
The Ethics of Chatbots in Public Sector Service Provision

Asbjørn Følstad

SINTEF

Oslo, Norway

asf@sintef.no

Anders Mærøe

Sem & Stenersen Prokom

Oslo, Norway

anders.maeroe@prokom.no

Abstract

The uptake of novel and potentially disruptive technologies in public sector service provision may lead to fundamental changes in how and to whom services are provided and, as such, implies the need for ethical consideration. However, public sector administrations lack the needed support to conduct such consideration in a systematic manner. In this position paper, we present an approach to support the needed ethical consideration and exemplify this by reflections on the municipality chatbot Kommune-Kari, currently implemented in more than 90 Norwegian municipalities. Implications for research and practice are suggested.

Author Keywords

Conversational agents; Chatbots; Public Sector Service Provision; Ethics.

CSS Concepts

• **Human-centered computing ~ Human computer interaction (HCI)**; *Conversational user interfaces.*

Introduction

Public sector service provision has seen a fundamental shift towards digitalization, often referred to as electronic government or e-government. This shift has been driven by uptake of emerging technology (Zhang et al., 2016), public administration's desire for efficiency and service improvement (Koskinen et al., 2020), as well as citizens' perceptions of such technology as effective, efficient, and trustworthy (Gupta et al., 2016).

The shift towards electronic government arguably has substantial ethical implications (Roman, 2015). In particular as the public sector, as a provider of democratically grounded services to which all citizens have rights, need to be particularly mindful of ethical aspects of service provision (Stahl, 2005). However, there is a lack of support for systematic consideration of the ethical implications following from uptake of novel digital technology by public sector administrations.

With this in mind, it is important to investigate the ethical implications of chatbots as a technology currently being taken up for public sector service provision. While already established as part of commercial service offerings, particularly for customer service in consumer contexts, chatbots are increasingly used as a channel of information and service provision from public sector administrations to citizens.

In this position paper, we use the case of a specific chatbot to discuss ethical implications of this technology as part of public sector service provision. The context of our discussion is the development of a framework for ethical adoption of disruptive technology in public sector administrations.

The position paper is structured as follows: First we present a brief background on electronic government, ethics, and chatbots. We then present our chatbot case – the municipality chatbot Kommune-Kari – and the context of developing a framework for ethical technology adoption. Finally, we discuss ethical implications of the case chatbot and suggest implications for research and practice.

Background

Electronic Government and ethics research

Electronic government is understood as the use of digital technology to support and improve government processes, including internal processes within or between government bodies as well as external processes involving citizens and private sector enterprises and organizations.

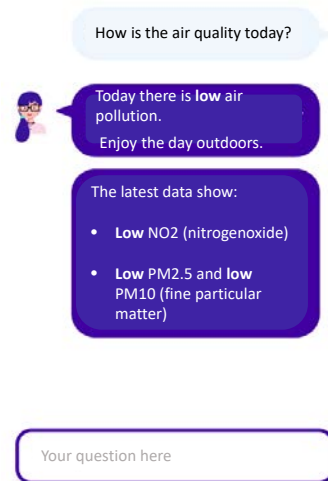
While ethics in government administrations have been made the subject of substantial research efforts (Menzel, 2015), research on ethical implications of electronic government is more scarce (Roman, 2015). Nevertheless, there has been research interest in the related subject of how electronic government may strengthen and improve on the public sector's ability to yield public value (Twizeyimana & Andersson, 2019).

Researchers have also discussed how electronic government services may lead to unintended consequences – some of which may be negative to citizens and society. Mullen and Horner (2004) discuss how electronic government may give rise to ethical problems, for example with regards to agentive technology. Koskinen et al. (2020) recently voiced the need for research on electronic government critically examining whether and how electronic government

The municipality chatbot Kommune-Kari

An example of public-private collaboration where a vendor provides the chatbot as a service to municipalities. This is arguably cost-effective and beneficial to quality due to similarities in service and information requirements across municipalities.

The chatbot can answer 6000 user intents and integrates third party data for information provision. Illustration below (texts translated to English)



services are ethically justifiable and discussed the need to support informed public discourse towards this end.

Chatbots in Electronic Government

Chatbots have increasingly been taken up as part of electronic government. A recent report on government uses of AI (EC, 2020) surveyed 52 examples of chatbot use in European public sectors. Here, chatbots are identified as a technology potentially driving incremental change, for example when providing answers to frequently asked questions, or chatbots are potentially disruptive or transformative, for example when providing personalized service or helping citizens finding information across multiple agencies.

In response to the ongoing Covid-19 pandemic, a frequent use-case for chatbots in the public sector has been as a source of information on Covid-19 and advice, policies, and regulations to mitigate the pandemic. Höhn and Bongard-Blanchy (2020) surveyed more than 20 such chatbots, many of these hosted by national Ministries of Health.

Case-chatbot: Kommune-Kari

The chatbot Kommune-Kari is a service to make chatbots available to public sector service provision in local municipalities. The chatbot is implemented as a service for general citizen requests and is to be used anonymously. It can identify and answer about 6000 user intents on topics such as healthcare, education and childcare, construction, planning, and renovation.

As all municipalities in a country have resembling information and service requirements towards citizens, it is possible to utilize the same basic chatbot content

across several municipalities something that implies substantial benefits in terms of quality and cost.

Kommune-Kari is currently implemented in the websites of 90 Norwegian municipalities, as well as municipalities in other European countries. In 2021 it handled more than 1M citizen dialogues.

In the context of the ongoing Covid-19 pandemic, municipalities have received a substantial increase in questions concerning health and vaccination, as well as regulations and advice for Covid-mitigating purposes. In consequence, about one third of the conversations with the chatbot over the last year concerned healthcare and covid-19.

Context: A Framework for Ethical Adoption of Disruptive Technology in Public Administrations

The chatbot Kommune-Kari is one of four use cases in the ongoing European research and innovation project ETAPAS – Ethical Technology Adoption in Public Sector Administrations (www.etapasproject.eu). Here, the objective is to establish a framework for Responsible Disruptive Technology adoption (RDT Framework) to support public sector administrations when taking up emerging technology for purposes of administration and service provision.

Specifically, the objective of the framework is to enable public sector administrations to the ethical implications of taking up technologies with disruptive potential, such as technologies utilizing current advances in artificial intelligence, robotics, and big data. In the framework, ethical implications of such technologies are addressed through reviews based in a code of conduct, a set of

ETAPAS code of conduct – ten ethical principles for responsible disruptive technology adoption

1. Environmental sustainability
2. Justice, equality and the rule of law
3. Transparency and explainability
4. Responsibility and accountability
5. Safety and security
6. Privacy
7. Building an ethical culture involving the employees
8. Retaining human contacts
9. Ethical public-private cooperation
10. Continuous evaluation and improvement

The full code of conduct is available at <https://www.etapasproject.eu/resources/deliverables/>

ethical risks of potential relevance of disruptive technology, and indicators to assess risks identified as particularly relevant for a given use case.

The work on the ETAPAS framework is ongoing. In the following we share from the ethical implications identified as particularly relevant for the public sector chatbot Kommune-Kari.

Ethical Implications of Chatbots for Public Sector

The implementation of a chatbot as part of citizen-facing electronic government potentially hold societal and ethical implications. One set of implications follows from the chatbot enabling citizens to formulate their requests in free text, which potentially extends the scope for what automated public sector service provision should concern. For example, when offered a free text field for enquiries, citizens may ask questions concerning service areas not covered by the municipality but by other government entities of private sector providers, or they may present questions concerning issues not previously supported through automated public sector service provision such as questions concerning mental health or wellbeing.

Another set of implications concerns how the introduction of a chatbot may impact municipality service level and citizens' trust in municipality service provision. Introducing a chatbot for service provision means introducing a channel for information and service provision resembling that of manned chat but intended to strengthen citizen ability for self-service – though with implementation of escalation of chatbot conversations to manned chat support, the chatbot

may also be a link in a service system described by Grudin and Jaques (2019) as humbots.

In the context of the ETAPAS framework, ethical risk areas have been tentatively identified as relevant in a chatbot for public sector service provision. In the following, we present some of these as exemplifications. The ethical risks are structured under sections reflecting selected ethical principles in the code of conduct developed as basis for the RDT framework developed in ETAPAS (Hansson & Fröding, 2021). See the sidebar or a full overview of the code of conduct principles.

Transparency and explainability

The principle of transparency and explainability suggest important ethical implications of chatbots in the public sector. Specifically, it is of importance that users understand they are conversing with a chatbot, and not a human. Furthermore, it is important that users understand that the chatbot (as currently implemented) provides general responses and not personalized answers. The obligation to ensure users are aware that they converse with a chatbot may be covered in the planned EU regulation of artificial intelligence applications, the AI Act (Schaaque, 2021). The need to explain clearly to users that chatbot answers are general and not reflecting, e.g., the processing of their specific situation with the municipality concerns interaction design challenges but may also depend on user maturity – where users more experienced with conversational interaction may more clearly understand their capabilities. As such, the ethical obligation of transparency may potentially be resolved through ensuring users get the needed instruction as part of becoming chatbot users.

Responsibility and accountability

Responsibility and accountability in chatbots concerns, among other things, the obligation of the public sector to provide adequate responses and answers to citizen requests. This may imply ethical issues in cases where the chatbot provides false positive responses, or in cases where chatbot content is not updated. False positive responses in chatbots happens if the prediction algorithm in the chatbot erroneously interprets the intent of the user (Følstad & Taylor, 2019). In such cases, the chatbot response may not be an adequate response to the user question. Often such false positive responses are easily identified by the user, but it is conceivable that these may also be misinterpreted as valid answers. The issue of false positives, as well as updating of chatbot content clearly is important for chatbot usefulness, but also holds ethical implications with relevance for the responsibility and accountability of the public sector service providers and is an area where chatbot usefulness and usability is entangled with the ethics of the chatbot.

Retaining human contacts

Local municipalities are the lowest level of contact between citizens and the public sector. Hence, retaining human contacts is of societal and ethical importance. For citizens, chatbots may potentially represent a step towards increasing the distance to human service providers. Vice versa, support through chatbots may potentially reduce the contact that public sector professionals have with citizens. While this ethical challenge likely is not immediately relevant, in the long run this may represent a challenge. Potentially facilitating effective service systems of humans and chatbots, where human support is available when this

is required or requested may be a means of mitigating this ethical issue.

Reflections and Future Work

The initial work in the use-case Kommune-Kari, exemplifies the need to consider ethical and societal implications of chatbots in public sector service provision, and also suggests avenues for future work.

On the basis of the initial work, we would like to share two reflections. First, relevant ethical issues are intertwined with issues from other perspectives. Key ethical implications identified in the use case concerns issues which also would be identified and sought mitigated as part of analyses from perspectives such as usability, user experience, and legal analyses. This suggests that the ethical analysis may not primarily be useful for identifying the issues, but rather for discussing means of mitigating these – that is, to discuss their importance and alternative solutions for addressing the issue. Second, ethical implications identified through a framework oriented towards mitigation of risk, may be biased towards problematic issues rather than how disruptive technologies may hold unforeseen positive implications which should be leveraged. For example, in a public sector chatbot, the use of this by citizens to request services not currently offered by the municipality may entail an opportunity for strengthening the service offering beyond what was intended with the chatbot technology.

Future work on ethical implications of chatbots in the public sector may benefit from more strongly utilizing ethical reflection for mitigating issues identified through other perspectives. Furthermore, ethical reflection may

also entail leveraging opportunities for unforeseen beneficial aspects of technology.

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