

Big Data Ethicist

What will the role of the ethicist be in advising governments in the field of big data?

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**Master's Thesis in Applied Ethics
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29th June 2016

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Acknowledgements

I want to, hereby, thank Joel Anderson, my supervisor, for challenging my worldview and Mirko Tobias Schäfer for giving me the opportunity to work in the 'applied' part of ethics.

I want to thank my father for teaching me to be critical and my mother for teaching me, how to solve things. A hug to my brother! Special thanks to Gotta, who always supported me on my way through academia.

Special thanks to Nancy and her comments. She was the one, being there, at 5 a.m in the morning.

I am happy and glad having had so many kind faces around me this year. I am very grateful for all the walks & talks with Susan Höfer, and the troubleshooting sessions. Also, a big thank you to Luca van der Heide for the shared rollercoaster. And then, there is Jamie, Floortje, Bas, Peter, Nada & Eveline! Riding the devil was fun with you!

To all my friends from Austria, special thanks for not letting me down, and never ending support.

Thank you, Benny for all the love and trust!

Abstract

This paper elaborates on the question how the ethicist can address the demands for ethical expertise in governments occurring through big data practices. In the field of big data, information about known ethical risks is needed. This role of providing information is more related to the role of the ethical consultant, but also discussion and open reflection is needed. Thus, a hybrid between ethical consultant and ethical facilitator will be the most beneficial way to increase a culture of engagement in those working with big data. Such an approach is needed to keep reflection of how to use this technology on going. To avoid, fruitless discussion, three steps are presented. First the ethicist should gain some insight into the context, then distil the most relevant issues, address them and end with a clear recommendation how to proceed. The ethicist should be both open for discussion and solutions oriented.

Introduction

Big data is a promising tool for governments, to increase the quality of their services in different areas, but still it comes with certain problematical tendencies. Those difficulties matter even more in the context of governmental data use, since their aim of serving the people in the best possible way might be threaten by some big data related developments. In order to react towards new arising challenges, governments and other institutions are creating training opportunities for employees to increase awareness about the ethical, legal, and social issues that come with the new domain of big data.¹ Even though this is a good first step, it is still not clear how to the ethicist can address the demand for ethical expertise. Therefore the aim of this thesis is to contribute to the debate about how to critically use big data. ² Based on a broad literature research, from the fields of Computer Ethics, this thesis is written for interested students of Applied Ethics, but also for all those, working with big data in the governmental context. The leading question of this thesis will be, what is the role of the ethicists in advising governments in the field of big data?

In section one I will give some insight into why there is a need for ethical expertise in the first place. Based on an article of the charter of fundamental European rights, it will be shown that big data shows tendencies, which are a hindrance for governments to be transparent to their citizens.

In section two I will present two different types of ethical expertise, namely the ethical consultant and the ethical facilitator. I will argue that the role of the consultant is insufficient because they don't engage people. The role of a facilitator is not sufficient either, because the facilitator functions more as a reflection tool, not informing about

¹ See Rochelle E. Tractenberg, Andrew J. Russell, Gregory J, Morgan Kevin, Fitz Gerald, Jeff Collmann, Lee Vinsel Michael Steinmann, Lisa M. Dolling, "Using Ethical Reasoning to Amplify the Reach and Resonance of Professional Codes of Conduct in Training Big Data Scientists", *Science and Engineering Ethics* 21, Nr. 6 (Dezember, 2015): 1485.

² See f.e Rob Kitchin, "Big Data, New Epistemologies and Paradigm Shifts", *Big Data & Society* 1, Nr. 1 (April, 2014): 2053951714528481.

ethical relevant topics. Both roles, however, show useful aspects and a combination of facilitator and consultant is necessary.

Therefore, a hybrid model between the role of the consultant and the role of the facilitator is needed to increase awareness, engage civil servants into reflection, and inform about citizens' rights.

Based on the system of prevention of crime I will demonstrate, what this hybrid approach could look like. Three steps will be introduced, showing how the ethicist can proceed to react towards the demand of ethical expertise. Each of the three steps correlates with concrete phases of the process used by governments and police. The first phase is becoming acquainted with the research, during the second phase the data is collected and visualized, and the last phase is when that data is used for concrete conclusions.

After addressing some objections I will end with the claim that the role of the ethicist, in advising governments in their big data practices, is a hybrid between the role of the ethical facilitator and the ethical consultant. Aspects of the ethical consultant are needed to speak up for citizens' rights and inform civil servants and those working with data about known risks and the facilitator is needed to create an environment of engagement. The underlying assumption is that as long as we keep those in mind, and keep the discussion on going, we would have a minimal security risk of not creating an authoritative state that is anti-democratic.

I) Setting the conditions

1. What is big data?

Why big? The term 'big' refers to the electronic size (gigabytes, terabytes, petabytes) and further indicates the complicity of computational or human effort, which is necessary to analyse the data set. This means that the data is 'big' because the process

of sorting and analysis reaches the limits of existing computing technologies due to complexity and volume.³ Aside from this technological answer, big data is also 'big' as a phenomenon. It is so complex that it exceeds human comprehension.

'There is no good way to think about what this size of data means. If it were all printed in books, they would cover the entire surface of the United States some **52** layers thick. If it were placed on CD-ROMs and stacked up, they would stretch to the moon in five separate piles (...)'⁴ [Emphasis added]

Even when we focus for a moment merely on the technological aspects of big data, it seems hard to find a general, valid definition in the literature. Broadly understood, however, big data refers to (1) the *process* of analysing big data sets, and (2) the datasets themselves.⁵ The notion 'big data' can be captured by the most influential definition of Kitchin: 1) Volume, or the scale of data; 2) Velocity, or the analysis of streaming data; and 3) Variety, or different forms of data; 4) Veracity, or the uncertainty of data. Big data is exhaustive in scope and tries to capture entire populations and systems in fine-grained resolutions. This means that big data aims to be as detailed as possible.⁶

In short, big data consists of massive and dynamic datasets that can be used in different ways, thus offering possibilities to study the data's rich, high resolutions to complex hypotheses, models, and theories.⁷

2. Possibilities and problems with big data for cities and governments

So far, we have seen what big data is. Now I will discuss how big data could be used for governments.

³ See Brent Daniel Mittelstadt, and Luciano Floridi, "The Ethics of Big Data: Current and Foreseeable Issues in Biomedical Contexts", *Science and Engineering Ethics* 22, Nr. 2 (April, 2016): 310.

⁴ Mayer-Schönberger Viktor, Kenneth Cukier. *Big data: A revolution that will transform how we live, work, and think*. Houghton Mifflin Harcourt, 2013. 9.

⁵ See Mittelstadt and Floridi, "The Ethics of Big Data", 316.

⁶ See Rob Kitchin, "The Real-Time City? Big Data and Smart Urbanism", *GeoJournal* 79, Nr. 1 (November, 2013): 3.

⁷ See Rob Kitchin, "Big Data and Human Geography Opportunities, Challenges and Risks", *Dialogues in Human Geography* 3, Nr. 3 (November, 2013): 263.

It is nothing new that governments gather information about citizens and govern on the basis of this information. When we think about who is actually collecting data, we discover that the possibilities of gathering information has increased dramatically and this development will not stop in the foreseeable future. Databases have grown in Western societies and aside from classical administrative information such as dates of births, marriage and deaths; new, so-called *soft personal information* is gathered. Hard personal information are all those facts about a human life like birth of data, address, social security number. Soft personal information can be distinguished from hard personal information in that that the soft variety doesn't actually tell anything about my persona, only about actions I partook, in such being number 25 of 834000 to use public transportation.

All this collected data can be used in promising ways by governments to increase the speed of their work processes, to increase the effectiveness and efficiency of policies, and to offer better and more customized services to citizens. The usage of big data technology promises to be a cornerstone of the modern government.⁸ Modern information technology enables governments to offer more customised services, which promises to make the load of bureaucracy more easily accessible, less complicated and better tuned to the needs of the public. Furthermore, it is promised that the public interest such as policymaking, public safety, and national security can be better addressed through data based predictions.⁹

Areas like transportation, infrastructure, trash collection, healthcare, culture, and public housing could benefit from big data analysis. For example, consider the public transportation system. Algorithms could increase the efficiency of public transportation by providing feedback control solutions. Measuring the time between each stop and the number of people waiting at each stop could give the planner the information to create a metrics model to increase the quality of this service.¹⁰ There is nothing wrong with increasing the quality of public transportation and big data allows city planners and

⁸ See Robert W. Smith, "Corporate Ethics Officers And Government Ethics Administrators Comparing Apples With Oranges or a Lesson to Be Learned?", *Administration & Society* 34, Nr. 6 (January, 2003): 634.

⁹ See J. E. J. Prins, Dennis Broeders, H. M. Griffioen, "iGovernment: A new perspective on the future of government digitisation", *Computer Law & Security Review* 28, Nr. 3 (June, 2012): 274 f.

¹⁰ See Luís M.A. Bettencourt, "The Uses of Big Data in Cities", *Big Data* 2, Nr. 1 (February, 2014): 5.

governments to give more accurate insights to patterns that are needed to react properly to challenges. Besides these positive aspects however, big data itself as technology shows characteristics, which might enable ethically problematical practices.

2.1 Some elements that are particularly relevant talking about big data

Big data displays four ethically relevant distinctive characteristics.¹¹ Firstly, big data shows the characteristic of being *ubiquitous*. Big data is *ubiquitous* because it touches all areas of human life. Every phone call, every movement on the Internet leaves data traces, which might be used for analysis later. Applications for this kind of analysis are broad and include intelligent analytics, modelling of preferences and behaviour, sustainability studies, commercial pursuits, biomedical research and healthcare, and fields of scientific and social research.¹² So almost every aspect of human life leaves traces of data that might be used, without people knowing it. The characteristic of big data to be ubiquitous could give rise to ethical question like informed consent. Will it be possible to decide for citizens that they don't want their personal data be collected? What if they don't want to? Is there even a realistic possibility to opt out?

The second characteristic of big data is that it is *explicit*. It is explicit because it allows extracting insights about a person, such as where this person was and what this person was doing. Once data is collected and given, if there is any interest in doing so, it becomes easy to predict the behaviour of individuals. Big data allows for insight into demographic characteristics, such as, voting history of people, their social and economic background, their expressed opinion in social media, their behaviour and their consumption.¹³ The combination of facial recognition and video cameras, plus the information from the navigation systems of mobile phones, for example, make it easy to give exact insights into a person's movements. This characteristic is important, because it might become difficult to distinguish where privacy starts. Are there areas of our lives that we want to keep unseen?

¹¹ Note: The four ethically relevant characteristics Davis, Kord. "*Ethics of Big Data: Balancing risk and innovation*." O'Reilly Media, Inc.", 2012. <https://www.youtube.com/watch?v=PsC9CMgyTxY> (Online accessed July, 2016)

¹² See Mittelstadt and Floridi, "The Ethics of Big Data", 307.

¹³ See Kitchin, "Big Data and Human Geography Opportunities, Challenges and Risks", 264.

The third characteristic of big data is that it is *aggregated*. Big data stems not from one data set, but is used for combined datasets. The *aggregated* nature of big data might make big data a more powerful tool and give more detailed insights into patterns, because it consists of more data points. Data is driven by the idea that bigger datasets will give better insights into patterns and that bigger is therefore better than smaller datasets.¹⁴ This could become problematic, since data that is collected in one field may be soft personal information, but combined with other data, may become hard personal data, allowing to explicitly telling what a person might like, do or be. Data about your health for example won't be considered very problematic in the database of your doctor, but if this data gets combined with your shopping behaviour in your local supermarket, it might be an intrusion of privacy. Those datasets could give insight in information about a high risk of diabetes; because a person buys much ice cream or that a person might have changing sexual partners, because she frequently buys condoms. Datasets that might not be very sensitive taken by themselves, but might give detailed insights into a person once they get combined with other datasets.

The fourth ethically relevant characteristic of big data is that it is *permanent*. Once data is collected, it becomes almost impossible to challenge, change or delete this data. This *permanent* aspect of big data might cause further ethical questions. For example, it might be very problematic when data one considers sensitive is not deleted or challenged. Imagine, for example, having a past you prefer remained private. What if there are pictures or other data about you cannot delete or challenge? The question of *the right to be forgotten* arises.¹⁵

We have seen that big data shows some characteristics, namely *ubiquity*, *explicitness*, *aggregation*, and *permanency*, which give rise to ethical issues and concerns. Next, I will address the question, what big data ethics is.

3. What is specific about big data ethics?

¹⁴ See Mittelstadt and Floridi, "The Ethics of Big Data", 400 f.

¹⁵ See for example: Rosen Jeffrey, "The right to be forgotten." *Stanford law review online* 64 (2012): 88.

Applied ethics is the discussion about practical ethical issues and computer ethics falls into this category. Not all scholars agree that computer ethics is a subfield of applied ethics, and this topic is a huge debate.¹⁶ For our purposes it, is not necessary to delve deep into this debate. Big data ethics is part of the computer ethics field. For our purposes, we can accept big data ethics to be part of computer ethics because it is a phenomenon produced by computer technology. This technology itself shows ethically relevant characteristics as stated above. These characteristics evoke the possible infringement of ethical concepts such as the privacy of citizens. It is further part of applied ethics because the ethical reflection about big data focuses on how to apply this technology in an ethical way.

It is further 'ethical' because, in the field of big data it might come to a clash of competing values and normative interests of stakeholders.¹⁷ The first assumptions underlying big data ethics is that even though big data is a very complex phenomenon, it is still a product of human thinking and reasoning, which can be reflected on in order to use it for good. The second assumption is that big data will be so influential and powerful that it has already the capacity to dramatically alter the world we live in, for good and/or for worse. Big data ethics wants to contribute to this social change by providing critical reflection to the use of big data practices.

'We need to be sure that these human technologies shape the kind of society we want to have, for these technologies will shape the societies we will live in and the humans we will become.'¹⁸

We can thus state that big data ethics wants to contribute to a society worth living in. Next, we will ask why governments ask for ethical expertise.

4. Governments in Trouble

¹⁶ See for example: Luciano Floridi and J. W. Sanders, "Mapping the Foundationalist Debate in Computer Ethics," *Ethics and Information Technology* 4, no. 1 (March, 2002): 1–9.

¹⁷ Mittelstad, and Floridi "Ethics of big data", 6.

¹⁸ See *ibid.*

In the charter of the fundamental European rights, the right for data protection can be found. Looking at the charter of fundamental human rights of the European Union we find the following statement under §8:

‘Everyone has the right to the protection of personal data concerning him or her. Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified.’¹⁹

There are several problems with the formulation of this right. Firstly, the protection of personal data concerning the person cannot be guaranteed. Recent data leaks like the one of Ashley Madison case shows that computer systems can be hacked and sensitive data can be made public easily. WikiLeaks has shown that even data in the hands of governments might not be secure, and can be hacked as well. Thus, it is difficult for governments to guarantee this protection.

Secondly, data might not be processed for specified purposes and on the basis of the consent, because positive aims, like the security of citizens, legitimise data collection where more data is collected than is actually needed. Especially when data is collected automatically, such as through CCTV. In such cases, it is not possible to guarantee that it is used only for personal security, in an emergency case, but is collected constantly. That means that security in general is a legitimate purpose, the constant surveillance, without citizens knowing it, however is problematical, because the governments fails to be transparent enough.

Thirdly, informed consent of citizens cannot be guaranteed, because data is collected anyway in order to be prepared in case it might be needed later on. These automated forms of data collection are the forms which are both most interesting for governments and most problematical.²⁰ Governments could for example, inform their citizens by

¹⁹ Charter of Fundamental rights of the European Union. http://www.europarl.europa.eu/charter/pdf/text_en.pdf (online accessed at June, 2016)

²⁰ See Kitchin, “The Real-Time City,” 4.

stating that data is collected, for future, unknown purposes X. People would then need to consent to the use of their data for purpose X. Would that still be 'informed consent?'

Fourthly, right of access to data or rectify it is hard, because data is collected not only by governments themselves, but on the international level there is a trend of collect and share of all kinds of data, including biometrical data of travellers or migrants, for example.²¹ This sharing behaviour is not limited to governments, because aside from the governments themselves, companies and private citizens are collecting data as well.²² It might be hard to rectify data, because it might be located in multiple databases.

Fifthly, information gets shared in different directions and, within this network, it becomes difficult to determine who should be held responsible for the proper use of this data.

Governments are semi-autonomous hierarchical bureaucracies. That means, that governments have certain autonomy for action, which was not specified by the voters. The one deciding about those actions, are elected. It is a hierarchical in the sense that the mayor is the most responsible person in a city, whereas civil servants are less high in the hierarchy. The information, in contrast, is flowing horizontally. It is very difficult to ensure quality standards, when it is almost impossible to determine concrete accountability. The network structure challenges, which can be held accountable, and the existing organisational structures do not know how to react towards those challenges. The lack of clarity about the question of accountability is crucial to overcome for governments to ensure trust, quality, and insight for citizens.²³ All those points demonstrate why there are fears that big data helps to create a surveillance state, giving insight into very private parts of human life. This information can be sold, and used for manipulating citizens, through all the extended powers of big data.

The complexity of big data, its size, and unclear responsibilities in gathering data, makes human overview impossible. That means that even those who are using big data,

²¹ See *ibid.* 275. Cit. D. Broeders, 'The new digital borders of Europe. EU databases and the surveillance of irregular migrants', *International Sociology* 2007 22 (1): 71e92.

²² See Prins, Broeders, and Griffioen, „iGovernment“, 277.

²³ See *ibid.*, 276.

such as civil servants, have only limited means to give citizens full insight into the sum of data that was collected. Being transparent however is important in democracies, because knowledge of government activities is central to the authenticity of authority in democratic societies.

Big data that is for example used in influencing decision-making processes based on profiles of individual people also means that those people should have the right to know how they are being influenced.²⁴

These tendencies do not stay unnoticed. In cases where governments face difficulties on what to do, three options occur:

‘Either the governors must call in expertise from others and then make the decision themselves, or they must contract with citizens to gather information and negotiate decision-making, or they must collaborate with citizens to define, refine, and implement evidence-based governments.’²⁵

There is an expanding need for ethical expertise because ethical problems in big data occur frequently and solutions are hard to find. Given the complications with big data, it is not surprising that governments turn to ethical experts in order to help them to address those problems.

5. Recap

As we can see big data is a phenomenon, which is huge and impacts every area of life, where we use or leave data. Big data is a powerful tool, giving answers to questions we didn't have, yet. Even though, the analysis of datasets brings benefits to cities to improve their performance; make services more users- friendly: create a better place to live in and enhance the quality of life, drawbacks have to be considered as well. Talking about big data immediately provokes many complex, ethical questions, which are

²⁴ See Neil M. Richards & Jonathan H. King, "Three Paradoxes of Big Data", *Stanford Law Review Online* 66 (September, 2013): 42.

²⁵ Jordan, "Beneficence and the Expert Bureaucracy", 386.

important to address. Big data shows ethically relevant characteristics, which show the tendency to support anti- democratic tendencies by hindering insight of citizens. This short example could show that right to have insight, challenge and be informed about the collection and usage of data cannot be guaranteed in the era of big data. Those points are problematical for governments because it might be difficult to react to concerns of citizens, because responsible officers themselves don't have sufficient overview. This does not necessarily root in the unwillingness to gain one, but more in the impossibility to do so, due to the complexity of big data. The ethical expert is called to help to address these problems. In the next paragraph we will see how the role of the ethical expert could be.

II) Tackling the problem

6. What is specific about an ethicist working in governments?

The lack of unity in job descriptions of ethicists working across multiple layers of governments makes it hard to answer this question precisely.²⁶ What I say in the following is therefore a tendency.

Ethicists, who work in the corporate world, such as businesses show a tendency to focus on ethical conduct of all employees within the organisation. This includes topics like waste, fraud, mismanagement and abuse.²⁷ Ethicist, who are working for governments are constrained by the public interest and aim to clarify where private motivations might impinge those interest. Corporate ethicists on the other hand are not concerned by the public interested but are focused on the interest of the corporation and its profits. Working as an ethicist for governments binds the ethicist to strict rules and laws, what she can and cannot do.²⁸

Beside those differences also similarities can be found, between an ethicist working for a governments and the one working for other corporations. To name one, both are charged creating, enhancing or maintaining an ethical environment of the organization.

²⁶ See Smith, "Corporate Ethics Officers And Government Ethics Administrators Comparing Apples With Oranges or a Lesson to Be Learned?", 639.

²⁷ See *ibid*, 634.

²⁸ See *ibid*, 646 f.

This goes hand in hand with training and education to enforce an ethical environment.²⁹

7. What is an ethical expert?

Julian Baggini describes the paradox of ethical expertise. On the one hand, a broad knowledge is necessary and at the same time very specific knowledge is needed.³⁰ This paradox is also relevant in our case. On the one hand, the ethical expert needs the ability to see the greater picture of what big data is used for and on the other hand, very detailed knowledge about involved concepts within big data are relevant. Baggini describes that, usually, the ethical expert is expected to be a sage, meaning someone who is capable of making good judgements and giving good justifications for them.³¹ Peter Singer states that there is the misleading idea that moral experts are not possible because a) they are just preachers or b) their judgments are mostly emotive and, therefore, everyone's moral opinion is equal or c) there are no facts involved and, therefore, a clear right or wrong does not exist.³²

When we talk about expertise, we usually have a certain trait in mind that an individual possesses and allows her to apply knowledge (the combination of philosophical wisdom and practical wisdom) in a way that she reaches an end. To have expertise requires that the person has reached a level of excellence in the accumulation of facts and the application of knowledge. The classical formulation of *arête* (excellence) as the combination of *Sophia* (wisdom) and *phronesis* (practical knowledge) means that expertise has to be into the service of an end. In the case of governmental expertise, this knowledge has to be put towards ends, which are established by citizens and their elected and legitimate authoritative representatives.³³ The crucial part is here the necessity that ethical expertise has to serve the interest of the people.

²⁹ See *ibid*, 647.

³⁰ Baggini Julian, "No one is an ethical expert: long live ethical expertise," in: Mariette van den Hoven, Lieke van der Scheer, Dick Willem (red.) *Ethiek in discussie. Praktijkvoorbeelden van ethische expertise*. Assen: Van Gorcum, 2010. 16.

³¹ See *ibid*, 25.

³² See Peter Singer, "Moral Experts," *Analysis* 32, no. 4 (March, 1972): 115 f.

³³ See Jordan, "Beneficence and the Expert Bureaucracy", 383.

The education of the ethicist allows her to analyze problems in a more structured and analytical way. Her education in moral theory makes it more likely that the ethicist has reached a certain level of abstract thinking. Education alone does not yet guarantee this capability, since factors, as the quality of her former education might be quite influential. What she has proven by going through an ethics education is that she was taught to reconstruct the viewpoints of others by reformulating and using written theory by others. Therefore, we can say that the ethicist expert can contribute two major skills, which are developed by education and talent; a) the analysis and clarification of problems and b) the construction and assessment of viewpoints.³⁴ That means that also laypersons without educational background might have developed those capacities. It just means that the philosophy student might have developed more analytical and reflective ways of thinking. I also want to avoid any intellectual arrogance; I just want to state that the kind of knowledge differs. Aside from the development of those capacities, the ethical expert has the advantage of having the time or even be employed to think full-time about moral issues.³⁵

8. What kind of different approaches can be found?

8.1 The ethical facilitator

The facilitator is one type of ethical expert. She does aim to give clear answers to problems, but aims to slow down processes in order to give space for discussion. She facilitates an open process of reflection. Her aim is to help others learn the skill of how to reflect. In this sense, she is similar to a midwife (as described by Plato in *theaetetus*³⁶) who does not claim to have a certain standpoint herself but wants to help to 'deliver' the ethical standpoint of others. The facilitator sees herself in the role of developing and leading ethics education initiatives and programs. She is developing educational initiatives, which open a room for learning and reflection. She is not so much an authority because she is herself on the way and involved in the process of

³⁴ See *ibid*, 363.

³⁵ See Singer, "Moral Experts", 117.

³⁶ Plato, *Theaetetus*. "trans. FM Cornford." *The Collected Dialogues of Plato, ed. Hamilton and Cairns, 149d* 28 (1935): 24-25.

learning. The first aim is helping to create an informed community.³⁷ What it means to have an informed community is depending on the focus. In a best case scenario the ethicist contributes to inform the society as a whole. This, however would be beyond the power of the ethicist alone, therefore we can say that the informed community are those, who work with big data. The second aim is to introduce awareness.³⁸ Here as well, it would be necessary to introduce awareness not only to a small group of people but also to those, who are part of the society. This would be necessary to enable them to vote and take informed decisions. We will focus on civil servants, because they have huge impact to the outcome of how data is used. Further, it is a rather limited group, which can be addressed. The question how to deliberately increase democratic processes, cannot be addressed here.

And the third aim is to generate recognition of involved values.³⁹ The fourth aim is that the ethical expert functions as a facilitator to guide discussions in a productive way.⁴⁰ She is better educated in moral theory and can therefore help to make the discussion more fruitful. In this function the ethical expert gives no judgements but supports the critical reflection of others. That is the one way ethical expertise is possible. I will call this type of ethical expert the ethical facilitator.

8.1.3 Concerns

1. “Endless talking!”

This approach of ethical expertise might take a long time and run into danger of not finding clear answers. That means that ethical education might end up in never-ending discussions about ethical principles. It might appear for colleagues that the ethical expert is producing more problems than she is solving. This might occur if the facilitator keeps on searching for another, hidden principles.

Since the ethical facilitator wants to create space for discussion, the best thing that can happen is, in fact, that a discussion happens! The role of the facilitator should aim to

³⁷ See Jan Crosthwaite, "Teaching Ethics and Technology – What Is Required?", *Science & Education* 10, Nr. 1–2 (o. J.):99.

³⁸ See *ibid.*

³⁹ See *ibid.*

⁴⁰ See *ibid.*

keep the discussion focused and by being able to summarize the viewpoints of others, and wrapping up discussions.

2. “What do you know, dear ethicist?”

Since expertise is still associated with hard fact knowledge, the facilitator might have problems of authority, in the sense that it might be difficult for others to take her seriously. That could lead to the practical problem that she is seen as a “softy”, who is not to be taken seriously.

That might be particularly difficult in situations where quick solutions are needed and clear guidance is requested. There is not always time to do some further investigation about the greater picture, like the question about what kind of society we want to live in.

This concern has its points. Not always is the facilitator the best model, and especially in cases of emergency, it might be the wrong strategy to address the problem with a wide discussion. In those moments, the hands on approach of the consultant might be better suited because in this role she aims for clear solutions.

The role of the facilitator has the strengths to contribute to an open, non- hierarchical way of discussing ethical issues. The facilitator contributes to the recognition of ethical issues through her analytical skill in leading discussions. This is necessary to develop a greater picture, how we want to use certain technologies in a way that they serve the public interest, and a society we want to live in. The weak points, such as being at risk of being vague and not efficient, can be beneficially accompanied and balanced by the role of the ethical consultant, as presented in the next paragraph.

8.2 The Consultant

The subject of ethics consultation was been widely discussed in the field of medicine, which caused controversy about specific competences and necessary qualifications of the ethical expert.⁴¹ Other lines of argumentation were more focused on the question of whether the ethical consultant should work alone or in committees.⁴² Others have focused on the question about how we can understand ethics consultation as a practice.⁴³ To elaborate those aspects is beyond the scope of this paper, but could be elaborated in future research.

Even though the context of our debate is very different from medical ethics, we can lean on the abstract and theoretical foundation established by scholars in this field, as long we have distinctive differences in mind. Medical ethics, for instance, is occupied with patients, whereas in our context, the target group is professionals in governments. This is important to keep in mind, using literature from the field of medicine ethics.

As the name already suggests, the ethical consultant offers a consultation to staff or administrators in a specific ethical issue. She functions as an advisor in difficult situations and provides clear answers. The consultant also provides ethics consultation regarding organization management and governance issues.⁴⁴ What this consultation will look like depends on the partner the ethical consultant is talking to. In case the consultant is talking to a policy maker, she might give clear directed answers on what

⁴¹ See for example: David Barnard, "Reflections of a Reluctant Clinical Ethicist: Ethics Consultation and the Collapse of Critical Distance", *Theoretical Medicine* 13, Nr. 1 (March, 1992): 15–22.

⁴² See for example: Cynthia B. Cohen, "Avoiding Cloudcuckooland in Ethics Committee Case Review: Matching Models to Issues and Concerns", *Law, Medicine and Health Care* 20 (1992): 294.

⁴³ See for example: George J. Agich, "The Question of Method in Ethics Consultation", *The American Journal of Bioethics* 1, Nr. 4 (December, 2001): 31–41.

⁴⁴ See Paula Chidwick, Jennifer Bell, Eoin Connolly, Michael D. Coughlin, Andrea Frolic, Laurie Hardingham, and Randi Zlotnik Shau, "Exploring a Model Role Description for Ethicists", *HEC Forum* 22, Nr. 1 (May, 2010): 39.

to do. The ethical consultant can make value judgements based on the belief of others that she is the best for this job.

Giving consultations to civil servants might include the analysis and discussion of an analytical concept, like the concept of privacy. Being a consultant comes with a certain authority. The consultant claims to know something the other does not know and acts as an authority in telling the other what to do. The consultant will provide, for example, an answer about the structure: this practice might be harmful, because the right to privacy, like stated in the declaration of human rights paragraph, was injured by this practice, therefore this practice should not be used. The ethicist's judgement is based on best-interest consideration and her knowledge of human rights. This role shows that the ethical consultant functions as the defender of assumed civil interests and rights.⁴⁵ That could imply that the ethicist could also work as a consultant for citizens who want to have guidance.

Aside from giving clear advice, the consultant also develops organizational policies and standards, such as guidelines and protocols.⁴⁶ Her approach is 'hands on' in the sense that the role of the consultant is searching for clear solutions for occurring problems. Her attitude is therefore straight to the point and clear. She formulates her opinion. She is justified to do so by her ethical training and educational background. This background allows her to analyse problems in a more detailed way. She is, therefore, working as an analyst of ethical problems. Those problems show a theoretical level, namely the level of the involved ethical concept. There is a practical level, specifically, on how the inference of those concepts may affect human life. The ethical consultant addresses both layers and therefore needs not only profound training in analysing and interpreting, but also knowledge about the involved concepts, such as privacy. This form of ethical expert is what I call the consultant.

The ethical consultant may use certain tools, helping her to address ethical issues in more structured way. Those tools contribute, to the ethical professionalism, because they are concrete methods. Here is one possible tool, which supports the role of the ethical consultant.

⁴⁵ See Agich, "The Question of Method in Ethics Consultation", 34.

⁴⁶ See Chidwick et al., "Exploring a Model Role Description for Ethicists", 39.

Consultation and surveys

To gather the views of stakeholders, policy makers frequently use consultations and surveys. In consultation, the government frequently will pose a set of questions. These are posted on the website with the aim to invite stakeholders to comment on it. Citizens and other stakeholders then have the possibility to comment on the question asked or elaborate on their view about the issue at stake. The open and transparent nature of consultation is a virtue of consultations. They are transparent because everyone can comment on the question and the results will be published. The biggest problem, however, is that those kinds of consultations are not really successful, due to a rather low response rate. Furthermore, the policy maker cannot be sure that the outcome represents a cross-section of the public. Hence, we can say that surveys are useful tools, but not sufficient for sole use, because not enough stakeholders participate.⁴⁷

8.3 Concerns

8.3.1 “Her consultation highly depended on her personal judgement.”⁴⁸

This is true, that the ethical consultant has the authority to reinterpret oral cases and shift the discussion into directions she thinks are relevant.⁴⁹ This is, however, the position for which she was hired. Her consulting, even though shaped through personal worldview, is still educated in ethical concepts and theory and can, therefore, be expected to be finer. We can further say that with on-going experience, her skills will further increase. That said, aside from her educational background, her routine in dealing with ethically difficult situations will also shape a more objective lens, which will help her to address ethical topics more routinely.

⁴⁷ See David Wright, "A Framework for the Ethical Impact Assessment of Information Technology", *Ethics and Information Technology* 13, Nr. 3 (June,2010): 216.

⁴⁸ See Agich, "The Question of Method in Ethics Consultation", 35.

⁴⁹ See *ibid.*

8.3.2 “How can one be a consultant in a field like big data, which is so complex?”

This point is very important, because it indicates a limit of the role of the ethical consultant. In the field of big data, she should and cannot give clear yes or no answers, which might be the case in the field of medical ethics.

The role of the ethical consultant depends on the partner. Talking to policy makers, she might function as a clear adviser or create protocols, guidelines or policies. The other function might be that she is the critical voice reflecting public interest. We have seen that it is not necessarily a problem that she forms judgments based on personal beliefs, but in the field of big data her consultation has limits. With Baggini, we can argue, that a single person does not have the capacity and knowledge to take fully justified decisions, which are so influential for the lives of others, therefore, it is better to install ethics committees to do so. Benefits and problems of such committees cannot be discussed in at this point.⁵⁰ What an ethical consultant can do, however, is to advise a certain policy, and speak of for the interest of people, for example based on the convention human rights.

8.4 Recap

To address the big data problem it would be dangerous to address it only via consultancy, because it is not possible to give only clear answers. This would be dangerous because the ethicist could become a tool of window dressing, to give the appearance that ethical concerns of the public are addressed, when they are actually only touched. The role of the facilitator on the other side is problematical as well because it might be not enough to only talk and discuss about ethical topics. Further, even though there might be good methods of how to approach the role of the facilitator, it still seems rather soft, in the sense, that it is not clear enough what the ethicist really

⁵⁰ See for example: Marcel Verweij, Frans W. A. Brom, Alex Huibers, "Do's and Dont's for Ethics Committees: Practical Lessons Learned in the Netherlands", *HEC Forum* 12, Nr. 4 (December, 2000): 344–57.

contributes. In a next step, I will discuss how a hybrid between both roles might be a good way to overcome difficulties of each approach.

9. Developing an hybrid approach on a case study

In this section, I am going to argue that the role of the ethicist in advising governments in their big data practices is a hybrid between the role of the ethical facilitator and the ethical consultant. In order to so I will undertake several steps. First, I will clarify, the aim of such an approach. Then, I will introduce the system to prevent crime. I have chosen this example, because it shows, the positive potential of big data to increase for example security. Those, positive sides, do not come without problematical aspects, where ethical expertise is asked for.

9.1 What is central for the hybrid approach of an ethicist in big data, working in governments?

The aim of this approach is to engage people in the ethical reflection of big data and develop a culture of engagement. Ethics scholars already debated the importance of the organizational culture some time ago.⁵¹ Scholars like Murphy (1988) have emphasised the importance of open discussion of ethical values⁵² Thus, there is nothing new about the necessity of a culture of engagement. This culture of engagement is characterized by a general attitude of people working with data, implying that they challenge their ideas, speak out for possible dangers, and reflect on the use of technology serving the general picture of a good life. A culture of disengagement would yield a dangerous, general boredom towards those topics, especially in the field of big data, because it is a

⁵¹ See for example: Edwin M. Epstein, "Societal, Managerial, and Legal Perspectives on Corporate Social Responsibility--Product and Process", *Hastings Law Journal* 30 (1979 1978): 1287.

⁵² See Nicola Higgs-Kleyn, Dimitri Kapelianis, "The Role of Professional Codes in Regarding Ethical Conduct", *Journal of Business Ethics* 19, Nr. 4 (May, 1999): 366.

powerful tool, which could tend to harm democracy, as shown above. Those tendencies must be monitored, especially within governments, because as a democratic institution it would be reckless to do otherwise. Therefore, we can state that such an approach is particularly needed, given the complexity and impact arising through big data practices.

Since governments, by design, consist of varieties of people working them, the ethicist wants to address those people. The goal of the ethicist is, therefore, to contribute to the interest of people in the topic of big data, the involved concepts and the possible danger. Aside from creating awareness through interest, the ethical expert also aims to inform employees, such as civil servants, about known risks. This aspect is closer to the role of the ethical consultant. This hybrid approach promises to offer practical solutions and hands on attitudes in order to tackle those immense ethical challenges. It is an ambitious goal to engage stakeholder, and still a necessary and important way to address big data ethical problems.

The ethicist, working alone or in committees should motivate people to undertake moral reflection and discussion. The supportive nature of the ethicist should be promoted. That means that the ethicist should truly help her colleagues to a) reflect for themselves and b) come up with clear and good decisions. It is further important to demystify ethics. That means that the ethicist should try to avoid complex philosophical jargon but keep her feet on the ground. This will contribute to an open discussion. The comfort of the participants is relevant to create a non-hierarchical environment in which everyone can speak up and participate. The communication culture is essential for the success of the deliberation. The reflection should stay publicly open and it is important how to continue to implement the results and how to communicate them.⁵³

Since ethics is perceived as such a complex and complicated thing. A clear and systematic approach to moral reflection is therefore necessary. The ethicist should develop the capacity to guide the discussion in a productive way, so that members feel free to participate and feel understood. It is important to take care of hierarchical talking structures. The ethicist should function in discussions as a facilitator and take care that no members talk too frequently and take a dominant position. The ability to listen to the arguments of the others should be developed. In order to avoid

⁵³ See Verweij, Brom, Huibers, "Do's and Don'ts for Ethics Committees", 349 f.

ineffectiveness, clear aims should be formulated and a plan should be provided how this aim can be realized.⁵⁴ This could be achieved through organise staff meetings, organize a public debate, publish short case discussions, or present discussions in organisational newsletters.⁵⁵ Discussing counter example, install questionnaires or think of other creative ways to engage stakeholder and make the debate as lively as possible.

To sum this section up, we can state that the hybrid aims is to contribute to open discussion and a culture of engagement within civil servants. This can be achieved through informing about known ethical risks. This aspect is more characteristic for the consultant. Beside from information, good communication within the group is needed. The ethical expert therefore promotes ethical deliberation. This aspect is more characteristic for the ethical facilitator. Both aspects of ethical expertise are needed in the field of big data to address the complexity.

9.2. Getting practical

9.2.1 *The case: A system to prevent crime*

The trend to base decision-making on data and analytics also is increasingly used by both government entities and private organisation to use tremendous amount of quantitative information to maximize both efficiency. This trend allows crime analyst to have more insight into data and the usage of innovative software enables them to see where crime is going to occur and where possible criminals are likely to be located.⁵⁶

⁵⁴ See *ibid*, 350 f.

⁵⁵ See *ibid*, 351.

⁵⁶ See Jennifer Bachner, "Predictive Policing.pdf", <http://www.businessofgovernment.org/sites/default/files/Predictive%20Policing.pdf>, <http://www.businessofgovernment.org/sites/default/files/Predictive%20Policing.pdf>. (Online accessed at June, 2016) 25.

Crime is something that people want to avoid and so the governments try to reduce the occurrence of it. For a long time the police has tried to understand the patterns of crime in order to know on which areas they have to focus their resources. Practices like these might be conducted not only by the police but also by governments in cooperating with the police. This might be a useful tool to know where to locate more police officers, or where in the city more infrastructures like streetlights would be needed. We can assume that criminality, like burglary, rape and other kind of street violence will influence the feeling of safety people have in a city and it might be interesting for a city government to increase the general well being of people within their city. It might therefore not be so unlikely that local city governments install these systems.

Big data raises hopes that these systems become successful and really contribute something to the overall security of places. For instance, this is already the case in different cities in the United States of America such as The Santa Cruz in California, where police and social scientist have developed software that should allow them detecting the 15 most likely hotspots where crime is likely to occur. The software allows them to narrow the area of likelihood down to 150x150 meter. The Baltimore County, Maryland police has installed time and space analysis system in order to interdict suspects in serial robberies. And in Richmond, Virginia police is using social network analysis to determine suspects to block the suspect's resources to force the suspect to go to the police herself to report.⁵⁷ This could for example imply the blocking of visa cards and phones.

9.3 What this technique to prevent crime might look like

The process of predicting this crime needs humans to collect, prepare, analyse datasets and communication between those involved stakeholder is needed to implement those systems. Let us now look how this could look like in more details. Each projects has several phases.

Firstly, police or governmental entities have to formulate a question. This question is either tactical, such as predicting the likely locations of burglary, or strategic to forecast

⁵⁷ See *ibid*, 6.

how much personnel is needed in the next years. Secondly, it will be checked if all the necessary data is already available to answer this questions. In some instances it might be necessary to acquire additional data or to modify the existing data.⁵⁸ This step might imply to buy data form external parties. After gathering and identifying the necessary data it must be processed to be ready for further analysis. This step may require cleaning of unnecessary information, recoding variables, filling in of missing data, adding matching observations, and validating data. After this step the data analyst uses techniques such as clustering of information or social network analysis.⁵⁹ The whole process will be concluded by the formulation of recommendations, depending the purpose of the analysis, for policy maker of other offices in charge. The recommendations that result from the data analysis might be surprisingly and might ask for further readjustments or discussions between officers and analysts might be necessary.⁶⁰

Projects as the one described above usually have different phases. Before each phase begins, and after it is finished room for ethical reflection, balance outcomes, and possibly limit the usage. As a next step, I will demonstrate, how the could approach a situation as described.

10. Procedure

10.1 Understanding context

During the first phase, certain aspects of the ethical facilitator might be needed more, because in this phase it is not, yet, important to give clear advice nor present clear findings. Instead, she must first gain a general understanding of what is happening. The

⁵⁸ See *ibid*, 12.

⁵⁹ See *ibid*.

⁶⁰ See *ibid*, 13.

ethicist, in this role, enters the scene like a curious outsider and tries to build an understanding of where the root of the ethical problems could be. For the ethical facilitator it would not be beneficial or supportive to enter into a new context, not having sufficient knowledge about the setting, and already appear as an authoritative force. One of the most relevant questions, in the beginning of the project, could be whether or not this practice is supporting a society we generally want to live in? Which aim is the project serving and who is benefiting from it? Another question worth raising is whether the planned project is suited to be conducted by an institution like the government or the police? This question is important in order to reflect on the purpose of the institution. What is the overall picture the government wants to present? And which general values does it embody? Those questions could be used to set the condition for further reflection. They are formulated in a very philosophical and broad sense because the idea is to open room for discussion and reflection. Open questions should be used to engage involved parties in the reflection.

Those entire broad questions are more characteristic for the ethical facilitator.

And still, certain traits of the consultant are also needed in this first step. When we think of the system of preventing above-mentioned crimes, some ethical questions are, by nature, not that obvious as the one of the facilitator. For example, does it matter how research questions are formulated? This means, that the question of how to prevent crime might carry certain assumptions and biases to those who develop the data analysis. It is not about being free of all kinds of biases. That would be utopic to reach and also the ethicist is clearly not unbiased herself. In a more consultant role, however, she could inform and educate staff, like data analysts, about risks of biases. For example, the question, "Where do the most robberies happen?" might already focus on criminality of certain people, with certain backgrounds. Profiling could easily happen and becomes a discriminative practice, because crime of the unemployed, low educated people becomes visible. Whereas high scale crime is in danger of not being addressed. Individuals and groups could become targets of second-class treatment.⁶¹ Equal treatment, however, is a necessary value in a democratic society. By pointing at the dangers of unequal treatment, based on data analysis, the ethical consultant would

⁶¹ See Jennifer C. Daskal, "Pre-Crime Restraints: The Explosion of Targeted, Non-Custodial Prevention", SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, July 5th. 2013), 333, <http://papers.ssrn.com/abstract=2290334>.

raise voices 'for the people'. This aspect of her work is, therefore, more closely related to the role of the ethical consultant.

10.2 What kind of data is involved? Identify ethical issues

The second phase of the prediction of a crime example illustrates the search for the right dataset. This could be a good moment for the ethical expert to create some space and reflection. In this phase, some elements, which are more characteristic for the consultant, are needed. At this time, it would be a good to inform those, who are involved in collecting and creating this dataset, about problems like informed consent, privacy, bias. So, is informed consent a problem because data of citizens will be used without letting them know? Among others, privacy might be a problem, such as data from Facebook profiles, for example, might be used. Even though this data was given willingly to the public, it is still important to inform people about different concepts of privacy and their importance. Another relevant aspect is the bias. It might be possible, for example, that the dataset is not a good representation of the population, in the sense that it focuses too much on a certain group within society and misses out on other groups. Again, in addressing a more educational role, the ethicist claims to have certain knowledge about what the other stakeholders don't have. It is not necessary that the ethicist addresses the topic top down, and still is this aspect of the role more interested in forcing others to gain information about a certain ethical topics?

10.2.1 Possible tools

1. Expert meeting

One possible way to address this issue would be to organise an expert workshop. Ideally such workshops gather representatives of various stakeholder groups to discuss

the relevant issues. Frequently the workshop focuses on a limited number of issues. The role of the ethical expert is then to work on the report between the workshops. This report could then be published on the webpage of the government. Whether the workshop is successful depends on the chairperson of the workshop, the structure of the meeting and the chemistry between the representatives. A benefit is that it allows in depth discussion of the ethical issues. Another benefit would be that during the discussion the stakeholders could learn from each other. The problem might be that it is still difficult to get a representative view of ethical considerations of the population. The ethicist could present one clear argument in this expert workshop, why the planned practice is problematical for democratic values. ⁶²

2. Questionnaire

A good way to address ethical issues in the field of big data is due questionnaires. Those avoid being prescriptive and still are supportive for reflection.⁶³ Stakeholders within an organisation can use checklist questions to gain a starting point of reflection. One possible drawback might be the danger that the process of answering might become routinized, which could be a problem because then reflection might not occur as intended. Apart from the risk of using the question checklist too mechanically, it seems the best tool.⁶⁴ The routinized mechanism in answering the question could be also beneficial because then the checklist serves not only as a reflection tool but shows also educational purpose. Questions should be asked in a way that critical engagement and reflection is needed to answer them. After those checklists are filled in, they can be used by the ethicist to prepare a consultant session with the most urgent or relevant topics. The function of checklists is therefore two folded. Firstly, does the filling in of the answers already fosters reflection and can stimulate certain thoughts. In this aspect the questionnaire functions as educational tool, in the sense broader questions are asked, which might under circumstances would not have been asked otherwise. Secondly, those questionnaires function as structuring tool for the ethicist herself and help the

⁶² See Wright, "A Framework for the Ethical Impact Assessment of Information Technology", 217.

⁶³ See *ibid*, 200.

⁶⁴ See *ibid*.

ethicist to address ethical relevant issues in a mixture of open dialogue, and consultancy those topics.

10.3. Analysis and further steps

In a last step the ethical expert will summarize and cluster the relevant ethical issues. This phase will show more aspects of the ethical consultant, since it might be necessary to formulate concrete arguments, why a certain practice might infringe a certain ethical concept like privacy. The goal of the ethical expert should be to formulate clear next further steps. Either information sessions have to be organized – what would be again more the role of the consultant- or open discussion rounds – facilitator- to develop a general debate. Certain tools can help the ethicist to address ethical problems in a structured way.

The ethical expert follows a three-step procedure. Firstly, gaining some insight in the context is relevant. Secondly, certain tools like questionnaires can be used to distil the most ethically relevant issues. Those issues can be addressed, through expert meetings to discuss and inform. Thirdly, the ethicist sums up the most relevant points, and aims to communicate further steps, in order to keep the discussion on-going, and productive.

11. Similar approaches in the literature

The assessment of David Wright aims to provide a framework of how to address ethical implications of technology in the realm of policy or programming.⁶⁵ His assessment could be used a supportive framework to address big data challenges in big data.

David Wright offers a framework for technological assessment to meet the needs of clear, structured, step-by-step guidance for ethical reflection. The idea of adding some

⁶⁵ See *ibid*, 201.

context is not new, per se, and Wright can be situated in the history of computer ethicists, starting with Moor. Moor, one of the earliest computer ethicists, mentioned the need for ethicists to question how computer technology should be used. For Moor, Computer ethics is not a set of fixed rules, but more the act of rethinking the nature of a certain computer technology and our values. Wright's ethical impact assessment can be seen as one way of addressing the mentioned attempts to rethink how we should use a computer technology like big data.⁶⁶ The framework is highly interesting for our purposes, because it was developed to address the needs for ethical reflection of politicians and those developing technology, which has ethical implications. In addition, his ethical impact assessment can be used by civil society organisations to increase awareness.⁶⁷ He formulates a rather open and flexible account, in the sense that he gives ideas of what could be done or thought of more than providing a prescriptive rule set of what ought to be done. The complexity of big data and the unpredictability of what is going to happen with big data in the future make such an open approach relevant for our purposes. It would be dangerous to give rigid guidance, because the danger of overseeing important issues would occur. This open account gives enough guidance to make the discussion productive and useful for the ethicist working with it, without falling into the trap of providing clear answers in the field of big data. That is through its technical complexity and the size of involved datasets, beyond what human minds can understand.

David Wright's framework for ethical impact can be used in the field of policy, service and other projects where information technology is involved. This framework consists of three steps. Firstly, to identify the most relevant stakeholder, secondly, identify key social values and ethical issues. Thirdly, to give some background explanation to add some contextual information; and to provide a checklist with questions, which are aimed to increase reflection of policy-makers.⁶⁸

His structured framework could be beneficially implemented and used by the ethicist, since it enforces the hybrid role of the ethicist, in the sense that each step fosters the role of the expert as a hybrid between consultant and facilitator, because analysis,

⁶⁶ See *ibid*, 200.

⁶⁷ See *ibid*, 201.

⁶⁸ See *ibid*, 199.

information and dialogue occur as tasks of the ethicist. The difference between Wright's framework and our approach is that in our approach aims to focus more on the role of the ethicist to increase a culture of engagement.

11. General Objections?

I will start with a very theoretical objection, and then 'zoom in' to more practical objection.

a) "The philosopher should not participate but just criticise"

This position was frequently brought up in the beginning of the ethical debate about computer ethics and was discussed under the term the 'no resolution' approach'. According to the "no resolution approach" computer ethics is per se pointless, since there is no conceptual foundation for the discipline. Donn Parker (1977) for example claimed, that there is not such a thing like computer ethics, since there are so many different opinions on what ethics should mean. The only way is to raise some questions. This approach might have been useful in the beginning of computer related debate, because the mere goal is seen to raise ethical questions, and sensitize people about the fact that technology is not neutral. This approach is mostly concerned with pointing out what goes wrong but fails to promote a relevant, beneficial, and professional ethos.⁶⁹

The contribution of this approach is mostly to raise some questions through mapping case studies. This should help to increase awareness and set the basis for further discussion. It can be described as the minimalist starting point of the discussion but focus more on the aspects which do not work, than on how to address it.⁷⁰

⁶⁹ See Floridi and Sanders, "Mapping the Foundationalist Debate in Computer Ethics", 2.

⁷⁰ See *ibid*, 3.

Given the impact computer technology such as big data has today, we can say however, it might not be enough as a professional ethicist to only criticise. Constructive and productive ways of addressing the big data problems can be found in order to be prepared for the huge impact big data could have on the way we live. Since there is a request for ethical expertise this position should be taken seriously. To be in the role of the critique is part of what is needed working as an ethicist but the overall aim should be to enable dialogue with stakeholders, since this might be the most efficient ways to increase awareness.

b) “ Why do we need to employ an ethicist? Aren’t Codes of Conduct better ways to address ethical problems more efficiently?”

It might be an easy way to install codes of conducts to increase awareness in employees and make surveys about the interest of the people. Those two methods could be easily installed. In this section I will show that those two ways are not a solution, for the arising ethical problems, because code of conducts are not efficient enough, and surveys lack the necessary representational force, because not enough people get informed.

One frequently heard suggestion is the need for professional code of conduct⁷¹, which should assist the profession in his on going relationship with society and its desire for self- regulation.⁷² Generally three types of code of conducts can be found. Codes that transport a short set of ethical

⁷¹ Note: For a detailed overview about what it means to be a ‚professional’ see for example: See Higgs-Kleyn and Kapelianis, ‘The Role of Professional Codes in Regarding Ethical Conduct’. *Journal of Business Ethics* 19, Nr. 4 (May, 1999): 363–74.

⁷² See Jeffrey R. Cohen and Laurie W. Pant, "Beyond Bean Counting: Establishing High Ethical Standards in the Public Accounting Profession“, *Journal of Business Ethics* 10, Nr. 1 (o. J.): 45.

principles, which are formulated in the imperative mode; codes that are more specific, and explain the relationship to the client; and codes that are technical documents that define the standards for the members of a profession.⁷³ Frankel (1989) sees three elements of professional codes of conducts: aspirational ones, which formulate the ideals the professional should strive for; educational ones, which should help dealing with ethical problems and regulatory ones, which consist of clear set of rules.⁷⁴ The idea of installing ethical codes of conducts appears frequently. Gotterbarn, one of the founding fathers of computer ethics, also addressed challenges. In his view, the main goal of the ethicist should be to increase the feeling of professional responsibility in those working with computer technology. He explains the lack of this feeling, due to a culture of negative responsibility. The focus is not on shared responsibility and future progress of everyone, but more on who is to blame. He suggests that the development of codes of conducts would be a way to overcome this. He thinks that this approach would be a useful way to create a climate of responsibility.⁷⁵ It is only partly valid, that in increasing the feeling of responsibility, codes of conduct would function, as a catalyst for public and professional awareness alike. The advantage of this approach is that this approach is mainly focussed on addressing those professionals, who are involved with computer technology, establishing code of conducts and creating regulations. Further, it stresses the importance of education, and designing standards and professional guidelines.⁷⁶ In this sense, we can say that the codes of conduct' presented by Gotterbarn, have both educational and aspirational functions.

⁷³ See Higgs-Kleyn and Kapelianis, "The Role of Professional Codes in Regarding Ethical Conduct", 364 f.

⁷⁴ See *ibid*, 365.

⁷⁵ See D. Gotterbarn, "How the New Software Engineering Code of Ethics Affects You," *IEEE Software* 16, no. 6 (December, 1999): 59.

⁷⁶ See Floridi and Sanders, "Mapping the Foundationalist Debate in Computer Ethics", 3.

Crawford and colleagues have mentioned that the effectiveness of code of conducts might be limited.⁷⁷ Several studies have showed that the effects of instructions like code of conducts might have mixed effects on ethical decision-making. The ethicality of decisions made with respect to data management, study conduct and professional practice did not improve during the instructions. The ethicality of decisions related to business practices, however, even decreased. What seems to be encouraged is the use of helpful strategies, such as recognizing the elements of the situation and the ability to analyse the personal motivation. What was further shown, is that after introducing instructions, even negative behavioural responses could be observed. That means that participants seem to be more deceptive, retaliatory, closed, and neglectful in their personal responsibility. That indicates that even though participants were able to analyse the ethical problem more skilfully, with regard to the social aspects of the ethical problems, they did not improve in their ability of making ethical decisions. This indicates that instructions might even be harmful on the ability of ethical decision making.⁷⁸ This might be caused because those kinds of instructions might encourage self-protective behaviour.⁷⁹ Or hinder the willingness to think for one. In the study, it could be shown that the defensive response patterns might even provoke the unwillingness of students to take personal responsibility.⁸⁰ Another problem might be that ethical instruction plays into biases that people have about themselves. Those biases let humans think, that they are ethically developed enough, so that they don't need ethical training. Related to this is that once you have a certain knowledge about ethical issues, it might lead to the assumption that you already know how to engage in ethical decision making.⁸¹

⁷⁷ See for example: Alison L. Antes et al., "Evaluating the Effects that Existing Instruction on Responsible Conduct of Research Has on Ethical Decision Making", *Academic medicine : journal of the Association of American Medical Colleges* 85, Nr. 3 (March, 2010): 519–26.

⁷⁸ Ibid, 4 f.

⁷⁹ See Coulehan J, Williams PC. Vanquishing virtue: The impact of medical education. *Acad Med.* 2001; 76:598–605. [PubMed: 11401802]

⁸⁰ See Antes et al, "Evaluating the Effects that Existing Instruction on Responsible Conduct of Research Has on Ethical Decision Making", 9.

⁸¹ See *ibid.*

This indicates that the formulation of codes of conduct might not be enough to increase the engagement of employees. Codes of Conduct for professionals working with technology are one of the first practical attempts to solve ethical problems. It is still thought to be a good tool for increasing awareness and helps to develop professional engagement. Recent studies have shown, however, that codes of conduct might be a starting point and serve for educational purposes. But it cannot be the only solution to involve employees. The involvement of participants might be a more beneficial way to address occurring ethical issues.

That said, shows that it is not sufficient to just install code of conducts, but that the ethical expert should work in governments on a regular basis to contribute to create a broad culture of engagement.

12. Practical Implications

When we agree on the assumption that the ethical expert should contribute to a culture of engagement, because the interests in ethical themes are the basis of tackling problems occurring with big data technology, then practical implications are wide. Ethics education within universities should focus, not only on analytical skills, but also on deliberation models, which make room for discussion and train the ethicist for the role of the facilitator. That would further imply that a certain amount of knowledge about group dynamics would also be helpful, to react towards communicative challenges within groups and in order to provide a safe space of discussion. Involvement is one axis of the role of the ethicist in advising governments, but not the only one. We have seen that situations occur where the ethicist will function more as a consultant. To do this in a professional manner, however, the ethicist would benefit from a deeper technological understanding and enough background knowledge to advise intelligently with regard to data analysis, statistics and data visualization. Even

though the ethicist will likely work in multi- disciplinary teams, it would be still be beneficial to get a basic understanding of involved practices.

Furthermore, it might be necessary to train people more in the ability to give clear answers about what they can offer for institutions, like the government. This might be necessary, because if there is no threat and no obvious problem, it is may not be clear why ethical expertise would be needed. When there is an urgent threat, expertise is critical, but with limited time to fully reflect. Young ethicists should be trained in formulating the need for ethical expertise in the field of big data, to formulate why ethical expertise is needed. Current laws are not sufficient to cover the demand for guiding actions. So, part of the young ethicist's training ought to be in communicating the strategic need for ethical expertise in a more profound way.

13. Limits of the presented approach

Floridi and Sanders (2002) have pointed out; that there is a danger of misunderstanding a practical approach towards computer ethics as presented above as the only possible approach to do computer ethics. The professional approach should not be mistaken as creating the conceptual foundation for computer ethics. To understand “computer ethics as just professional ethics, not in need of any further conceptual foundation, means running the risk of being at best critical but naïve, and at worst dogmatic and conservative.”⁸² Any form of applied or professional ethics has to give room for critical theorizing. The professional approach, at its best, has to distinguish between problems and meta- theoretical research, between normative and descriptive questions, practical and theoretical issues, common sense applications and conceptual criticism. To be precise, this approach has to accept its own limits. According to Floridi and Sanders, those limits are reached by questions like: What kind of ethics is computer

⁸² Floridi and Sanders, "Mapping the Foundationalist Debate in Computer Ethics“, 4.

ethics? What is the contribution of computer ethics to the ethical discourse? Those questions are to be answered by other scholars and this debate has two main lines of reasoning⁸³.

Conclusion

The first section showed that big data might bring out tendencies that the public should be informed about. As long as big data is used, these issues may not be fully resolved. This must be addressed by public debates, discussing where to limit these practices, in order to keep ethical values flourishing. This implies the involvement of citizens. Citizens are more than passive taxpayers, consumers and voters, but should be seen as active and engaged participants. Efforts should be made to make citizens participate more in the debate on how to use big data and to help to address critical public problems. As citizens' participation is a key pillar of democracy, it is important to gain their interest in order to keep them involved in the decision-making processes. It is a matter of personal choice whether or not to actively participate. However reflecting on their role from the perspective of governments illustrates the necessity of encouraging them to be active and interested.

The role of the government is seen as a key problem-solving tool for communities. Governments should think of how to involve citizens and how to communicate with them.⁸⁴ In order to serve the public interest governments have to tackle the ethical problems occurring with big data. The ethical expert is more educated to address these issues in a more structured way, promising to make discussions more efficient and analysis of problems more precise.

We have seen that there are two tendencies regarding how the ethical expert could address the demands for ethical expertise. The first role is the ethical facilitator. The

⁸³ See *ibid.*

⁸⁴ Carcasson, Martín, and Leah Sprain, "Key aspects of the deliberative democracy movement." *Public Sector Digest* (2010).⁴

benefit is that the facilitator enables discussion. This discussion could also be endless and should therefore be wrapped up and kept productive. The second role was the role of the consultant. The consultant informs about the known risks, and speaks up for citizens' rights. This approach is limited because big data is a too complex field and simple answers would be dangerous. Thus, I have argued for a hybrid approach. To answer the research question, we can state that the role of the ethicist in advising governments is a hybrid approach between consultant and ethical facilitator and aims to contribute to a culture of engagement. The question whether or not the used technology is contributing to a society we want to live in is a relevant contribution of ethical expertise in the field of advising governments regarding big data practices. The ethical expert should support processes helping to create a culture of engagement within the government and society.

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