Legal challenges of Robotic Process Automation (RPA) in administrative services

Sascha Alpers, Christoph Becker, Maria Pieper, Manuela Wagner, Andreas Oberweis
FZI Forschungszentrum Informatik, Karlsruhe, Germany
{alpers, cbecker, pieper, wagner, oberweis}@fzi.de

Abstract.
Digitalization and automation find their way into administrative authorities. Several German laws (i.e. EGovG, OZG) oblige federal and regional authorities to make their administrative services accessible via electronic access points respectively an administrative online portal. This process is still ongoing and poses a tough challenge because various pre-existing software systems need to be either integrated or replaced in the worst-case scenario. Both options are time-consuming and expensive. Hence, in this paper, we will present an approach to increase the degree of automation of administrative processes by using a robotic process automation (RPA) software bot combined with artificial intelligence methods. The aim of this approach is to improve the integration of different software systems, which often still have to be operated by human employees. RPA is increasingly used in this case because existing standard software does not have to be extended by new interfaces. The use of RPA increases compliance with rules and also increases information security. Furthermore, we will give a brief overview of upcoming research questions stemming from the legal perspective with regard to digitalization, automation up to autonomization of administrative tasks in Germany.

1 Motivation

By 2020 all authorities have to make their services electronically accessible (Sec. 2 EGovG). Furthermore, the German "Onlinezugangsgesetz" (OZG) requires all authorities to make their services accessible for all citizens via an online access portal. In order to do so, all administrative services need a digital citizen interface that is integrated into a specific online portal. To generate a good citizen experience more than just the interface of the administrative process needs to be digitalized. Thus, the term "eGovernment" refers to the execution of processes of public decision-making and service provision throughout the public sector (politics, government and administration) using modern information and communication technologies [1]. A further development of this approach can be labelled as "Smart Government" encompassing automated information gathering, automated decision-making and

automated execution of this decision [2]. Implementing technological evolution in administrative processes poses both technical and legal challenges.

Current research approaches focus on improving inter-connectivity, automation and autonomization on the basis of various technologies [3]. Often administrative units use isolated IT solutions that have grown over decades and prevent processes from interacting with new modules. A fundamental revision of all individual modules is time-consuming and costly. Besides, it would have to be repeated with each technological innovation step. Therefore, efficiency can be increased by using autonomous systems to operate interfaces that were previously managed by humans. Administrative specialists can thus concentrate on the essential administrative tasks. In principle, the whole administrative process could be automated, from online application by the citizens to granting and execution by the official bodies, carried out by artificial intelligence. Digitalization[1] and automation of the public sector must, however, take place within legal boundaries. Legal requirements differ according to country and federal states. This paper focuses on the German perspective.

2 Automation Methods

Robotic Process Automation (RPA) is a method to automate recurring activities of screen work. A software-based non physical bot is programmed or trained to perform repetitive tasks automatically [4]. An RPA software bot can overcome the limits of different IT applications without creating new interfaces in existing applications for cross-application processes. Instead, an RPA uses the existing User Interfaces (UIs) of different systems to collect data, processes them according to defined rules (e.g. transformation of value ranges, ...), and then enters them into (other) systems using the UIs. In other words, an RPA interacts with existing IT applications as humans would, and is itself just another application. RPA thus functions as a new interface to legacy systems, which in turn can be used by a wide variety of applications. This already describes a significant advantage of RPA: It is not necessary to adapt existing applications, the effort, e.g., for the creation of process interfaces between applications is eliminated. In this sense, RPA is a non-invasive method of automation. This is further strengthened by the fact that there are existing RPA solutions that can be easily trained and adapted without the use of programming languages. An overview of existing RPA Software agents is given by [5]. Classic RPA does not contain artificial intelligence, but processes structured data according to defined rules. However, RPA can also be combined with artificial intelligence methods so that RPA agents can understand natural language, interpret unstructured data or learn processes themselves.

[1] We use the term Digitalization because it means more than just digitisation. For example, scanning a filled out paper based form and work with the image or PDF is just digitisation. However, digitalization is more, it means in the example the generation of structured data from the paper form (e.g. each filled out form filed get its own data field and the text is recognised using OCR).

3 Legal requirements and constraints for automation in administrative processes

Digitalization of administrative processes underlie legal constraints and design requirements stemming from different fields of law. In this paper German administrative law and European data protection law should be emphasized.

3.1 Administrative Law

The field of activity of the administration is not limited either objectively or by the manner in which it acts [6]. Digitalization and automation can make administration more efficient, leaving time for cases that need additional attention and reducing errors overall. On the downside challenges like traceability, risks of subconscious behaviour modifications (esp. nudging) and ensuring there is no unintended bias in AI systems are yet not fully solved [7].

In this context AI can support or even replace officials. Software solutions automate typical routine tasks. In case of automated decision making one must differentiate between bound decisions, where automation mostly affects the verification of the prerequisites for a decision provided by the applicant without any scope for discretion, and decision-making forms that require individual considerations within a margin of judgement. According to Sec. 35a VwVfG (Administrative Procedure Act) an administrative act may be adopted entirely by automatic means, provided that this is permitted by law and that there is neither any discretion nor any margin of assessment. So, the complete automation of the administrative procedure is initially prohibited by law and depends on an explicit authorization by legal regulation [8, 9, 10]. Cases of automated decision-making are legally enabled for example in tax law by Sec. 155 para. 4 AO (German Fiscal Code), provided that there is no reason to process the individual case by public officials. As such a legal provision is necessary to regulate automated administrative acts, also the ban on automation of discretionary decisions can be bypassed and therefore functions only as a warning [9, 10]. For clarification a set of minimum requirements for designing legal provisions concerning digitalization and automation would be preferable, which requires further research.

3.2 Data Protection Law

Automated individual decision-making can pose a risk for fundamental rights. Therefore Art. 22 GDPR grants a right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her. If such decisions are legitimized by consent, contract or law, suitable measures to safeguard the data subject's rights and freedoms and legitimate interests shall be implemented. As minimum standards the right to obtain human intervention, to express his or her point of view and to contest the decision should be considered. Both administration law and data protection law address fully automated decision-making, disregarding potentially similar effects of

decision-making support by AI as officials may tend to rely on the results of supposedly neutrally obtained calculation processes without verifying them properly [8]. Furthermore, digitalization requires effective security requirements as confidential data must be specially protected against access by third parties. To secure confidentiality automated data processing by machines seem to be regarded as less interfering with privacy rights, than notification of personal data by humans. Sec. 5 para. 2 BSIG (Act on the German Federal Office for Information Security) allows the BSI to evaluate data automatically and only when AI has detected an anomaly the data may be processed by humans.

These examples show the challenges imposed by the use of automation options in order to improve the activities of the public sector, but there is still research necessary until AI can reach its full potential in administration processes.

4 Related Work

Research regarding the digitalization and automation of administrative processes focus on various administrative services ranging from automation of traffic signals and traffic control to automated identification processes (easyPass). On the one hand, legal challenges are at the scope of the research. Those challenges include questions such as "Can discretionary decisions be automated?". There are several research facilities which focus on legal challenges of Smart Government, for example The Open Government Institute Uni Freiburg [11] and the German University of Administrative sciences Speyer [12], the SHI Stein-Hardenberg Institute [13] and the National eGovernment Competence Centre [14]. Since 2010 the Metropolregion Rhein-Neckar is a model region for cooperative eGovernment [15].

On the other hand, there are still technical challenges such as "How can we assure fairness and discriminatory freedom" from a technical point of view. IBM and Accenture use the RPA approach for transforming administrative processes [16, 17]. They also combine RPA methods with machine learning. IBM recently released the open source IBM AI Fairness 360 tool-kit which is supposed to support developers to exclude bias in AI [18]. It still needs to be analysed, whether this tool-kit could also be used to ensure fairness in administrative processes.

5 Conclusion

RPA is a useful method for eGovernment and the automation (at least in the expectation of many stakeholders eGoverment is not only about digitalization but also automation). Nonetheless, there is further potential to increase the degree of automation by using machine learning methods. This higher degree still needs to be researched with regard to technical and legal feasibility due to the multitude of administrative processes and services and the general legal challenges regarding AI both on regulatory and ethical level.

Bibliography

[1] Handreichung „Datenschutzgerechtes eGovernment“, für die Konferenz der Datenschutzbeauftragten des Bundes und der Länder, p. 3.
[2] Albrecht, F.C. In Hoeren, T., Sieber, U. Holznagel, B. (eds), Handbuch MultiMedia-Recht, Part 28, eGovernment, no. 4.
[3] Djeffal, C.: Leitlinien der Verwaltungsnovation und das Internet der Dinge. In: Klafki, A., Würkert, F., Winter, T. (eds), Digitalisierung und Recht, 2017, p. 83-106.
[4] Willcocks, Leslie P., Mary Lacity, and Andrew Craig. "The IT function and robotic process automation." (2015).
[5] Issac, Ruchi, Riya Muni, and Kenali Desai. "Delineated Analysis of Robotic Process Automation Tools." 2018 Second International Conference on Advances in Electronics, Computers and Communications (ICAECC). IEEE, 2018.
[6] von Alemann, F., Scheffczyk, F. In Beck Online Commentary BeckOK/VwVfG, 42. Ed. 1.1.2019, § 35 no. 25.
[7] Hoffmann-Riem, W.: Verhaltenssteuerung durch Algorithmen – Eine Herausforderung für das Recht. In Archiv des öffentlichen Rechts 2017, p. 1-42.
[8] Djeffal, C.: Künstliche Intelligenz in der öffentlichen Verwaltung. In NEGZ Short Study No. 3, 2018.
[9] Prell, L. In Beck Online Commentary BeckOK/VwVfG, 42. Ed. 1.10.2018, § 35a no. 11-14.
[10] Stelkens, P. in Stelkens, P., Bonk, H. J., Sachs, M. (eds), 9. Ed. 2018, VwVfG § 35a no. 30-37.
[11] https://www.zu.de/institute/togi/index.php, last accessed 2019/07/27.
[12] German University of Administrative Sciences Speyer, http://www.uni-speyer.de/de/lehrstuehle/martini/forschung.php, last accessed 2019/07/25.
[13] SHI Stein-Hardenberg Institute, http://shi-institut.de/, last accessed 2019/07/25.
[14] The National eGovernment Competence Centre, https://negz.org/, last accessed 2019/07/25
[15] Metropolregion Rhein Neckar, https://www.m-r-n.com/verwaltungsvereinfachung, last accessed 2019/07/25.
[16] https://www.ibm.com/de-de/industries/government/digital-reinvention-workshop, last accessed 2019/07/25.
[17] https://www.accenture.com/t00010101T000000Z__w__/de-de/_acnmedia/PDF-54/Accenture-Kunstliche-Intelligenz-RPA-OV-2017.pdf, last accessed 2019/07/25.
[18] https://www.ibm.com/blogs/research/2018/09/ai-fairness-360/, last accessed 2019/07/25.