Social Procedures and Artificial Intelligence: Opportunities and Barriers in Slovenia and Beyond

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Abstract: Today's complex and unpredictable social conditions accelerate the digital transformation of public administration, which results in the introduction of innovative artificial intelligence mechanisms to conduct administrative procedures. Automated decision-making and the use of algorithms to detect welfare fraud ensure efficient, fair, and transparent redistribution of public funds while upholding the constitutional principle of the rule of law shielding vulnerable populations from arbitrary actions of authorities. However, for automation to become legitimate, (administrative) empathy – the ability to understand parties' life situations from multiple perspectives – is crucial, particularly given the specific nature of social procedures. In Slovenia, which has a population of 2 million, approximately 1.8 million social procedures are conducted each year, primarily by social work centres (SWCs). From the perspective of good governance principles, the rationale for this study is to identify opportunities and possible drawbacks of introducing artificial intelligence mechanisms into social procedures in Slovenia. The study critically analyses some fraud-flagging welfare projects and selected automated decision-making welfare solutions. Moreover, a focus group on SWC work was conducted whose results are compared with those obtained in a secondary analysis of statistical data on informational calculations regarding social rights. Finally, the study highlights the pros and cons of using artificial intelligence in social procedures, proposing much-needed trade-off measures in the further development of social procedures in Slovenia and other countries.

Points for Practitioners: Given the rapid digital transformation in public administration, it is crucial to analyse the potential negative impacts of its implementation in social procedures. However, there is currently a dearth of research on this topic in Slovenia and beyond. Therefore, this study aims to fill this research gap and provide valuable insights for scholars, practitioners, and public policy makers in the field of social welfare and the wider public sector, as well as for developers of artificial intelligence solutions not only in Slovenia but also across the wider European administrative space.

Keywords: social procedures, digital transformation, artificial intelligence, Slovenia.

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1 Introduction

Social procedures, which in Slovenia are mainly carried out by social work centres (SWCs), represent a key component of the administrative system. Annually, approximately 1.8 million decisions are issued, making this system the second-largest administrative area in terms of decisions issued. SWCs in Slovenia operate in the public interest, providing basic social security to materially deprived individuals and marginalised social groups. The latter often include vulnerable people with specific needs and constraints, such as limited access to digital tools and services as well as limited digital skills (Ranchordas, 2022). In an effort to improve efficiency and effectiveness, some SWCs have been implementing algorithmic decision-making solutions, such as the SCW Information System also known as *e-Sociala* (e-Welfare) (Babšek, Kovač, 2021).

Welfare state systems in developed countries are among the most regulated administrative systems globally as they seek to implement constitutional principles of the rule of law and welfare state (Auby, 2014). Given international and constitutional guarantees and convergence in global business, administrative/social procedures are essential for achieving public law objectives, which is a common point of development in the EU and beyond (Galetta, 2015). Crucial in such regard is balancing the protection of the public interest and parties' rights, which is also a key guiding principle of the Slovenian General Administrative Procedure Act (GAPA). Administrative procedures are by necessity law-driven and, to a certain extent, rigid. Thus, finding the right balance between the determinacy of rules and innovative responsiveness to societal needs, including digitisation and the use of artificial intelligence (AI), has been a topic of study for a long time. The overall goal is to ensure that administrative/social procedures serve their intended purpose, which is to implement substantive rights. As a result, the importance of administrative procedures and their regulation is increasing, which also applies to social procedures in Slovenia (Kogovšek Šalamon, 2019; Kovač, 2022). In such context, reducing formalisation in social procedures by means of e-applications and e-delivery – possibly even without qualified identification of the parties, which goes to the benefit of SWCs and other authorities – is questionable as it could rebound on vulnerable applicants of social rights like a boomerang under the guise of de-bureaucratisation and digitisation.

The digital transformation of public administration, which is also typical of the EU (Misuraca, 2020), should not only focus on technological aspects but also address fundamental value-based and broader systemic aspects of the national and European administrative space. This should result in a better, more efficient, trustworthy, and user-oriented public administration. However, digitisation, including the use of AI and algorithmic administrative decision-making, often fails to consider the specificities of social affairs and vulnerable groups. Automated administrative decision-making using networks of algorithms and machine learning as AI elements enables decisions to be made about and for the parties to the procedure based solely on automated data processing. In these procedures, (administrative) procedural law does not act as a barrier to the introduction of new AI solutions. Instead, it enables, in the pursuit of fundamental procedural guarantees, more up-to-date, evidence-based, and accountable decisions by the authorities, reflecting the democratic nature of society (Coglianese, 2021).

Therefore, the research question of our study is which AI solutions can be introduced in social procedures in Slovenia and beyond while ensuring the necessary measures are taken for their implementation. We aim to explore the potential benefits and downsides of AI in social procedures, including increased speed and savings, more objective data processing, green transition, personal data protection, potential abuse, stealth privatisation and deregulation, and job losses. The goal is to find a balance between efficiency and freedom. To achieve this, we conducted a focus group with non-governmental organisations (NGOs) collaborating with SWCs, with an emphasis on empathy in their work with vulnerable populations.

2 About Digital Transformation in Social Affairs in Slovenia and Beyond

In the past decade, the digitisation of public administration has been viewed as a tool for development and response to changing community needs. The digital transformation in administrative procedures encompasses various mechanisms, including basic e-communication – i.e. internally between authorities and staff, and externally with the users – and the use of AI (Misuraca, 2020). In this context, different stages of digitisation maturity can be distinguished, ranging from e-government to open and smart government and holistic transformation. In the EU, Slovenia – with 1.7 million people out of a population of two million having access to the internet and other necessary skills – is seen as having a

comparative advantage in developing digital policies more rapidly and agilely. However, the cooperation of all ministries is crucial to achieving a comprehensive digital transformation. Separate systems such as the SWC Information System (SWC IS) are thus questionable even at a systemic level.

The integration of AI through sector-specific laws has resulted in some suboptimal solutions, as exemplified by the SWC IS. Rather than providing support, the system has enabled violations and systematically bureaucratic, sometimes even illegitimate, decision-making by SWCs since its introduction in 2011. The SWC IS determines procedural actions and their consequences beyond or against the law, and to mitigate this, the line ministry often proposes "adjustments" to the interpretation of the applicable legislation (Kovač, 2022). However, if the system of values, rules, and stakeholder relations is inadequate, digitisation can result in technocratism rather than improvement. This is particularly true in social procedures where beneficiaries are entitled to the fundamental and universal human right of access to the welfare state, intended for all those who, for objective reasons, find themselves in social distress (Babšek, Kovač, 2021).

Part of digitisation is the use of AI, primarily through automated administrative decision-making. AI enables technical systems to perceive the environment, process what is perceived, and solve problems according to defined goals while adapting their actions (Wischmeyer, Rademacher, 2020). In social procedures, AI ensures automated, objective, and evidence-based decision-making, as well as an empathetic understanding by administrative authorities for treating people with dignity and actively helping them enforce their rights (Ranchordas, 2022). However, while questioning the practical role and implications of the introduction of digital technologies in public governance, moral and ethical issues and philosophical dilemmas associated therewith are often overlooked (Larsson, Haldar, 2021). To avoid these issues in public administration practice, good governance principles should be pursued that introduce empathy into automated administrative decision-making as the one aspect of the interpersonal interaction between administrative authorities and citizens that enables the highest possible well-being of individuals (Coglianese, 2021).

An AI system is a type of hardware that is designed to make predictions, recommendations, or decisions which influence the environment with which the system interacts (European Commission, 2021; Wischmeyer & Rademacher, 2020). To address potential abuses of AI, in

the spring of 2021 the European Commission developed an AI Act, which includes a comprehensive preamble and 85 articles. The AI Act emphasises the proportionate use of AI in different areas of life through a pyramidal system. According to the AI Act, an "artificial intelligence system" means software that is developed with one or more of the techniques and approaches listed in the Regulation's Annex and can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environment they interact with (Article 3, point (1)). For AI systems to be sustainable, particularly in the public sector, e.g. education or social services, they must follow principles such as protecting human autonomy, ensuring transparency and understandability, ensuring accountability, ensuring inclusiveness and fairness, and promoting sustainability. However, it is crucial in such respect to avoid systematic interference with privacy to prevent a society of surveillance that is contrary to EU values. In a collision between efficiency and freedom, freedom should prevail. It is also essential to raise awareness of possible stealth deregulation, privatisation, and abuse. AI should thus be approached step-by-step, by defining the objectives of the AI system, determining the necessary and appropriate data to be captured, embedding the proven algorithms and, finally, providing for continuous monitoring.

The EU is currently working on a unified regulatory framework to establish a minimum standard of social principles across all countries. This is crucial as the practical implications of AI integration vary greatly between countries. Particularly notorious in such regard is the case of the Netherlands and its SyRI system, set up to enable automated control of recipients of social benefits to avoid illegal entitlements and promote transparency. However, when the SyRI was audited between 2011 and 2020, it was found that it had mistakenly labelled around 26,000 recipients of child benefits as fraudsters. The accusations, mainly unjustified, were based on a discriminatory algorithm that weighed beneficiaries of certain races, such as Africans, unfairly. This type of discrimination is in direct conflict with the core values of fair procedure and proper algorithmic decision-making. As social security is one of the pillars of European society, discriminatory algorithms directly undermine the fundamental values of the rule of law and the welfare state.

This, however, does not mean that AI is, per se, non-democratic and solely negative. Digitisation generally brings a range of benefits, especially to vulnerable groups. The key is to seize the opportunities that digital technology brings. The right way to achieve this is by

building an empathetic social system within the modern digital state (Ranchordas, 2022). Several countries have already started introducing systemic digitisation with a proportionate weighing of the benefits for public administration and citizens. Estonia is a notable example of this approach, where sustained efforts are being made to develop digital skills, equipment, and automated acquisition of child benefits through digital identity. Despite being a small country, Estonia has been successful in leveraging a combination of factors such as an appropriate constitutional and legal framework and internet accessibility, which allowed it to focus on institutional change rather than individual initiatives (Ranchordas, 2022).

A problem similar to the one in the Netherlands also arose in Slovenia concerning the automated calculation of social entitlements, specifically child benefits (Babšek & Kovač, 2021). In 2018, following the model successfully used in taxes, the planned SWC reform also envisaged informational calculation of recurrent social transfers. After several delays and more or less justified fears, it was finally introduced in 2021. The informational calculation applied to child benefits for almost 200,000 beneficiaries amounting to over EUR 250 million, social assistance for over 60,000 people amounting to almost EUR 300 million, and supplementary allowances for over 20,000 beneficiaries amounting to just over EUR 42 million. However, this solution was not fully integrated into the respective laws or the SWC IS. This partial approach proved problematic when a massive error occurred in the payment of child benefits, state scholarships and reduced kindergarten fees between April and September 2021, namely for those employed in healthcare and social welfare who had been receiving non-taxable allowances during the Covid-19 pandemic (Kovač, 2022). This error was due to a failure in the links between SWCs and the Financial Administration of the Republic of Slovenia, resulting in about 20% of beneficiaries receiving underpaid benefits. As it was not an error of legal nature and thus did not constitute grounds for applying a legal remedy, there was no basis under the GAPA to interfere with over 5,000 final decisions. Instead of amending the social laws with the proven solution borrowed from the tax field at least to prevent future excesses, the ministry of social affairs tried to find a way around the problem without any legal basis or upgrading the SWC IS. However, a welfare state can only be established based on rules and IS that develop in parallel. The limitations of the IS cannot be used as an excuse for violating decision-making standards. Instead, AI should help vulnerable groups assess their social rights through individualised and confidential information and SWCs taking a proactive approach towards those who may not be able to assert their rights on their own.

3 Empirical Data on the Use of AI in Social Procedures in Slovenia

Slovenia has 16 SWCs that conduct various social procedures. Before 2018, there were over 60 SWCs, but efforts to streamline and unify services led to a comprehensive reorganisation, which also included digitisation. Hundreds of thousands of people are involved in these procedures, with the SWCs alone dealing with 1.8 million cases annually, in addition to cases handled at other social institutions or administrative units. Given the vast amount of data involved and the prevalence of simple cases where rights are regularly recognised, one logically sees the potential for the use of AI in the field of social affairs (Babšek, Kovač, 2021). To determine whether existing arrangements, especially the implementation of digitised social procedures, are effective in practice, an empirical study was conducted in 2022. Initially, the goal was to identify representatives of social transfer beneficiaries involved in digitised administrative decision-making. However, due to a large number of beneficiaries and concerns about objectivity and confidential data protection, the study instead used the focus group method (for more information, see Wilkinson, 2011).

To ensure the inclusion of credible representatives concerned with this topic on a daily basis and familiar with the problems faced by specific vulnerable groups, the focus group consisted of representatives of five Slovenian NGOs operating in the social field. According to theory (Allen, 2017), this approach facilitates the inclusion of marginalised groups and the collection of complex data in a broader context, while the understanding of the context in which data is collected enables an easier and more holistic interpretation thereof.

The focus group was held in the autumn of 2022 as a daily workshop with pre-submitted materials. The participants included representatives from the Association for the Homeless *Kralji ulice* to cover homelessness, material deprivation, and social exclusion; the Association for Nonviolent Communication (*Društvo za nenasilno komunikacijo*) to cover domestic violence and social and parenting skills training; *Šent* – the Slovenian Association for Mental Health to cover mental health problems and social inclusion; the Slovenian Association for Persons with Intellectual Disabilities *Sožitje* to cover social inclusion and empowerment of persons with mental disabilities; and the Slovenian Association of Friends of Youth (*Zveza prijateljev mladine Slovenije*) to cover material deprivation and social exclusion, particularly among children. This type of focus group ensured that the sample of

the parties in SWCs procedures was representative, while also protecting personal data and ensuring objectivity, integrity, and the final validity of the results.

Based on a pre-prepared semi-structured questionnaire, representatives of the above organisations gave a qualitative assessment, which was followed by a substantive discussion among the participants. In particular, the following aspects about social procedures handled by the SWCs emerged in the discussion, which we define below as (i) general characteristics (elements related to digitisation) and (ii) the use of AI in the field of social affairs.

In general, there was a high degree of consensus among the participants on the following statements, consistent with previous research (Babšek & Kovač, 2021; Kogovšek Šalamon, 2019):

- Social procedures are designed to address particularly vulnerable groups.
- There is no uniform practice among SWCs in handling the same types of cases.
- Officials lack a professional approach, devote too little time to the users, and rely too much on administration and formalistic application of rules.
- The procedures are relatively difficult for the parties, especially due to the lack of personal contact and support for uninformed parties.
- Treatment is fragmented.
- Delays in determining eligibility for benefits are a common practice.

The focus group of NGOs' representatives identified several aspects of digitisation and the role of AI in social procedures that intersect with those reported for the EU in the AI Act (European Commission, 2021, cf. Masaruca, 2020):

- Digitisation and de-bureaucratisation should not diminish but emphasise individualisation and empathy. The system should not be built on alleged abuse, even if such must indeed be curbed.
- Technological solutions should be tailored to the content.
- Automated decision-making should ensure greater availability of social workers to the users.
- Pre-drafted model acts should contain relevant and comprehensible information on the rights.
- AI should speed up procedures, particularly the recognition of relatively simple and continuous rights.

– Ongoing technological support should be available for the operation of the SWC IS.
– An analysis of how to correct massive errors by law and effective AI is necessary to avoid or correct them.
– The IS and the legal framework must be aligned.

The results of the focus group were compared with the findings of a secondary analysis of administrative statistics on the informational calculation of social rights (see Babšek, Kovač, 2021) over a four-year period between 2018 and 2021, following the reorganisation of SWCs. The reorganisation aimed to bring about more efficient and uniform social procedures. Table 1 shows a downward trend as regards cases solved after the expiry of the time for decision and pending cases following SWCs reorganisation.

Table 1: Selected indicators of administrative statistics in SWCs in 2018–2021
(source: Ministry of Labour, Family and Social Affairs)

Year	***Cases solved after the expiry of the time for decision, as a % of total cases***	***Appeals, as a % of total cases***	***Appeals under laws on periodic social rights based on informational calculations compared to total cases at SWCs***
2018	8.8	2.2	1.1
2019	8.3	2.7	1.3
2020	5.6	2.9	1.4
2021	5.6	2.9	1.3

On the other hand, appeals in administrative procedures increased, which may reflect the subjective (lack of) confidence of users in the work of the SWCs. The share of appeals against SWCs decisions concerning social benefits is lower than the share of all appeals filed and has also been more constant over the period in question. Since AI solutions are used more in the assessment of social benefits than in other administrative procedures, it is indeed possible to speak, at least to some extent, of their positive impact on the legality of decision-making on social benefits.

Table 2 below shows the results of the analysis of the statistics on the informational calculations issued in the first six months of their introduction, i.e. from July to December 2021.

Table 2: Automated procedures with informational calculation for July–December 2021 (source: Ministry of Labour, Family and Social Affairs)

Month 2021	***No. of applications generated ex officio***	***No. of informational calculations***	***Share of automated procedures***	***Share of complaints against informational calculations***
July	9,805	4,563	34.8%	2.8%
August	79,430	50,604	46.8%	2.7%
September	9,975	4,716	34.7%	2.6%
October	8,004	4,123	36.4%	2.4%
November	7,247	3,824	38.6%	2.0%
December	16,382	8,830	45.6%	1.2%
Total	130,843	76,660	average 39.5%	average 2.3%

The table shows an increase in the share of fully automated procedures in August and December, when the number of ex officio applications for decisions also increases, reaching around 45% of the total. While the share of fully automated procedures immediately after the introduction of the informational calculation may not be considered a success, the decreasing trend in the number of appeals against informational calculations is positive in terms of upholding the principle of legality and democratic regulation of the relationship between authorities and citizens.

5 Discussion and Conclusions

The use of AI in social procedures aims to not only achieve technological goals but also reduce social inequalities, encourage citizen participation, promote changes in the existing regulation, and foster more equitable social policies. This can lead to the questioning of stereotypical and discriminatory beliefs that perpetuate unjust social conditions. Therefore, digital transformation and the use of AI in social security are not merely a matter of technology but also require the government to listen to the needs of citizens and reflect on

whether to preserve the democratic framework whose principles underpin the actions of the authorities, at least in the European setting (Galetta, 2015). While AI can bring numerous benefits, it is crucial to build a balanced system that is guided by non-discriminatory algorithms and offers personalised treatment to vulnerable individuals (Ranchordas, 2022). To avoid negative consequences, there needs to be a modern culture that sees digitisation as an innovative tool for speeding up and enhancing user involvement in administrative and social affairs, rather than an end in itself. AI is particularly useful – although also dangerous given the lack of a legal framework for prior compliance assessment – in uncertain situations (Hermstuewer v Wischmeyer, Rademacher, 2020), even if machine learning, which forms the foundation of AI, and administrative law are fundamentally opposite, the former being dynamic and the latter being static.

To summarise the results of the research presented in this chapter, the following list of pros and cons emerges. This also answers the initial research question that AI in social procedures is part of the future, but it is crucial to maximise the advantages and minimise the disadvantages. In social procedures, the advantages of AI, as demonstrated by different practices, e.g. SWC IS and foreign experience (see European Commission, 2021), include:

- greater equality thanks to the objectivity of data processing and transparency, since a digitised system – if the input data and criteria are well defined – is objective and transparent, thus ensuring equality before the law;
- cost-effectiveness, increased speed of data processing, and processing savings, since social procedures – given the huge number of users involved – logically call for an automated approach.
- debureaucratisation, since it makes sense to relieve the burden on the parties, especially in the case of continuing entitlements (e.g. child benefits), through an IS that supports the collection of data already existing in official records.

At the same time, there are perceived limitations or risks related to the use of AI in social procedures, such as (cf. European Commission, 2021, Ranchordas, 2022):

- due to the lack of personal attention, vulnerable individuals are even more disadvantaged,
- setting objective criteria for automated decision-making is questionable,
- bulk processing opens up the possibility of massive errors and implies a risk for personal data protection,

- stealth deregulation and privatisation, as digitisation can be used for a purpose other than that declared,
- awareness of the limitations of inadequate systemic approaches, since the use of AI in social procedures requires – because of vulnerable groups – a particularly high level of responsibility of the authorities, otherwise, there is a risk of abuse and arbitrariness.

The bottom line is not whether AI can be used in social procedures but how to regulate its use. Digitising the social sphere requires a constant evaluation of the benefits and risks of technological solutions, coupled with a socially critical ethical discourse that examines questions of responsibility and self-limitation of power in the use of such solutions. The digitisation of social procedures is not simply a technological question, but a question of value. Empathy must be at the forefront of social responsibility, particularly when it comes to vulnerable groups in society for whom these procedures are intended.

AI is indeed the future also in the social sphere, but it does have some specific limitations. While AI offers benefits in terms of efficiency, uniformity, and objectivity in decision-making, its use must be properly regulated. Inadequate regulation and an unclear understanding of the value dimensions of digitisation can result in arbitrary interference by authorities with the rights of the parties. Considering the sensitive implications of social procedures for vulnerable groups, the use of AI should raise critical issues of communication, social interaction, community impact, inclusion, and collaborative governance. This approach will lead to digital social innovation (Steiner, 2021). Moreover, the use of AI systems should be transparent and provide an explanation to the party involved of the decision taken and the algorithms used, which is all aimed to prevent challenges to the rule of law (Wischmeyer, Rademacher, 2020). Administrative procedures cannot be purely mechanised activities as they require some degree of creative rule-making by officials when applying an abstract norm to a concrete factual situation also at the instrumental level (Kovač, 2022). In the future, AI should be an aid rather than a substitute for humans. As such, it is not to replace human decision-makers but to offer assistance in simple and recurrent administrative procedures.

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