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# ETHICAL GOVERNANCE OF EGOVERNMENT ECOSYSTEMS

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**Abstract** Digitisation of governmental services has become a common approach to make governing more effective and efficient. The eGovernment services can be built on top of a variety of information systems and supplied to and between individuals and organisations on both national and international levels. This results in a complex organisational and socio-technical ecosystem containing a vast amount of variables affecting the privacy and safety of citizens.

Thus, achieving these better societies relies strongly on common trust between the citizens and governments. This calls for ‘governance of governance’, which can prove to be difficult to manage. Even in this challenging environment, it is crucial that ethical principles are applied to the highest possible degree. Yet, in current research, the citizens are often neglected.

In order to develop a better society for all, we should objectively consider the ends and means of eGovernment. In this paper, we study the relation of the citizens and eGovernment systems from an ethical perspective in order to represent which ethical considerations should be made if one wishes to truly aim for a better society.

**Keywords:**

eGovernment,  
governance,  
ecosystems,  
ethics,  
discourse  
ethics.

## 1 Introduction

eGovernment is a shorter form of electronic government, which refers to the use of information and communication technology (ICT) tools and applications to enhance government (Al-Hujran et al., 2015; Panagiotopoulos et al., 2012). In this paper, we consider these interconnected information systems as eGovernment ecosystems — *complex socio-technical system incorporating citizens, organisations, companies as well as governmental agencies, which use electronic platforms to create and distribute value to its participants* (Rantanen et al., 2019). Thus, we see eGovernment ecosystems as collections of governmental institutions, organisations, and citizens connected through applications of ICT.

Efficiency seems to be the common motivation behind all eGovernment services. However, also better services for citizens, improved processes and governance, transparency and deliberation, creation of public value, and empowerment of citizens are often mentioned as motivators and benefits of eGovernment (Grönlund and Horan, 2005; Al-Hujran et al., 2015; Venkatesh et al., 2005). Thus, the eGovernment ecosystem is seen as a way to serve the needs of citizens, but also as a tool for a more efficient and better way to govern. Achieving these goals and benefits requires citizen engagement and the vast adoption of a variety of eGovernment services. But it seems to be a lasting problem, since adoption rates are staying fairly low (Al-Hujran et al., 2015; Venkatesh et al., 2005).

Still, the majority of eGovernment research focuses on positive aspects from the managerial perspective (Madsen et al., 2014; Andersen et al., 2010). In addition, there is only a limited amount of research about practical research about actual implementation of eGovernment and how to measure those (Twizeyimana and Andersson, 2019). This is problematic since it has become apparent, that the impacts are not always as positive as assumed, the role of the citizens is fundamental but yet underestimated and the impacts of these systems are going to affect our societies for a long time. Since these systems are going to have a great impact on our society, we should be aware of the unintended and unwanted outcomes and aim to design eGovernment that actually serves the citizens as well as a government without doing harm (Rantanen and Koskinen, 2019).

To balance and to justify the values and needs of the citizens and government, we should assess eGovernment ecosystems from the perspective of ethics. In other words, we should strive to develop more ethically justified eGovernment ecosystems. Since there has been very little research on ethical aspects of eGovernment - let alone from the perspective of eGovernment ecosystems - our aim is to clarify some ethical implications that should be taken into account. Thus, in this paper, we present some ethical considerations about eGovernment ecosystems by means of philosophical argumentation in context of eHealth and eGovernment as whole.

Our research question is: "Which ethical considerations at least should be taken into account to make an ethically justified eGovernment ecosystem?"

The rest of the paper is structured as follows: Section II clarifies the theoretical background of eGovernment ecosystems and need for ethical approach. Section III presents rational behind philosophical argumentation as a methodology and Section IV introduces the ethical basis of our analysis. Ethical considerations that should be taken into account so that we could reach an ethically justified eGovernment ecosystem are discussed in Section V. Finally, we conclude in section VI.

## **2 Background**

Briefly explained, eGovernment refers to the use of information and communication technology (ICT) tools and applications to enhance government (Al-Hujran et al., 2015; Panagiotopoulos et al., 2012). Some of the expected practical benefits of eGovernment are added efficiency, better citizen services and improved democratic processes (Grönlund and Horan, 2005), as well as deeper transparency and enhanced interaction between citizens and governments (Welch et al., 2005). Overall, the eGovernment forms a complex socio-technical ecosystem involving a variety of stakeholders.

Before providing a more defined description of eGovernment, it is important to acknowledge that although the term is often used interchangeably with the term eGovernance, there are some significant differences between them. Calista and Melitski (2007) describe the terms as separate, yet complementary: eGovernment, they define, provides "governmental services electronically, usually over the Web, to

reduce the physical character of customer transactions by recreating them virtually” whereas “e-governance envisions employing the Web and Internet to overhaul how the state conducts its democratic dealings by using networked interactions with citizens to foster transparency and participation” (Calista and Melitski, 2007). Thus, we suggest that eGovernment should be considered as a system of digitised services for citizens, whereas eGovernance is a more comprehensive set of measurements, whose purpose is to govern democracy employing information and communication technology.

The eGovernment research often focuses on technical solutions and is rather technologically deterministic (Calista and Melitski, 2007; Madsen et al., 2014). This means, that the research does not acknowledge that implementing technology can have unintended consequences because of the ways that people interact with it, or that the features themselves cannot fulfil the expectations of citizens, thus failing to reach their intended goals (Welch et al., 2005). As an example when an information system is implemented, people can alter from the intended way of use, since the new technical system affects their way of doing something. Thus, a technical system affects the social system and vice versa. To understand eGovernment as a whole, we must move away from technological determinism and towards a more holistic view.

More holistic view can be taken through an ecosystem perspective, where the goal of added efficiency does not over- shadow the related ethical and societal implications, by defining data economy ecosystems as “*complex socio-technical system incorporating citizens, organizations, companies as well as governmental agencies, which uses electronic platforms to create and distribute value to its participants.*” (Rantanen et al., 2019).

The describing term of an ecosystem has been used in a multitude of ways in the fields studying technology. Research has been done about software ecosystems (Bosch, 2009), information systems ecosystems (McKelvey et al., 2016) and ICT ecosystems (Smith and Elder, 2010) just to mention a few. General understanding of digital ecosystems depends on the field and their chosen focus.

In this paper, we are using the term ecosystem as a metaphor for a complex and open socio-technical system that is distributed, adaptive, with properties of self-organisation, scalability, and sustainability inspired from natural ecosystems (Briscoe, 2009). A central piece of an ecosystem is formed by the involved individual

stakeholders, whose role we aim to emphasise by questioning the previously addressed deterministic approach.

This said we encourage accommodating the eGovernment services and the underlying processes with the personal rights and needs of citizens through a more socially aware approach. Our view is that the eGovernment ecosystem is a socio-technical system orchestrated by the government, which also includes citizens and other user groups such as companies and their representatives both as users and as vendors. Hence, besides offering digital services, an integral characteristic of eGovernment is improving the interaction between citizens and governments and providing individuals with an opportunity to express their opinions towards the government. (Muir and Oppenheim, 2002)

Although the roles are quite similar as in the software ecosystems, there are still some differences. The role of citizens cannot be stated to be similar to customers, although the relationship with the government and citizens is often described as such (King, 2007). Furthermore, the literature suggests that the attitudes and trust towards eGovernment can vary based on a multiplicity of personal variables, such as age, gender and ethnicity (Tolbert and Mossberger, 2006), which emphasises the importance of acknowledging the social factors. Since our view relies strongly on the socio-technical paradigm most often used in the organisational setup, we should also clarify that we cannot treat citizens as employees either.

It must be also understood, that eGovernment ecosystems are not all about digitisation of the work of governmental employees. Although, currently eGovernment activities seem to be about digitisation of services, there is a visible thrive to make more technological innovations that could make governments even more efficient. For instance in Finland digitisation of public healthcare has already moved from digitisation of professional work to developing digitised services. The next step seems to be further utilisation of citizens' capabilities and possibilities to use technology as a preventive measurement in healthcare by means of personal health records. The idea is that these systems could replace the need of professional healthcare services in less serious medical situations. Despite promised benefits for citizens, such as empowerment, adoption rates of these governmental applications have been low. However, it is important to take into consideration that, concerning eGovernment in general, both positive and negative preconceptions have been

found to affect the eGovernment adoption rates, where the citizens that already trust their local government are more likely to be satisfied with eGovernment and vice versa (Welch et al., 2005).

Obviously, from the citizens' perspective using these kinds of applications would mean more responsibilities as well as time invested in using the system. Thus, the pervasiveness of eGovernment applications is growing. Changes in the technical side of the eGovernment ecosystem will also affect how our societies work and are. Despite this, there has still been very little interest in the societal and ethical implications of the whole eGovernment ecosystem from a critical perspective. Without making these considerations we could end up in a situation where our eGovernment ecosystem is ethically unjust and implications are not desirable. Understanding the unique nature of citizens and government in an eGovernment imperative, if we wish to examine it from an ethical perspective.

### **3 Methodology**

It is reasonable to question the choice of a philosophical approach rather than some more commonly used empirical research methodologies for this analysis. Why not try to obtain empirical information about what people are actually thinking or experiencing rather than making philosophical - and often troublesome - claims? However, before answering this question, we must understand the position of interpretative research within the information systems (IS) research field as well as the position of philosophy within interpretative research (and we want to bring this also to the field of Ecosystems). As Stahl (2014) stated, the interpretative approach has long been accepted as an important research approach within the field of IS. It could even be said to be the dominant approach nowadays. Maybe the most influential paper that led to this widespread acceptance is Walsham's (1995) ground-breaking article about interpretive case studies within IS research. However, two decades later, Stahl (2014) criticised the domination of the empirical approach in interpretative research over other approaches such as philosophical argumentation. Stahl showed that the philosophical roots of interpretative research do not offer sound justification for the status of the empirical approach since interpretative research is based on personal perceptions (second-order perceptions) of empirical data (first-order perceptions).

As the combination of phenomenology and hermeneutics constitutes the philosophical basis of interpretative research, empirical research is not always required, even though it can be used and is justified in many cases. It is worth noting that interpretative research does not allege to lead towards truth claims in the same way that positivistic research does. Rather, it attempts to reconstruct other people's constructions. Therefore, it is reasonable to question why this particular empirical construction is preferred over alternative constructions (Stahl, 2014).

One possible reason for this preference is the lack of straightforwardness and validity on the part of interpretative research; hence, validity is pursued with rigour, principally via empirical methodologies. Stahl (2014) claimed that his article supports a richer and more enlightening landscape of interpretative research by pointing out how philosophy represents a valid interpretive research method. In his reply to Stahl, Walsham (2014) agreed with this aim of enriching research, although he did not accept some of Stahl's criticism. In any case, philosophical argumentation is used as an interpretative research method in this paper rather than the empirical interpretative research. By means of this choice, the present article provides an alternative and rich viewpoint for researching ecosystems using philosophical argumentation instead of other dominant approaches of the field.

#### **4 Ethical Basis**

A social contract is a theoretical approach that justifies states' power over individuals. It is based on the assumption of a social contract between the people and the state that grants the state rights that individuals deliberately give up, such as taxation, limitation of some liberties by legislation, use of force, etc. The idea is that by social contract we can have (or at least aim to) a just and secure society for all, instead of having a situation where the law of the strongest is the only law. However, both Locke (1690) and Rawls (2009) (and countless of other philosophers) underline the freedom of people, the issue that is needed to ensure that we are not falling under a depression of masses either but have ethically justified government.



To clarify what ethically justified actually means we must first understand what is ethics in the context of eGovernment. We begin the description of our "approach" with a collection of Moor's (1985) observations about what computer ethics is. First, it is the analysis of the nature and social impact of information technology — here governmental information systems — to identify justified policies for the ethical use of information technology. Secondly, Moor (1985) notes the importance of general ethics for computer ethics, since it provides categories and procedures of what is ethically relevant and thus we are using this as our ethical position. Thus, we are analysing the governmental ecosystem from three main philosophical views: consequentialism (focus on the outcome of actions), deontology (focus on Intention), and virtue ethics (focuses the virtues that are seen as ethical ones). These main philosophical approaches are commonly used when evaluating ethicality healthcare (Armstrong, 2006; Aita and Richer, 2005) but we are lacking the use of ethics in eGovernment apart from some exceptions (Roman, 2015). Next, we will briefly go through these three branches of ethics.

#### A. Consequentialism

Consequentialism is the ethical approach where the evaluation of the ethicality of actions is based on what kind of outcome of the action will provide. Utilitarianism (the classical consequentialist theory) is simplified the evaluation of different action possibilities by outcome utilities of those alternatives. The term utility refers to "the good" that is evaluated and it can be different in a different context. There are hedonic utilities such as pleasure, happiness, etc.

#### B. Deontology

Deontology is a branch of ethics where ethicality of action is based on action itself, not on the consequences it produces. This means that the focus is on the intention of action, not in the outcome of an action. Here we are focusing on Kantian Deontology as it is regarded to be the central theory for all deontological theories (Alexander and Moore, 2016). Kantian deontology (central theory in deontology) is based on the rational agents (read human actor here) that has the autonomy to make decisions. This is a necessary but not sufficient basis for ethicality as an actor that not has autonomy cannot make decisions and thus actor cannot use their free will to act as they decide. Thus, to have people to be ethical, they have to have a possibility to be unethical. For evaluating ethicality of action Kant presented the Categorical Imperative that set demands that ethical rules should be universal, rule

must be followed voluntarily and we should always respect humans like Kant (1785) stated: "Act in such a way that you treat humanity, whether in your own person or in the person of any other, never merely as a means to an end, but always at the same time as an end."

### C. Virtue ethics

Virtue ethics is an approach in normative ethics which can be defined as the one that emphasises the virtues and moral character, whereas deontology emphasises duties and rules or consequentialism that emphasises the outcome of actions. Ideally, seeking the virtues and development of one's own character are under constant development. The idea is that if a person is focusing on cultivating their own character and seeks a virtuous life, it will follow up with (more) ethical life. However, the focus is not on rules (intention) like "do not lie" or consequences that may follow after lying. Instead, virtue would be honesty that one seeks and aims to achieve in ones' life.

## 5 Ethical Considerations

In our brief evaluation of ethicality of eGovernment we focus on first on case of eHealth as one example from perceptive of three main ethical brands: deontology, consequentialism and virtue ethics. After that, we focus on eGovernment as whole phenomenon and show considerations that should be made to avoid pitfalls and gain more ethically justified rationales behind eGovernment.

### A. Case of eHealth

Ethically, the overall aim of using eHealth is to make healthcare more efficient, help patients by supporting self-care, empower the patient etc. Thus deontological perspective the use of eHealth in many cases is ethical as the intention is good. From the duty/rule perspective of deontology, there still is a need for development as we still lack the needed rules that would ensure the ethicality of eHealth (Rantanen et al., 2018).

However, from the consequentialist perspective, the situation is not so straightforward. Even technology has made modern healthcare possible by giving modern tools and systems the there is a dark side as well. In many cases, the real outcome of eHealth is lacking and the use of eHealth is driven by expectations rather than evidence. Likewise, the discourse about evidence is lacking and the field misses the needed comprehensive evaluation of eHealth interventions to advance the successful implementation of eHealth at the long-time period (Enam et al., 2018). Reliable evidence generated through a comprehensive evaluation of eHealth interventions may accelerate the growth of eHealth for long-term successful implementation and help to experience eHealth benefits in an enhanced way (Enam et al., 2018).

From a virtue perspective, the eHealth sets challenges for healthcare professionals. As an example, electronic health records have changed the work on nurses toward a more data-oriented direction where risk is to emphasise the technology and thus taking time from facing the patient and thus distracting the empathetic interaction (Robichaux et al., 2019) — issue that should be given special focus to protect the virtuous behaviour of healthcare professionals. From positive side the eHealth has made possible for the patient to be more informed and have more possibilities to rule their patient information” — increased autonomy instead of being merely a passive and uninformed object. We see that this is a needed part for individual who wants to develop their characters in the health context.

#### B. Demands for eGovernment

The main intention that is commonly announced when justified development or deployment of eGovernment systems is to improve services by digitalisation which from the deontological point is a valid argument. However, this efficiency- based approach has commonly other rationales behind it. The cost efficiency is the most likely the main rationale which itself is also a justified reason. However, in many cases cost- effectiveness rationale comes up with also other changes: limitations of service for some groups, too simplified way of seeing those governmental services or unclear roles and responsibilities, likewise shifts duties from officials to citizen (Lee and Porumbescu, 2019; Anthopoulos et al., 2016; Gil-Garcia et al., 2019). Those outcomes are problematic — especially if those are known beforehand — and thus lack the clear and rational justification from the perspective of consequentialism and also from the deontological position. Especially if this efficiency is advertised but

the real focus is on the other rationales it is clearly unethical as the intention is the misleading public discourse and politics. Likewise, society is also about other intentions than efficiency such as freedom, equality, security, etc.

From the perspective of consequentialism, the outcome of an action is what makes action ethically justified. Thus, decisions of the authorities' can be justified if implementing an eGovernment system will add outcome as a whole even some issues could be lessening some good outcomes. This kind of approach is tempting from the perspective of authorities especially if their worldview is technologically deterministic or business-oriented and lacks the views from the practical level of government (Buffat, 2015). However, these kinds of worldviews in the context of government can foster a paternalistic approach and those are dangerous for a democratic society. This approach does not support the autonomy of citizens and thus sees citizens as incapable to consider what is best for them leads towards technocracy. Thus pure consequentialist approach has limitations that deontology and virtue ethical perspective reveal. Nevertheless, the outcomes or consequences of eGovernment is one part of the ethical analysis that should be used, even it has its blind spot like the other two approaches as well.

Virtue ethics can be simplified stated to be an ethical theory where the development of character and virtuous actions are an issue that creates a good society — virtuous person comes up with actions that contribute to the good society. By Aristotle, virtues are thus good attributes such as truthfulness, liberality, courage, friendliness, etc (Ameriks and Clarke, 2000). As virtues are part of character the moving government towards automated systems there lies the risk that we remove responsibility from public officials and lessening human encounters between state and citizens. This is problematic as taking responsibility and humane treatment of people are characteristics that we see to be virtuous instead of avoidance of responsibility or automatisisation of human contact in society. This is just an example of risks that can be made without taking account of the virtue approach wherein the centre is the human being — either citizen or official and their development as persons.

### C. Discourse ethics to rule them all

Discourse ethics offers the solution to this problem of combining all of the aforementioned ethical theories. There exist a consensus amongst normative theorist of cultural pluralist that dialogue is the key for securing just relation between different groups. (James, 2003) Discourse ethics is an applicable tool to bring different views under constructive debate. It is a way to reveal the strategic logic behind group conflicts presented above and thus helps discourse toward a more transparent and rational one. Like Stahl (2012) noted, the discourse ethics — based on Habermasian rational discourse — is providing a mechanism to consider different moral views and intuitions. This kind of Habermasian (Habermas, 1996) rational discourse demands that subjects of legislation, have a possibility to take part in rational discourse whilst creating laws. This kind of legislative rational discourse is, of course, an ideal, but it seems trivial to note that there can be degrees of implementation of it. A government—and certainly no other actors—cannot wield arbitrary power over its citizens. Thus we see that we need this kind approach for eGovernment that drives commonly acceptable and ethical governance of eGovernment ecosystems instead focusing on mere efficiency and emphasising only views of some stakeholders.

## 6 Discussion and Conclusions

From the deontological perspective, eGovernment ecosystems cannot be straight evaluated as ethical or unethical because from this viewpoint there should be a free rational agent that can even make ethical decisions. An ecosystem (orchestrator) is not a rational agent in philosophical (ethical) sense but the decision-makers behind ecosystem and users of ecosystems are. Likewise the expressed intention — such gain efficiency — are in many cases just one side of the situation and other rationales are not visible for citizens. This kind of situation hardly can be seen as an ethical intention. This underlines the problem of the current power balance between the orchestrators (providers of the system and in the end, government) and users of systems — citizens.

Thus, from the consequentialist viewpoint the ecosystem can be ethical— if those hidden rationales have a good out- come for citizens and society. However, when we have those ecosystems we should ensure that also intention and virtue ethics are considered to ensure more broad ethical justification. For future research, there is a

need for an ethical framework for evaluating the ethicality of eGovernment ecosystems.

In this paper, we introduced an ethical approach based on three big ethical theories when evaluating the existing or building new ethically balanced eGovernment ecosystems by Discourse ethics. We find it justified to claim that the realisation of ethical ideals mainly set obligations towards the governments. However, it should not be assumed that positive ethical development will be ignited without external intervention. Furthermore, we claim that instead of relying on the support of organised parties such as legal authorities, the citizens and their demands hold a central role in steering the ethical development. This outlook is rooted in the fact that the primary function of regulative parties is to ensure that justified requirements of citizens —inside the limit of society's possibilities and resources — are fulfilled as citizens are the justified source of the power of the state.

Thus, the input and feedback from individuals have a crucial role in terms of setting ethical demands. However, it should not be assumed that the citizens take an active role, let alone responsibility, in building ethical eGovernment ecosystems. Thus, instead of setting concrete obligations towards the citizens, we propose that the governments develop their services based on their best understanding of the citizens' perspective and transparent public communication. To support this development, this paper aims to provide the governments with insights that help them to better understand the citizens' perspective and act accordingly to achieve truly functional eGovernment ecosystems.

Overall, the ethical considerations introduced in this paper likely manage to address only a fragment of all relevant ethical factors. Furthermore, we see that the high complexity of eGovernment ecosystems demands iterative approach to thoroughly identify the relevant aspects to be considered, and even then it is possible that all ethical factors involved in the ecosystems cannot realistically be addressed, let alone fulfilled in a way that results in truly balanced ethical foundations from citizens' standpoint. Regardless, the governments should give their best effort to honour good ethical principles when building and developing eGovernment ecosystems to ensure the safety of citizens and to maintain their dignity, which calls for further contribution from both governments and researchers aiming for creating ethically sustainable societies.

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