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Article

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Review of Economic Perspectives

Provided in Cooperation with:

Masaryk University, Faculty of Economics and Administration

Suggested Citation: Cvik, Daniela Eva; Pelikánová MacGregor, Radka; Malý, Michal (2018) : Selected Issues from the Dark Side of the General Data Protection Regulation, Review of Economic Perspectives, ISSN 1804-1663, De Gruyter, Warsaw, Vol. 18, Iss. 4, pp. 387-407, <https://doi.org/10.2478/revecp-2018-0020>

This Version is available at:

<https://hdl.handle.net/10419/194202>

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Selected Issues from the Dark Side of the General Data Protection Regulation

Eva Daniela Cvik,¹ Radka MacGregor Pelikánová,² Michal Malý³

Abstract: The Regulation (EU) 2016/679 on the protection of personal data (GDPR) was enacted in 2016 and applies from 25th May 2018 in the entire EU. The GDPR is a product of an ambitious reform and represents a direct penetration of the EU law into the legal systems of the EU member states. The EU works on the enhancement of awareness about the GDPR and points out its bright side. However, the GDPR has its dark side as well, which will inevitably have a negative impact. Hence, the goal of this paper is twofold – (i) to scientifically identify, forecast, and analyze selected problematic aspects of the GDPR and its implementation, in particular for Czech municipalities, and (ii) to propose recommendations about how to reduce, or even avoid, their negative impacts. These theoretic analyses are projected to a Czech case study focusing on municipalities, which offers fresh primary data and allows a further refining of the proposed recommendations. An integral part of the performed analyses is also a theoretic forecast of expenses linked to the GDPR, which municipalities will have to include in their mandatory expenses and mid-term prognostic expectations regarding the impact on the budgets of these municipalities from Central Bohemia. The GDPR, like Charon, is at the crossing, the capacity and knowledge regarding its application is critical for operating in the EU in 2018. It is time both to admit that the GDPR has its dark side and to present real and practical recommendations about how to mitigate it.

Keywords: Controller v. processor; Data protection officer; GDPR; Transparency.

JEL Classification: D82, K29, M15, O33.

Received: 10 June 2018 / Accepted: 29 October 2018 / Sent for Publication: 28 November 2018

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Introduction

Within the framework of the ten year long strategy Europe 2020, particularly the digital aspects and the technological potential of European economies (Balcerzak, 2016) and its dynamics between old and new member states (Balcerzak, 2015) and small, medium and large sized firms (Vokoun, 2017), the European Commission presented the Data Protection Reform Package. It demonstrates that the EU is well aware about the importance of corporate social responsibility (Pakšiová, 2016) and that, although openness-oriented policies are to be associated with growth (Lyke, 2017), human rights and freedom deserve serious consideration and protection vis-à-vis predatory, over liberal and advantage taking practices. An integral part of it was a proposal COM(2012)11 for a Regulation on the protection of individuals with regard to the processing of personal data, and on the free movement of such data, which focuses both on data storing and analyzing as well as the portability of the data, including Internet portability realized via emails or e-address books (Auvermeulen, 2017). This mandatory drive for the unification of rules on the processing of personal data in the EU and its key features resulted in a noticeable wave of reaction (Areeda, 1996; Pormeister, 2017; Zuiderveen Borgesius, 2016).

Nevertheless, in April 2016 the Regulation (EU) 2016/679 on the protection of personal data - General Data Protection Regulation (“GDPR”) was enacted with May 2018 as its target date for taking effect (art.99 GDPR). Despite its partially ambiguous and ambivalent objects, goals and purposes (Hert et al., 2018), the GDPR has a broad reach which impacts both public and private subjects, imposes a significant set of duties and principles upon them and also threatens them with sanctions. Two of the many controversial features of the GDPR are (i) its general non-clarity and ambiguity and (ii) the compulsory introduction of a data protection officer (“DPO”) (Art.37 et foll. GDPR). Hence, the municipalities have to understand the GDPR, conduct an audit of their setting and then update it to make it compatible with the GDPR, and also appoint and pay for a GDPR expert - the DPO, who then will double check it and possibly report any discrepancy.

Hence, the goal of this contribution is twofold – (i) to scientifically identify, forecast, and analyze selected problematic aspects of the GDPR and its implementation, in particular for Czech municipalities, and (ii) to propose recommendations about how to reduce, or even avoid, their negative impacts. The objective of the present paper is threefold. First off, it aims to test the hypothesis (“H1”) that, contrary to the EU rhetoric, the GDPR and its compulsory regime is far from obvious, clear and logical for subjects, especially data controllers and processors from the public administration sphere, and the search for and appointment of DPOs will be challenging and expensive. The second objective is to test the hypothesis (“H2”) that municipalities are not yet prepared for the GDPR. And last, but not least, the paper suggests solutions for this challenging situation. Based on the study of the H1 and H2, the paper recommends what the municipalities should do to address the dark side of the GDPR. The authors take full advantage of this pioneering investigation as well as informal interviews of the competent Association and generally their hands-on experience. Although Czech municipalities will be used for the case study and Czech field observations will be used, the ultimate conclusion linked to the legislative and secondary sources of a non-Czech origin is highly relevant for municipalities abroad as well as other subjects of the GDPR, regardless of whether they are Czech or not.

Legislative and Literature Review

The legislative review rests on the overview of key provisions of the GDPR, while paying special attention to its general (lack of) clarity and to its special setting of the DPO. The GDPR clearly perceives the processing of the personal data of a natural (!) person as a fundamental right (Preamble (1) and Art.1 GDPR) and related to the Charter of the Fundamental Rights of the EU (“Charter”) and to the Treaty on the Functioning of the EU (“TFEU”). Therefore, the GDPR is conceptually well embedded in the EU “constitutional triangle” (MacGregor Pelikánová, 2014a), while recognizing the critical aspect of the single internal market for modern European integration (MacGregor Pelikánová, 2013; MacGregor Pelikánová et al., 2017). The European Commission does not hesitate to indicate the general endorsement of the GDPR by up to 90% of Europeans and presents a very bright picture of the GDPR (European Commission, 2017). The GDPR does not hesitate to expand the definition of “personal data” and of “processing” (Art.4) as well as to extend its reach to processing, both within and outside the EU (Art.3). The bright picture starts to become darker when the definition of the key subjects of the GDPR, i.e., the “controller” and “processor”, is presented (Art.4).

Table 1. Random table – Controller and processor under Art.4 GDPR

Function	Definition	Comments
Controller	the natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of personal data;	All municipalities are “controllers” under GDPR and thus have to comply with it
Processor	a natural or legal person, public authority, agency or body which processes personal data on behalf of the controller...	Municipalities can become processors.

Source: Authors

The GDPR provides a lot of mandatory principles, general and specific duties and requirements, along with references to various codes and other rules. In addition to the lawfulness of processing, it requires a clear consent or other well defined reasons (Art.6). Further, the GDPR is marked by provisions clearly offering two (if not more) opposite approaches, such as in the case of data portability – whether the object of data portability is only data explicitly given to the controller or all data provided (Hert et al., 2018).

Neither the GDPR nor the European Commission nor other EU institutions or bodies provide explanations regarding the exact meaning of these principles and the technicalities of their implementation by innovation technologies (Vokoun, 2018). The created uncertainty is further magnified by the vast extent of the responsibilities of controllers. They include the responsibility of the controller, which includes the implementation of appropriate technical and organizational measures to ensure, and to be able to demonstrate, that processing is performed in accordance with the GDPR, including adherence to approved codes of conduct (Art.24). Each controller shall maintain a record of processing activities under its responsibility, including the name and contact details of the controller and the data protection officer, etc. (Art. 30). The controller shall seek the advice of the DPO (Art. 35). The controller shall designate a DPO in any case where: (a) the processing is carried out by a public authority or body, except for courts acting in

their judicial capacity; (b) the core activities of the controller or the processor consists of processing operations which, by virtue of their nature, their scope and/or their purposes, requires regular and systematic monitoring of data subjects on a large scale (Art.37). Municipalities are not only a subject of the GDPR, but in addition must appoint their DPO – either their “own” or a “shared one”, either as their employee or as their free-lance outsourcer. The tasks of a DPO are broad and can work for, as well as against, the particular controller.

Table 2. Principles relating to processing of personal data under Art.5 GDPR

Personal data shall be processed
(a) processed lawfully, fairly and in a transparent manner (lawfulness, fairness and transparency)
(b) collected for specified, explicit and legitimate purposes (purpose limitation)
(c) adequate, relevant and limited to what is necessary in relation to the purposes (data minimization)
(d) accurate and, where necessary, kept up to date (accuracy)
(e) kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data is processed (storage limitation)
(f) processed in a manner that ensures appropriate security of the personal data (integrity and confidentiality).
The controller shall be responsible for, and be able to demonstrate compliance with, all of them (accountability).

Source: Authors

The GDPR explicitly provides remedies, liabilities and penalties for any GDPR breaches (Art.77), such as the right to compensation and liability (Art.82) and imposition of administrative fines of up to 10 000 000 EUR or up to 2% of the total worldwide annual turnover or even up to 20 000 000 EUR or up to 4% of the worldwide annual turnover (Art.83).

Table 3. Tasks of the DPO under the Art.39 GDPR

The data protection officer shall have at least the following tasks:
(a) to inform and advise the controllers of their obligations pursuant to the GDPR and to other Union or Member State data protection provisions;
(b) to monitor compliance with the GDPR, with other Union or Member State data protection provisions...;
(c) to provide advice where requested as regards the data protection impact assessment and monitor;
(d) to cooperate with the supervisory authority;
(e) to act as the contact point for the supervisory authority on issues related to processing.

Source: Authors

The literature review regarding the general (lack of) clarity of the GDPR and the special issue of the DPO begins, similarly to the legislative review, with a re-confirmation of the EU commitment to the doctrine of the famous four freedoms of movement in the single internal market (Cvik & MacGregor Pelikánová, 2016) in the 21st century e-context (MacGregor Pelikánová, 2017; MacGregor Pelikánová, 2012) and the very broad reach of the GDPR (Tankard, 2016). This commitment mirrors the interaction of public administration, business, law and information systems/information technologies in our global society, which is full of contradictions (Vivant, 2016), of confusion between historical truth and reality (Chirita, 2014), and of increasingly more complex and dynamic organization settings and proceedings (Piekarczyk, 2016) where the ultimate value is the information (MacGregor Pelikánová, 2014b) as the top commodity of the post-modern society dominated by information systems and information technologies channeled via the Internet or otherwise (MacGregor Pelikánová, 2012 & MacGregor Pelikánová, 2013). Indeed, the increasingly complex data-processing reality created by new technologies, such as the „Internet of Things“ (IoT) underlines the need for stakeholders to be clear about issues related to the responsibility for the personal data they process and/or control (Lindqvist, 2017).

Since the electronization and resulting administration, processing and transferring of data should not lead to abuses and should not impair the smooth operation of the single internal market, the EU decided to go for a unified legal regime inspired by the development of data privacy legislation on both sides of the Atlantic since the 1960s (Tikkinen-Piri et al., 2017). Currently, the EU faces the fourth industrial revolution and the digital single market with the unification of the legal status for personal data protection sought by the GDPR (Martínéz-Martínéz, 2018).

Hence, the EU's tooting its own horn about GDPR and its unification is matched by academia's pragmatic tenor. Academia recognizes the anticipated benefit of law consistency in the data protection in the entire EU (Zerlang, 2017) and even beyond (Kuner et al., 2017), but immediately adds that the GDPR poses new challenges in general (Malatras et al., 2017; Raab & Szekely, 2017) as well as vis-à-vis special aspects (Barnard-Willis et al., 2016; Bologno & Bistolfi, 2017; Cradock et al., 2017) to its subjects, including such public law entities as municipalities. Some voices are even more critical and state that the GDPR legal unification is rather more theoretical than real, since formal aspects of the regulation and the content materials of the fundamental right to data protection make this process challenging (Martínéz-Martínéz, 2018).

It is suggested that they are not sufficiently aware about the exact demands of the GDPR, including the DPO, are not ready for it (Tikkinen-Piri et al., 2017) and that the compliance will cost financially, as well as in time and effort, more than what is expected. It is illustrative to conduct a case study based on questionnaires completed by selected Czech municipalities and verify the confirmation of H1 and H2 and the related recommendations and their (lack of) overlap with statements presented recently in the academic press.

Materials and Methods

Although the protection of personal data is harmonized within the EU by Directive 95/46/EC and newly by the GDPR in 2018, discussions on political, legal, academic and even practitioners levels reveal that there are significant differences in the understanding and ways in which EU member states implement these measures (Custers et al., 2018). This ambiguity and discrepancy is further magnified by the fact that the GDPR is a reformatory regulatory piece of the EU legislation with a direct, imminent application which expands the understanding and regulation of the processing of data of natural persons, and not only in the EU. This needs to be appreciated in the context of the notions of risk and risk analysis, because the GDPR risk is mainly about “compliance risk”, i.e. the lower the compliance the higher the consequences upon the data subjects' rights (Gellert, 2018)

This unequivocally determines both the materials and methods to be employed in the context of the set duo of hypotheses and trio of objectives – the ambiguity of the GDPR and its demands (H1), the lack of readiness of the ultimate addresses – Czech municipalities – for the GDPR and compliance with it (H2), and recommendations about how to address this dark side of the GDPR. The materials and methods further reflect that this is a multi-disciplinary topic requiring a truly open minded, pragmatic and not always conventional approach. Therefore, materials from heterogeneous sources must be researched and analyzed, namely (i) primary fresh data, obtained by questionnaire-generated research performed within the framework of the Czech case study focusing on selected Czech municipalities and their perception of the GDPR, (ii) secondary data generated especially by fresh (ideally from the last two years and preferably from the WoS database) academic writings and (iii) direct legislative data – a direct citation and exploration of the text of the GDPR itself. This diversity of materials needs to be explored and assessed by a set of methods and leading the way should be Meta-Analysis (Silverman, 2013) complemented by critical comments and Socratic questioning (Arreda, 1996). Since the topic has strong legal aspects, the research and analysis are more qualitative than quantitative, and includes deductive and inductive aspects of legal thinking (Matejka, 2013), as legal theoretic orientation reflects legal science which is argumentative, not axiomatic (Knapp, 1995). However, the opposition between qualitative and quantitative data and methods should not be exaggerated, since the available resources allow for addressing many of the research questions and hypotheses related to the GDPR by combining and contrasting them (Silverman, 2013). The drive for an objective and neutral assessment and profiling must occur at both levels, qualitative and quantitative, and the employment of conventional methodology is challenging and the so-called “mathematization” is hardly to be performed in a rigid manner (MacGregor Pelikánová, 2013). Issues related to refinding relevant methods and taking both quantitative and qualitative approaches for not only measuring, but also for relevantly evaluating the activities of public institutions, are similarly addressed by other authors and authorities (Staníčková et al., 2013).

Despite the mentioned challenges, the authors of this contribution managed to prepare a preliminary approximate quantitative estimation of the impact of necessary measures linked to the application of the GDPR to the budgets of municipalities. They report about it via this contribution, while being fully aware that the methodological apparatus is limited to the basic calculation of expenses of public law subjects, municipalities, and

the municipal budget methodology in the Czech Republic. In order to prepare a prognostic outlook of charges to public budgets, the method of statistical analysis with the support of the prediction apparatus was used. Namely, the method of timelines in the connection with the extrapolation derived trend functions while maintaining convenient correlation characteristics was employed. The database foundation for the estimation of the established functions rests on the databases of the Ministry of Finance of the Czech Republic (MF, 2017) and consists of time characteristics of public budgets of selected municipalities, villages and towns in Central Bohemia, during the period of 2010-2017.

The principal data novelty of this contribution lies in the pioneering investigation in the form of a questionnaire search performed vis-à-vis five Czech municipalities from central Bohemia and its presentation, along with the proposed forecast estimation. The selection of municipalities for the case study is highly indicative and provides an insight going even beyond the public administration subjects, because it points out how GDPR demands, vis-à-vis human resources (new DPOs) and modern technologies (R&D outcomes), can be addressed in the context of public policies promoting integration, data and privacy protection and, of course, R&D and its (under)investment (David et al., 2000). It was extremely challenging to obtain responses from competent insiders, though ultimately the authors succeeded, i.e. they obtained information either from representatives of the municipality (mayors, vice-mayors, etc.) or its employees with a direct access to the pertinent data (municipality lawyers, etc.). Due to the confidentiality concerns, these respondents replied provided that their identity and the identity of their municipality will not be disclosed. Hence, the authors have this information, know exactly the function and competence of the respondents and are certain that the respondents had the necessary knowledge and willingness to duly respond, but are not allowed to disclose their identities or provide further details beyond the data shown in Table 4.

Table 4. Questionnaire – 5 interviewed municipalities from the central Bohemia

Municipality	Surface in km ²	Revenues/Expenditures in thousand CZK	Employees
M1 – in Prague	5,53	645 559/976 485	395
M2 – in Prague	24,22	814 826/750 706	358
M3 – in Prague	9,79	451 889/ 554 541	258
M4 – village	2,18	1 845/ 1 845	6
M5 – town	3432	175 46/ 196 305	61

Source: Authors

In order to yield the most from this rather homogenous sample of municipalities, the questionnaire included seven open questions reflecting H1 and H2 and the three objectives, i.e. targeting the awareness, preparation, realization of the GDPR compliance and its costs, see Table 5. Naturally, all questions and responses were in Czech and Table 5 represents a summarized and simplified translation. It was absolutely critical to make sure that the respondents understood the questions and so they were provided with an appropriate clarification.

Table 5. Questionnaire –7 questions given to 5 interviewed municipalities

Questions	
Q1	How are you getting ready for the GDPR – where are you right now with your compliance?
Q2	Are you going to be ready in May 2018, i.e. will you manage to become GDPR compliant by May 2018?
Q3	Do you have your GDPR financial calculation, i.e. what (initial) expense do you expect?
Q4	How are you going to finance the (initial) expense for the GDPR compliance?
Q5	Is the setting of your GDPR duties clear to you, i.e. do you understand your GDPR duties?
Q6	How will you resolve the DPO personnel issue, i.e. who will be your DPO (employee, free-lance, shared)?
Q7	Do you know how ready (how far in their preparation) for the GDPR are other municipalities?

Source: Authors

Therefore, the above-indicated legislative and secondary data is further explored via primary data generated by this original and pioneering investigation. The information is explored and the yielded knowledge and data are confronted in a holistic manner, while underlying that the cornerstone is the Czech case study and recommendations implied by it, while considering also legislative and secondary sources.

Results and Discussion

The legislative and literature review presented above reveals that the GDPR is a new piece of strict legislation which will be interpreted based on the teleological approach and the meaning of which is far from being either insignificant or obvious. Perhaps the only certainties are that the GDPR brings many new requirements to a broad pool of subjects, including municipalities, and that any breach is to be strictly sanctioned, starting from May 2018. It is necessary that each (potential) subject, e.g., municipality, performs an audit, analyzes the current status quo and needed changes in order to comply with the GDPR, and implements these changes. It is beyond question that this will entail both initial expenses and efforts as well as ongoing expenses and efforts, see e.g. the payment and co-operation with the DPO. To reveal more about the perspectives of the ultimate addressees of these requirements and duties of the GDPR, a balanced set of five Czech municipalities were interviewed. Three of them are parts of the capital city Prague, one of them is a village near Prague, and one of them is a town near Prague.

These five municipalities (see Table 4) were interviewed based on a questionnaire including seven questions reflecting H1 and H2 and inducing ideas for assessment and improvements, i.e., for the ultimate recommendations for the GDPR compliance (see Table 5).

All five municipalities provided detailed answers to all seven questions and even added comments and suggestions. A glance at the collected valuable feedback is included in Table 6.

Table 6. Questionnaire – Answers to 7 questions provided by 5 interviewed municipalities

Questions	M1	M2	M3	M4	M5
Q1 readiness	Employee training, external audit	Employee training, plans to order audit	Employee training, external audit	So far nothing	Employee training
Q2 timing	Hopes to manage	Hopes to manage	Believes to manage	Believes to manage	Hopes to manage
Q3 expense	No idea	Few millions CZK	No idea	No idea	No idea
Q4 financing	Extraordinary budget expense	Municipal budget	Municipal budget	Municipal budget	Municipal budget.
Q5 clarity	Not really	Not really	Not at all	Not really	Needs external advice
Q6 DPO	Outsourcing, i.e. free-lance DPO	Do not know, wait for recommendations.	New employee	Probably outsourcing	Probably outsourcing
Q7 others	Probably as we are	As we are, need for coordination	As we are, we exchange info	Has certain awareness	Info from the Association

Source: Authors

The overview presented above reveals a set of serious issues confirming both H1 and H2. Additional comments and explanations provided by municipalities supported it in even more depth. The common tenor of all municipalities pointed to the dark side of the GDPR, or more precisely the dark sides and paradoxes. Each municipality genuinely wants to be compliant with the GDPR, but no municipality truly understands what they should do and what duties and requirements apply to it. Each municipality is ready to pay the necessary initial and even further costs, but no municipality knows roughly how much it will be. Each municipality plans on paying the expense from its budget, but does not have any special revenues or resources to off-set it. This is a very burning issue, especially for municipalities with a smaller budget where “each CZK matters” and some of them even sadly stated that, because of the GDPR, no planned actions, investments and popular projects for the public welfare will be realized. Boldly, the GDPR will take money desperately needed for critical municipal services. The DPO function is for all of them a clear stable and ongoing expense, without bringing any noticeable benefit for the municipality. Some of them will hire an external (i) expert, either a law firm or other firm providing legal and data protection services, or (ii) create a new job and hire their own “DPO”. Although all municipalities have a certain degree of awareness about the (un)readiness and struggles of other municipalities, they all would appreciate more information, ideally up-to-date. This call for information and advice is further magnified by the readiness of certain municipalities to use a public procurement call and to select an outside expert firm and hire it for the GDPR audit and assistance for the setting of the initial GDPR compliance. Naturally, this scenery might change dramatically once

experiences with the GDPR monitoring by authorities emerges, i.e., the effectivity and efficiency of the interpretation, application and enforcement of the GDPR by authorities will definitely have an impact on the approach of municipalities to their GDPR duties.

These voices calling for guidelines and counseling are a true phenomenon and the Czech municipal association, i.e. the Czech association of towns and villages ("Association") accepted an informal interview and, within it, stated that approximately 15 500 public service entities will have to comply with the GDPR (6 300 municipalities, 5 100 maternal schools, 4 100 elementary schools) and that the Association expects "sharing" of the DPO, i.e. the Association thinks that approximately 20 entities will agree about hiring the same external, free-lance DPO. There is no hard data, this is mere speculation. Nevertheless, it is worth considering, especially since the Association, in co-operation with human resources experts, came to a preliminary suggestion that each DPO will need to be paid approximately CZK 55 000 CZK brut per month, i.e. CZK 30 000 net per month. If this speculative prediction of the Association is met, then 775 DPOs are needed for the indicated public service entities and, if each is going to "cost" CZK 55 000 per month, then the combined annual cost will reach $775 * CZK 55 000 * 12 = CZK 515 500 000 CZ$. However, the pilot investigation of municipalities indicates (at least at this point) a much weaker readiness to "share" a DPO and suggests that many more than 775 DPOs will be needed. In addition, during the last few months the authors have been several times contacted via group emails by head-hunters offering a DPO job, or at least a bonus for recommendations for a law and data protection expert ready to take the DPO job. Furthermore, the authors witnessed several offers to attend DPO and/or GDPR training for approximately CZK 10 000 per day. Well, the GDPR, awareness about it and the DPO function have become an integral part of business in the EU. The overview provided above allows implying the general impact of the recognition, implementation and application of GDPR and its principles to municipal budgets in the Czech Republic. The basic estimation is presented in Table 7, below.

Table 7. Estimation of economic impacts of GDPR on municipalities in Czechia

Index	Municipalities in the Czech Republic		
Inhabitant	<500	500-1 000	>1 000
Number of municipalities	3 440	2 122	696
Merging coefficient*	3	2	1
Estimated Unit Costs (CZK/month)	10 000	20 000	30 000
Cost forecast (CZK/year)	137 600 000	254 640 000	250 560 000
Average cost to the municipality (CZK/year)	40 000	120 000	360 000

*Note: The merging coefficient expresses the potential number of municipalities in the volume - the value corresponds to the number of the Merger Services Center according to the Union of Towns and Municipalities of the CZ

Source: Authors

The results presented in Table 7 suggest that the implementation of the GDPR is financially very demanding and this even if just a low estimation of the expenses for the DPO

is included. The mechanism of the estimation rests on the splitting of all municipalities in the Czech Republic, i.e. 6258 municipalities in 2017 (CSO, 2018), which is done based on the expected workload of the DPO regarding these municipalities. Considering the average amount of receipts and income in the municipal budget, it is very unlikely that small or medium sized municipalities will establish independent new job positions. Instead, it seems much more likely that they will outsource, i.e. employ external DPO services in order to avoid massive tax, social security and health insurance costs charged in the case of an employee.

During interviews of representatives of the Association, it was suggested that it can be expected that small communities with modest budgets, in particular, will have a strong drive to associate in the so called Centers of common services and to take advantage of the common service of one DPO for more municipalities (CATV, 2018a; CATV, 2018b). It is expected that this centralization drive will reflect the inverse proportionality, i.e. the smaller the village and its budget, the bigger is the drive for the centralization and sharing one DPO, thus Table 7 splits municipalities accordingly. Regarding municipalities with less than 500 inhabitants, it is expected that, on average, they will group by three, i.e., three municipalities will share one DPO. Regarding municipalities with between 500 and 1000 inhabitants, it is expected that, on average, they will group by two, i.e., two municipalities will share one DPO. Regarding municipalities with more than 1000 inhabitants, a total of 696 of which 604 are towns), it can be expected that each of them will have its “own” DPO. Naturally, this splitting will probably need to be adjusted according to the real extent of the implementation of the GDPR and its impact. Therefore, the calculation preliminarily works with three levels of DPO expenses, i.e. CZK 10 000, CZK 20 000 and CZK 30 000. These estimated amounts are implied by the intrinsic knowledge and experience of the authors of this contribution and are at the lowest limit. In other words, the authors have not only read advertisements for DPOs with indicated salaries in the amount of CZK 30 000 and more, but even they have been directly contacted by subjects and headhunter agencies and have been offered similar or higher amounts to perform the DPO task.

Based on the set parameters, it is possible to, with the help of a simple algorithm, imply that the total annual cost for the GDPR will reach (i) in the case of small municipalities the amount of approximately CZK 138 million (on average CZK 40 thousand for one small municipality), (ii) in the case of mid-sized municipalities the total cost will reach approximately CZK 255 million (on average CZK 120 thousand for one mid-sized community) and (iii) in the case of large municipalities the amount of approximately CZK 251 million (on average CZK 360 thousand for a large municipality). Hence, the total annual cost of the GDPR reaches the unbelievable amount of CZK 663 million for each year of the realization of GDPR measures by all municipalities in the Czech Republic. It needs to be re-emphasized that the quantification part relies on the standardized notion of “municipality” and is estimated as minimal. Therefore, it does not include additional related expenses which will be necessary, such as the cost for upgrading IT systems, new software, new hardware equipment, etc. Similar results were obtained as well by an estimate performed by representatives of the Association, who expect the expenses of municipalities for the DPO in the amount of at least CZK 0.5 billion and other necessary expenses due to the GDPR in the amount of another CZK 0.5 billion (CATV, 2018a; CATV, 2018b). It needs to be highlighted that the performed calculation and proposed estimates concern only municipalities, but the GDPR has to be im-

plemented as well by other public law subjects and by private law subjects. In the sphere of the public administration, these public law subjects impacted by the GDPR are especially ministries, schools, hospitals, retirement homes, etc. Thus, it is obvious that the cost of the GDPR and its application will be several billion CZK for public administration.

In the following section, the prognostic estimation of the impact of the GDPR expenses on budgets of selected municipalities is performed. The examined sample includes selected municipalities from the Central Bohemian region. The selection of municipalities for the sample was done by a selection with the intent to reach an appropriate variability of the selected sample. Table 8 provides, in its overview part, some information about the size of the community (according to the number of inhabitants) and the amount of expenditures during the period 2010-2017. Further, it provides, in its results section, the estimated prognosis of the share of the GDPR expenses on the pre-indicated income of the municipality, including the data about the statistical importance of the performed estimation.

Table 8. Estimation of Share of GDPR expenditure on municipal budget revenue

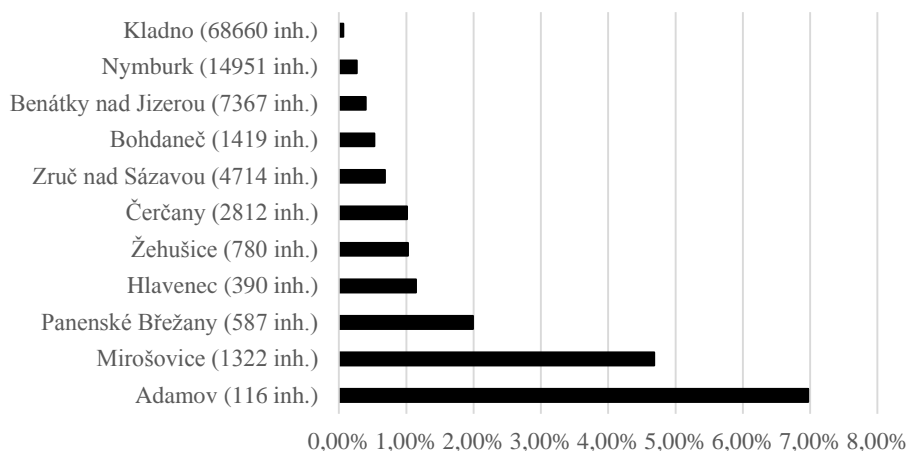
Municipality (inh.)/ year	Revenue of municipal budgets (thousands CZK)								Share of GDPR expenditure of municipal budget revenue (estimate)			Significa nce of the estimate (I ²)
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Adamov (116 inh.)	706	1514	829	1092	1483	1226	927	1025	6,97 %	6,91 %	6,85 %	0.854
Mirošovice (1322 inh.)	13532	33237	12510	20608	19984	19118	14228	15718	4,68 %	4,91 %	5,17 %	0.723
Panenské Břežany (587 inh.)	5476	5751	6014	11961	9125	8413	11119	10384	1,99 %	1,87 %	1,76 %	0.751
Hlavenec (390 inh.)	15497	24208	19972	5093	4280	4358	7001	6348	1,15 %	1,07 %	1,00 %	0.964
Žehušice (780 inh.)	11659	12748	12748	16108	22920	10687	11848	31321	1,02 %	0,96 %	0,90 %	0.905
Čerčany (2812 inh.)	42141	32233	31448	31887	36957	31422	72602	82188	1,01 %	0,93 %	0,87 %	0.941
Zruč nad Sázavou (4714 inh.)	12333 8	13620 3	77240	85910	11080 0	16223 0	87626	10268 6	0,69 %	0,69 %	0,70 %	0.873
Bohdaneč (1419 inh.)	12350	23056	9975	11323	14142	28697	12900	10667	0,53 %	0,53 %	0,53 %	0.832
Benátky nad Jizerou (7367 inh.)	19915 0	15309 5	15070 0	18323 3	18031 6	18969 5	14197 6	20705 8	0,40 %	0,39 %	0,39 %	0.899
Nymburk (14951 inh.)	36934 8	35749 9	24745 2	25203 0	30163 0	30620 5	29970 7	29324 2	0,27 %	0,27 %	0,28 %	0.951
Kladno (68660 inh.)	17304 92	20859 21	11376 03	12661 17	14288 28	13402 41	12114 08	13670 63	0,06 %	0,07 %	0,07 %	0.878

Source: Authors, Ministerstvo Financí ČR (Ministry of Finance of the Czech Republic)

Table 8 reveals several fundamental facts and data. Regarding the fundamental parameter, it is obvious that the evolution of municipal budgets does not share one identical trend. Within the selected sample for the selected period, there are municipalities with decreasing revenue, increasing revenue and even with stagnating or oscillating revenue. Considering the statistical features, one can conclude that the majority of municipalities have to address the issue of the decreasing revenue. This is especially the case of small municipalities in the selected sample.

Within the following search and study, the prognosis of the static estimation of the share of the GDPR expenses of the revenue of municipalities was performed. For the prognosis, firstly was performed the extrapolation estimation of the municipal revenue for 2018 and secondly the estimation of the GDPR expenses of the particular municipality pursuant to the indicated methodology. Ultimately, the relative share of the monitored GDPR expenses of the revenue was quantified. The results of such a conceived prognosis are presented in Figure 1.

Figure 1. GDPR share of municipal revenue expenditure (estimate for 2018)



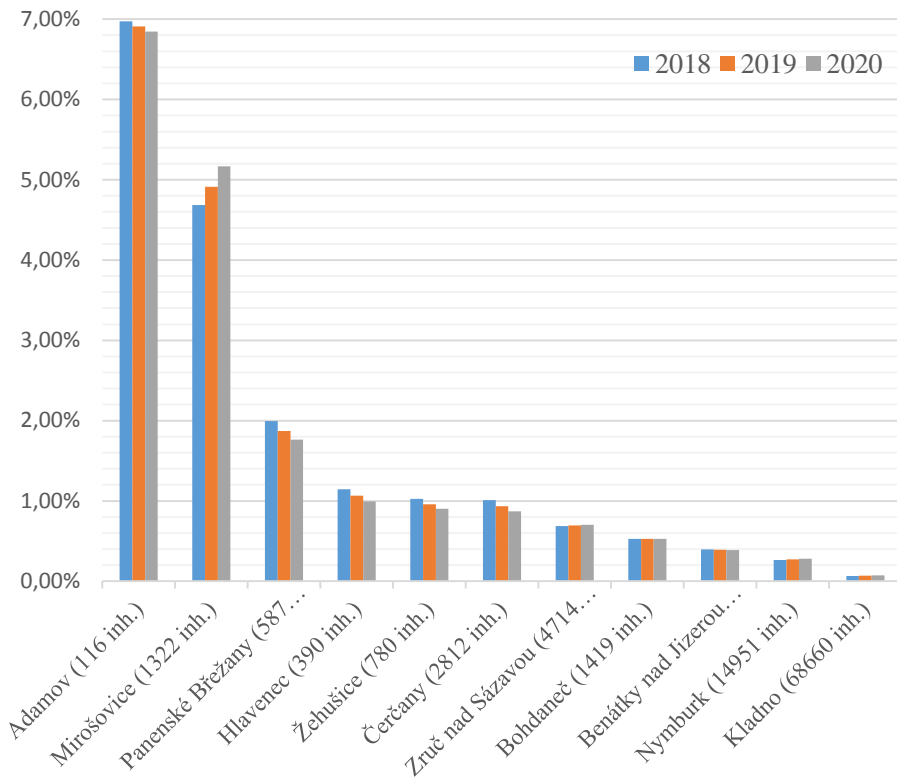
Source: Authors, Ministerstvo Financí ČR (Ministry of Finance of the Czech Republic)

The results of the performed estimation unambiguously point out that the GDPR expenses, especially for small and medium sized municipalities in the Czech Republic, have a massive impact. This matches the well established pattern that generally smaller private and public law subjects have a lower readiness to introduce and carry out innovative projects and modern technology measures (Vokoun, 2017). Namely, in the selected sample the expected share of the GDPR expense on the total revenue reaches from 0.06% to 7%. Intentionally, the municipalities are ranked in Figure 1 according to the resulting share of the GDPR expenses of the revenue and it is clear that the mandatory GDPR policy will have the biggest impact on small municipalities (with the exception of the municipality Mirošovice). Larger municipalities, especially big towns, have bigger budgets and so one-time introductory GDPR expenses do not take such a big share of the municipal budget. This might lead to the misleading impression that the introduction, implementation and maintenance of the GDPR measures have an insignificant impact on such municipalities.

In contrast, municipalities with a population under 500 inhabitants are facing the possibility (if not certainty) that the GDPR expenses will take 1% or more of the entire municipal budget. Naturally, the smaller municipality and smaller the budgets, the bigger the share and impact of the GDPR and the GDPR expenses. Despite the

advertised grouping of small municipalities in order to work together and to so use the synergy effect vis-à-vis the GDPR (CATV, 2018a; CATV, 2018b), still the share will be up to 7% (village Adamov with 116 inhabitants). In the case of not grouping, the share will be even higher. However, even the prognosticated forecast share of the GDPR expenses of municipal revenue in the extent 1-7% is very high and can cripple the municipal budget and impair the satisfaction of municipal projects and priorities, such as the infrastructure development. However, the potentially negative impact cannot be overlooked even in the case of bigger municipalities with a smaller share of the GDPR expense of the total revenue. Indeed, small municipalities will receive perhaps the hardest hit by the introductory costs, while larger municipalities will rather take the hit in the following years, because they have a lot of (municipal) establishments and institutions which will have to observe the GDPR. Hence, the less than 1% share of the GDPR expense of the municipal budget might look as if it were insignificant, but it needs to be added that all the ensuing years will bring GDPR observance cost to be paid by many subjects existing within big municipalities. Logically, these expenses will be covered by funds which should otherwise be spent on needed municipal projects organized by these subjects. Thus, the prognosis about the significant negative impact is strongly observed for first year regarding small municipalities and for consecutive years regarding large municipalities.

This constitutes a good foundation to perform a dynamic forecast of the prognosis about the share of the GDPR expenses of municipal revenue. The forecast time-span was due to the length of the timeline of the primary collection of data extended to the highest affordable limit, i.e., three consecutive periods – years 2018, 2019 and 2020. For the created mid-term expectations, dynamic extrapolation methods were employed. They facilitated the estimation of the probable evolution of municipal revenues during the set time period while observing the highest level of the statistical cogency. At the same time, and along with the above mentioned, the described methods allowed to perform an estimate of necessary expenses for the GDPR policy, while for the 2nd and 3rd year the share of the necessary primary investment expenses for the IT infrastructure was reduced. Simultaneously, with the increasing size of the municipality, there was done an increase of expenses for the management and administration linked to the GDPR due to the expected increase of the number of transactions, institutions and even unit prices for the management of involved expenses. The results of this estimation are demonstrated by Figure 2.

Figure 2. Share of GDPR expenditure of municipal income (development estimate)

Source: Authors, Ministerstvo Financí ČR (Ministry of Finance of the Czech Republic)

Based on the presented results of the performed forecast (see Figure 2), one can conclude that the extent of the quantified share value confirms the previous hypothesis and the GDPR expenses will have an increasing trend in the case of bigger municipalities. Sadly, the results point out that the share of GDPR expenses of municipal budgets will not decrease significantly over time, i.e., GDPR costs will not drop dramatically in years following the first year of the huge introductory investment. Hence, in sum, the share of the GDPR expenses on municipal budgets will lightly decrease by 0.1% - 0.2% in the case of small municipalities, and lightly increase by 0.01% - 0.05% for large municipalities.

Conclusion

The GDPR presents an opportunity to break down borders in data protection laws and scholarship (Kuner et al., 2017). The very recent entry into force of the GDPR provides the first legal reference framework for the implementation of a true culture of privacy,

and the protection of personal data and normative compliance in the EU (Martínez-Martínez, 2018). The stated reasons for the introduction of the GDPR appear positive and well-meant and the implied compliance risk as appropriate (Gellert, 2018). The protection of individuals and their privacy, the recognition of the importance of data and concerns regarding the single digital market are legitimate and important. However, it does not imply that the GDPR, its implementation and maintenance have only a positive side and that the GDPR legal unification is truly real, but quite the contrary (Martínez-Martínez, 2018). Undoubtedly, the GDPR expands the obligations of data controllers and processors and brings changes to the relationships between IoT stakeholders (Lindqvist, 2017) in a rather challenging and partially unclear context (Hert & Papakonstantinou, 2016).

The twofold goals of this paper have been met – selected problematic aspects of the GDPR and its implementation, in particular for Czech municipalities, have been identified, forecast and analyzed and (ii) recommendations about how to reduce, or even avoid, their negative impacts, have been proposed. Hence, the three objectives were satisfied by confirmation of H1 pointing to the dark side of the GDPR, by confirmation of H2 about the lack of readiness of municipalities and by the presentation of recommendations.

The performed case study and the forecast estimation reveal the dark side of the GDPR which entails not only the ambiguousness of the very wording of the GDPR and the discrepancy between its national implementations (Custers et al., 2018), but as well the direct information asymmetry and necessary expense issues. At the same time, it cannot be denied that the GDPR is a big opportunity for an enhanced co-operation (Barnard-Willis et al., 2016), the involvement of modern technologies (Lindqvist, 2017) and generally an impulse to push the EU into the era of the 4th industrial revolution (Martínez-Martínez, 2018)

Namely, the performed case study, along with questionnaires, informal interviews and field observations, clearly confirmed both grim hypotheses in the context of Czech municipalities. Firstly, Czech municipalities have low awareness of the exact content of the GDPR regime, and this even despite their efforts, and struggle with several features, such as the DPO (H1). Secondly, these municipalities are not yet prepared for the GDPR and even do not know how they could be (H2). However, they all pragmatically came to the same conclusion, as already partially presented in the foreign academic press, i.e. that the compliance with the GDPR demands substantial financial and human resources, training of employees and guidance (Tikkinen-Piri et al., 2017). Thus, some of them have already allocated resources in their budgets for the next few years for “GDPR”.

The forecast estimate is naturally limited and threatened by speculative features, i.e. a further research and data is needed to get more robust data leading to a stronger forecast estimation. Nevertheless, the already achieved outcome proposition emphasizes that the GDPR and the implementation of its requirements are neither obvious nor easy nor inexpensive. The foreign study provides certain indices and the performed Czech forecast estimate regarding various sizes of municipalities confirms that the expenses for the implementation and maintenance of necessary GDPR measures will represent a signifi-

cant charge for municipal budgets. The performed calculation shows that, even in the case of cost minimalization by grouping together of municipalities, the minimal annual GDPR expense reaches CZK 40 thousand even for the smallest municipalities. For mid-size and large municipalities, it reaches even CZK hundred(s) of thousand(s). If secondary expenses for the implementation of GDPR measures are included, then the entire GDPR cost for just Czech municipalities exceeds CZK one billion during the 1st year of the application. This constitutes an additional, relatively significant, charge which probably will have to be compensated for from the state or EU budget. At the same time, the performed case study and analysis of Czech municipalities reveals that, in the short and mid-term perspective, GDPR expenses will be significant and have a strong negative impact, in the 1st year especially for small municipalities and over time even for mid-size and large municipalities. Namely, the “price” for the introduction of the GDPR measures and their 1st-year observance can take up to 7% of the municipal budget of small communities and over time will take an ever-growing share even of the budgets of bigger municipalities.

Hence, at least from the accounting point of view, the GDPR is a clear expense for municipalities which often financially struggle and desperately attempt to have a balanced, and not a deficit, budget, as witnessed by the current status of the progress of accounting harmonization in the Czech Republic (Jindřichovská & Kubičková, 2016; Jindřichovská & Kubičková, 2017). This prompts conclusions about the dark side of the GDPR and the perception of the GDPR as another bureaucratic red-tape and expensive instrument from above. Well, the GDPR might have very bright aspects, especially from the above and long-term perspectives, become a great opportunity (Zerlang, 2017) and a leverage for the smart, sustainable and inclusive growth so vigorously called for by Europe 2020. However, many of its subjects, such as controllers and processors from the public sphere, perceive, and will perceive, its dark side (Turečková & Nevima, 2016). The compliance with something unclear, complex and demanding is expensive and, at the same time, the clock is ticking, there is not enough time remaining and the price for noncompliance is harsh, strict and heavy. These subjects, including Czech municipalities, understand that they have to “bite the bullet” and, in addition to financial resources, make other efforts. As already suggested, timely preparation is absolutely pivotal with respect to the GDPR (Krystlík, 2017). Similarly, it will be critically important to closely monitor the practice of authorities with the interpretation, application and enforcement of the GDPR, especially the (un)willingness to impose draconian sanctions which potentially are possibly impossible based on the GDPR.

Recommendations can be presented in this deplorable context. First, the EU should listen to the bottom-up voices, provide very clear guidance, for example via an Internet platform with clear advice in all languages of the EU member states, and offer a leniency period and support. Second, each EU member state should engage in an open dialogue with subjects of the GDPR, provide resources (financial, informational, educational and other) to help them to reach compliance as soon as possible and send feedback and suggestions even to the EU. Third, Associations and other institutes should pool their resources, and, via their www pages or other Internet platforms, offer conventional as well as online tutoring and advising. Fourth, the public service entities would definitely benefit from a public procurement and central “sharing” of DPOs, perhaps based on annual renewal contracts allowing canceling this type of service when these entities feel ready to perform “DPO in-house”. Fifth, each subject of the GDPR should

genuinely work on increasing its awareness and information sharing with other subjects and implement the acquired knowledge in order to boost the GDPR compliance without any delay. The EU and EU member states should appreciate it and include it in their leniency programs. Europe 2020 and the GDPR should be here to serve and help Europeans, not to punish them by bureaucratic demands. After all, the EU wants to increase its legitimacy and in order to do this it needs to bring some improvement to the dark sides of the GDPR.

Disclosure statement: No potential conflict of interest was reported by the authors.

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