (global) crisis which appeared in an absolutely surprising way for social and economic life. Public entities which are not involved in the process of economic competition also feel the constraints and challenges of carrying out their own tasks during the epidemic. In the changed realities of operation, it has become necessary, among others, to make maximum use of resources that must be accompanied by efficient management and quick decisions, which must be translated into practice without delay. These are not typical behaviors for the public sector, where, inter alia, e-administration mechanisms were introduced quite slowly. The offer of e-administration services may be a factor motivating society to make greater use of ICT. It may also be one way of reducing digital exclusion (Arcimowicz & Gadowska, 2020).

The pandemic has changed the perception of digitization and automation in all sectors (Grocki, 2020; Arcimowicz & Gadowska, 2020). For public institutions, the criterion determining the implementation of ICT (often in an emergency mode) has become not so much the savings and quality of service as the possibility of carrying out the tasks assigned to them. Flexibility in management and operation has become necessary (Kisilowski, 2019). Gradually, reluctance and discomfort in society, as well as fears of using ICT have given way to the benefits experienced. It turned out e.g. that remote working can be efficient, that it is possible to effectively deal with the matter in the office without leaving home, that one does not have to wait in queues at the cash register to do shopping, and that one

can get dishes from his or her favorite restaurant straight to his or her door. There have been rapid, significant and irreversible changes in the functioning of the economy and the society; changes in mechanisms and attitudes (EC, 2020). This is a feature of the crisis. People have learnt to use digital space on an unprecedented scale and have begun to expect further changes (Szyja, 2020).

Crisis management in the public sector is an area whose definition and functioning raises many questions and controversies (Walczak, 2009, pp. 95–96). However, both theoreticians and practitioners stress that it is about planning and integrating activities of different nature (organizational, financial, logistical), aimed at preventing the emergence of crisis¹⁹. Their aim is to ensure the efficiency of decision-making structures at all levels of governance, the continued readiness of forces and means to take action, to react efficiently and to deal with the consequences of the situation (Szyja, 2020, pp. 271–272; Walczak, 2009, p. 96).

In Poland, the unforeseen COVID-19 epidemic has led to a situation that can be fully described on the basis of the above definition. Another manifestation of crisis management in the Social Insurance Institution can also be considered to be successive decisions of the ZUS Management Board taken since the beginning of March 2020 in response to the needs of the moment, which quickly and effectively resulted in the evolution of solutions towards the implementation or modification of strategic projects carried out by means of ICT, and aimed at the complete transformation of ZUS into an institution integrated with other public organizations, automated, digitized, responding efficiently to government decisions aimed at limiting the negative effects of the epidemic. Using the experience resulting from the previously introduced ICT solutions and the gradual accustoming of clients to electronic solutions, ZUS effectively mobilized them (in an increasingly radical way and, finally, forcing them to use electronic solutions – see the obligatory submission of applications for support on PUE) to overcome fears of change or barriers of ignorance.

In the public debate on the effects of the epidemic, the acceleration of the process of digitization of services and the limitations of digital exclusion are often indicated. For example, in terms of profiles set up at PUE ZUS, which are necessary to use many of the platform's functionalities, statistics show that at the end of May 2021 there were almost 7 million profiles, while at the end of November 2019 – 3.3 million. Between March and November 2020, 2.4 million new profiles were created, which means that during the pandemic their number almost doubled²⁰.

By implementing new ICT-based solutions and expanding or modifying previous solutions, ZUS has responded to the needs for managing the institution during crisis: “increasing the speed of decision making and the pace of change adjusted to the pace of social and economic changes enforced by the progress of civilization and technology. In the implemented projects,

persons deciding on the directions of institutional development have noticed early enough the need to integrate and expand the competences of public institutions in the area of social and economic space management in the areas of knowledge and information, education and training, economic and social legislation, protection and management of resources (...)”²¹.

All ICT solutions used in ZUS have a prospective element in their structure: a certain potential to be used in the situation of changes in operating conditions and the appearance of new tasks. The evaluation of this potential also includes human capital in the institution (Goreń, 2021). The projects using ICT in ZUS – the development priority of this institution (Uścińska, 2020) – have been developed in a systemic perspective, taking into account the role of ZUS in e-administration and the context of cooperation with other institutions and with business. The time of crisis management during the epidemic, although not explicitly provided for in the concept of these projects, has shown the value (usefulness) of such an open approach (Zawiła-Niedźwiecki, 2020).

One of the general conclusions that arises both from the analysis of the literature on crisis management and from the case study presented above illustrating the relationship between solutions from the field of ICT and the management of an organization in the conditions of a global crisis is the need for a more open approach in building systemizing theories in crisis management, on the basis of which the principles, objectives and instruments of crisis management are defined. The validity of such an approach is proved by the widespread surprise caused by a global crisis. The pandemic has radically changed the economic and social conditions and relations on a global scale, forcing the ad hoc combination of the developed crisis management procedures in defined types of crises (in conjunction with the theory, which did not distinguish global threats of this nature) with current challenges²².

The dissimilarity (scope) of the objectives of crisis management in business and in public administration justifies the distinctness of the principles and instruments used in crisis situations in both sectors. What crisis management in the public sector expects in the context of developing IT (e-government) includes:

- flexibility in terms of tasks performed by individual public institutions (possibility to accept tasks of other institutions, less prepared to function in crisis conditions);
- efficient communication (defined rules for cooperation and safe and efficient flow of information/data between institutions);
- compatibility of ICT solutions implemented in different areas of functioning of public administration. Only the first steps have been taken in this area, although e-government instruments have been implemented in individual institutions for over a decade (Zawiła-Niedźwiecki, 2020, pp. 97–99).

What is needed – and importantly consistently implemented – is strategies for the development of individual institutions, aimed at their development through the implementation of modern, flexible (with a high potential for development) ICT solutions. They should be an element of synchronized systems of performing specific public tasks, allowing for:

- efficient, synchronized performance of tasks of the whole public sphere under “normal” conditions;
- protection of citizens in a specific area in crisis situations;
- leveling organizational rigidity of the public sector (the so-called sectoral nature of activities);
- helping to assess the effectiveness and efficiency of tasks undertaken and instruments used.

The assessment of the Social Insurance Institution’s activities made on the basis of the case description both before 2020 (the period of building rules and solutions allowing for better and better quality of task execution) and during the pandemic, as well as the necessity to implement tasks resulting from the occurrence of the crisis seems to confirm the legitimacy of such recommendations.

Acknowledgements

This research received no funds.

Endnotes

- ¹ Such a justification is indicated, for example, by the strategic documents of public agencies and reports of the Supreme Chamber of Control, which evaluate their activities.
- ² See also the text of the Act of 17 February 2005 on the computerization of the activities of entities performing public tasks (consolidated text Journal of Laws 2021, No. 670, as amended).
- ³ The status of the Social Insurance Institution has been defined in Chapter 7 of the Act on the Social Insurance System (consolidated text Journal of Laws of 2020, item 266 as amended).
- ⁴ The statutory tasks of ZUS concern not only the implementation of state guarantees towards the insured, but also the payment of non-insurance non-contributory benefits (e.g. social pensions, supplementary benefits for persons incapable of independent existence, child-support benefits, solidarity benefits for the unemployed and others).
- ⁵ This is confirmed by information from the annual reports of the Social Insurance Institution on the performance of tasks in consecutive years in the period 2016–2020, available on the website www.bip.zus.pl under the tab “Sprawozdania z działalności ZUS” (Reports on ZUS activities).
- ⁶ Act of 31 March 2020 amending the Act on special solutions related to preventing, counteracting and combating COVID-19, other infectious diseases and crisis situations caused by them and some other acts, Journal of Laws No. 568 as amended; Act of 16 April 2020 on special support instruments in connection with the spread of the SARS-CoV-2 virus, Journal of Laws No. 2021 No. 737; Act of 15 July 2020 on the Polish Tourist Voucher, Journal of Laws No. 2021 No. 839; Act of 14 August

- 2020 amending the Act on special solutions related to preventing, counteracting and combating COVID-19, other infectious diseases and crisis situations caused by them and the Act amending the Act on special solutions related to preventing, counteracting and combating COVID-19, other infectious diseases and crisis situations caused by them and some other acts, Journal of Laws No. 1478; Act of 19 June 2020 on the solidarity allowance granted to counteract the negative effects of COVID-19, Journal of Laws No. 1068; Act of 7 October 2020 on amendments to certain acts to counteract the socio-economic effects of COVID-19, Journal of Laws No. 1747.
- 7 Unpublished data from ZUS Customer Service Department.
 - 8 This is the scope of activities covered by a definition of crisis management in public administration. See Sienkiewicz-Małyjurek and Krynojewski, 2010 and Walczak, 2009.
 - 9 <http://archiwum.mc.gov.pl/projekty/plan-dzialan-ministra-cyfryzacji>
 - 10 Prepared at the request of the Ministry of Digital Affairs by the research company PBS.
 - 11 The certificate of personal signature was included in the e-ID card, which is one of the subsequent elements of the development of e-administration (<https://www.gov.pl/web/e-dowod>).
 - 12 Unpublished data from the Department of Statistics and Actuarial Projections of the Social Insurance Institution.
 - 13 <https://bip.zus.pl/o-zus/plany-i-sprawozdania-z-dzialalnosci-zus/sprawozdania-z-dzialalnosci-zus/archiwum?>
 - 14 Unpublished data from ZUS Customer Service Department.
 - 15 Such information and guidelines are published on the ZUS website and made available in the form of leaflets and brochures at customer service points in ZUS branches.
 - 16 See Chapter 7 of the Social Insurance System Act, which sets out the tasks of the Social Insurance Institution (consolidated text Journal of Laws 2021 No. 423).
 - 17 Unpublished data from ZUS Department of Foreign Pensions.
 - 18 Unpublished data from ZUS Department of Foreign Pensions.
 - 19 This term in relation to events in the area of the public sector also gives rise to interpretation controversy; in particular as a basis for taking action of a reactionary nature (see Walczak, 2009, pp. 94–98).
 - 20 Unpublished data of the ZUS Customer Service Department.
 - 21 See press releases of the Economic Forum in Karpacz in 2020.
 - 22 The lack of crisis management procedures in the pandemic is confirmed, inter alia, in studies drafted by consulting companies in the form of guides and knowledge bases prepared on an ongoing basis as more information about the effects of COVID-19 infections becomes available (e.g. Deloitte, 2020).

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