

**Ethical Integration in EU Law by The European Group on
Ethics in Science and New Technologies:**

**A Qualitative Content Analysis of the Prevailing Philosophical
Schools of Thought**

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Abstract

The fast-paced dynamics of science and new technologies often evoke fundamental questions towards a **moral understanding** of right and wrong. They also primarily evoke an **ethical reflection** on its wider societal implications. Yet, in the light of plurality, a consistent philosophical understanding (a constitutional ideal) with respect to ethics and morality in EU law and its politics, seems to be **deficient**.

Against this background, the European Commission has mandated an ‘independent’, ‘pluralist’, and ‘multidisciplinary’ committee, namely the European Group on Ethics in Science and New Technologies (**EGE**). It is comprised of experts from various fields tasked with the aim of integrating ethics and morality in the European Union. The EGE elaborates and publishes comprehensive opinions (perceived as soft law) on current ethically contested developments from science and new technologies arising in the EU. In doing so, the EGE advises the Commission, the Parliament, or the Council to advance **ethical EU policymaking**, either when requested by the Commission or on its own initiative.

By conducting a qualitative content analysis, this thesis addresses the **issue** of possible **systematic biases** towards certain philosophical schools of thought (consequentialism, deontology, or virtue ethics). These are amply reflected in the opinions of the EGE on various ethically contested issues. The inductive research explores the **prevailing philosophical schools** of thought of normative ethics advocated by EGE opinions.

The research reveals that the EGE has recently drawn on normative schools of thought in different contexts for its opinions, but has tended to embrace **deontological** schools of thought the most. This is notable in regards to the ethical issues of synthetic biology (e.g. Human Genome), modern agricultural technologies, energy, and security and surveillance technologies. As a result, the EGE appeals to a restrictive notion of human dignity in the field of bioethics, obligations (social contract theories) with a view to benefit future generations and to preserve the environment as well as the safety for EU citizens. However, in contrast, it is also remarkable to note that the EGE primarily utilises **consequential schools of thought** from an eco-centric perspective to confer **animals** a **moral status** in the light of the EU treaty provisions.

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List of Abbreviations

AG	Advocate General
Art	Article
Arts	Articles
CAQDAS	Computer Assisted Data Analysis Software
CFR	The Charter of Fundamental Rights of the European Union
Com	Commission of the European Union
DG	Directorate-General
Dir	Directive
e.g.	Exempli Gratia - for example
ECHR	European Convention for the Protection of Human Rights and Freedoms
ECJ	European Court of Justice
ECtHR	European Court of Human Rights
Ed	Editor
Edn	Edition
Eds	Editors
EEA	European Economic Area
EGE	European Group on Ethics in Science and New Technologies
EHCR	European Convention for the Protection of Human Rights and Freedoms
EPO	European Patent Office
et al.	Et alia - and others
etc.	Et cetera
EU	European Union
f	Following page
ff	Following pages
FP	Framework Programmes
FP5	Fifth Framework Programme
FP6	Sixth Framework Programme
FP7	Seventh Framework Programme
GAEIB	Group of advisers to the European Commission on the ethical implications of biotechnology

GMO	Genetically Modified Organism
hESC	Human embryonic stem cell
i.e.	Id est - that is
ICT	Information and Communication Technologies
IP	Intellectual property
IR	International relations
MEP	Member of the European Parliament
MS	Member State or Member States
n.d.	No date
NEC	National Ethics Council
NHT	New Health Technologies
no.	Number
OECD	The Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
OJ	Official Journal of the European Union
para	Paragraph
paras	Paragraphs
QCA	Qualitative Content Analysis
Reg	Regulation
RRI	Responsible Research and Innovation
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
UN	United Nations
UNESCO	UN Educational, Scientific and Cultural Organisation
v	Versus
vol	Volume
w/o	Without
WHO	World Health Organisation

1 Introduction

The fast-paced dynamics of science and new technologies often evoke fundamental questions towards a moral understanding of right and wrong and above all an ethical reflection on its wider societal implications. Yet, in the light of plurality a consistent philosophical understanding, that is, a constitutional ideal¹, with respect to ethics and morality in EU law and its politics, seems to be deficient.² This is despite the EU having adopted a set of common values defined in Article 2 of the Treaty on European Union (TEU) as well as legally binding fundamental principles and freedoms stipulated in Article 6, emanating from the Charter of Fundamental Rights of the European Union (CFR).³

Nevertheless, the European Union is dedicated to strengthening its competitive position in the world by means of facilitating investments in innovation and research within a stable regulatory framework.⁴ As a result, new technological or scientific findings, such as advancements in biotechnology, have been central to this discussion, thus putting forth contentious questions towards European values and the general philosophical consensus on ethics and morality in the light of plurality among EU MS.⁵

Due to the lack of regulatory resources in EU institutions, the European Commission has mandated an expert committee – namely the European Group on Ethics in Science and New Technologies (EGE)⁶ – with the aim of integrating ethics and morality in the European Union.⁷ The EGE elaborates and publishes opinions with increasing size and scope⁸ on ethically contested developments from science and new technologies arising in the EU that have wider societal impacts.⁹ In doing so, the EGE advises the Commission, the Parliament, or the Council to advance

¹ Andrews T Williams, 'Taking Values Seriously: Towards a Philosophy of EU Law' (2009) 29(3) *Oxford Journal of Legal Studies* 549, 550.

² Markus Frischhut, "'EU: Short for "Ethical" Union?: The Role of Ethics in European Union Law' (2015) 75(3) *Heidelberg Journal of International Law (HJIL)* 531, 532.

³ Consolidated Version of the Treaty on European Union [2016] OJ C 202/01, Article 2, para 6; Consolidated Version of the Charter of Fundamental Rights of the European Union [2016] OJ C 202/02, Art. 6.

⁴ Helen Busby, Tamara Hervey and Alison Mohr, 'Ethical EU law?: The influence of the European Group on Ethics in Science and New Technologies' (2008) 33 *Thomson Reuters (Legal) Limited and Contributors* 803, 803.

⁵ *Ibid*, 804.

⁶ The European Group on Ethics in Science and New Technologies (EGE) was initially established as the Group of Advisers to the European Commission on the Ethical Implications of Biotechnology (GAEIB) in 1991 and officially proclaimed as such in 1997. Within this thesis, the GAEIB and the EGE are referred to as the same entity, albeit the two indicate different stages in its evolution.

⁷ Decision 2016/835 on the renewal of the mandate of the European Group on Ethics in Science and New Technologies [2016] OJ L140/21 (EGE Mandate 2016).

⁸ EGE, 'The European Group on Ethics in Science and New Technologies (EGE) <<http://ec.europa.eu/research/ege/index.cfm>> accessed on May 12, 2017 (EGE Main Website); see Appendix 1.4.2 EGE Opinion no. 1-29 Scope and Size.

⁹ EGE Mandate 2016 (n 7), Art 2 para 1.

ethical EU policy making¹⁰, either when requested by the Commission or on its own initiative with the new mandate requiring approval from the Commission services.¹¹ It can be argued that by means of the EGE the EU has, in part, recognised ethics and morality at an institutional level¹², despite lacking a clear legal instrument of ethics and morality.

Today the EGE is comprised of up to 15 experts and is mandated for a term of five years.¹³ As stated in its new mandate (2016), members of the EGE are appointed by the President of the Commission and its composition is supposed to be **'independent, pluralist and multidisciplinary'**.¹⁴ The EGE has published legally non-binding opinions on a multitude of topics.¹⁵ In doing so, the EGE significantly impacts EU law-making as well as policy implementation¹⁶ – in terms of shaping the substantive content of legislative texts¹⁷, being a guiding reference to national ethics committees with regards to EU policy¹⁸ and postulating substantive requirements (ethical principles) for assessing applications for EU research funding.¹⁹

1.1 Aim and objectives

Given the centrality of the EGE in integrating ethics into the European legal framework, this thesis addresses the issue of systematic biases towards normative ethical schools of thought – consequentialism, deontology, or virtue ethics²⁰ reflected in the opinions of the EGE on various ethically contested issues. This thesis primarily aims to determine the prevailing schools of thought via a qualitative content analysis (QCA) of all, as yet 29 published²¹, opinions by the EGE.

¹⁰ Ibid, Art 2 para 1(b).

¹¹ Ibid, Art 2.

¹² Janne R Herrmann and Malene Rowlandson, 'The Role of Ethics and Morality in EU Law' (2008) 5(6) *Journal of International Biotechnology Law* 241, 242.

¹³ EGE Mandate 2016 (n 7), Art 2.

¹⁴ Ibid, Art 4 paras 3-4.

¹⁵ Appendix 1.4 EGE Opinion no. 1-29.

¹⁶ Aurora Plomer, 'The European Group on Ethics: Law, Politics and the Limits of Moral Integration in Europe' (2008) 14(6) *European Law Journal* 839, 841.

¹⁷ Directive 1998/44/EC on the legal protection of biotechnological inventions [1998] OJ L 213/13 (Biotechnology Directive), 44th Recital and Art 7.

¹⁸ Frischhut (n 2), 553.

¹⁹ Regulation (EU) 1291/2013 on establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) [2013] OJ L 347/104 (Horizon 2020 Reg), 29th Recital.

²⁰ Ian Manners, 'The normative ethics of the European Union' (2008) 84(1) *Int Affairs* 45, 58.

²¹ Appendix 1.4 EGE Opinion no. 1-29.

Thus, the central questions that motivate this thesis read as follows:

- Against the background of the adopted European legal and policy framework towards ethical and moral integration²², what philosophical schools of thought does the European Group on Ethics in Science and New Technologies (EGE) advocate in its opinions with respect to normative ethics?

Further, following sub-questions related to the above-mentioned central research question must be answered:

- Which main international resources referred to or elaborated on underpin the EGE's lines of argumentation towards a particular normative school of thought?
- Which ethical principles does the EGE refer to with respect to particular normative ethical schools of thought?
- What are the guiding definitions in the opinions towards human dignity, as it is perceived to be the main pillar of EU values and fundamental rights towards ethics?²³

²² Frischhut (n 2), 575.

²³ Ibid, 532.

The following Figure 1 illustrates the main aims and objectives of this research:

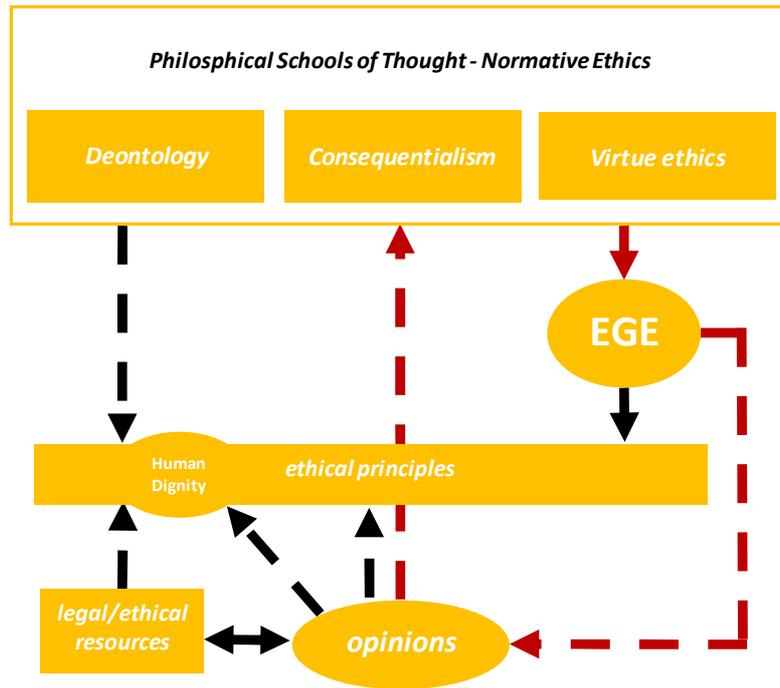


Figure 1: Research aims and objectives
Source: own illustration²⁴

Notwithstanding that the philosophical schools of thought encountered are discussed in the light of the EU integration process, this thesis will not elaborate or criticise these schools of thought, as this would be beyond the scope. Furthermore, this thesis will not discuss the various legal materials (e.g. EU secondary legislation) mentioned in the opinions of the EGE as this would also be beyond the scope of this work. Emphasis is primarily placed on legal resources either being affected by the EGE²⁵ or associated with the schools of thought that are reflected in the EGE opinions.²⁶ That is to say, mostly EU treaties or international documents (binding and non-binding) such as conventions, declarations, or code of conducts among others.²⁷

²⁴ Own illustration.

²⁵ E.g. see Biotechnology Directive (n 17); Horizon 2020 Reg (n 19).

²⁶ Appendix 6 EGE International Ethical Framework.

²⁷ Appendix 1.4 EGE Opinion No. 25 'Synthetic Biology', 39.

1.2 Socio-legal research based on QCA

In pursuance of achieving the aims and objectives set out in this thesis, the scientific methodology applicable is a socio-legal approach in which a QCA is conducted.²⁸ The main advantage of adopting the socio-legal approach lies in investigating the law in action and drawing inferences from the law in its broader social context.²⁹ In this regard, the QCA of the philosophical schools of thought portrayed in EGE opinions is carried out by using a computer-assisted qualitative data analysis software (CAQDAS).³⁰

Based on a mixed research method (qualitative and quantitative)³¹ stemming from social science, the primary purpose is to quantify and qualitatively discuss the occurrences (tendencies) towards certain philosophical schools of thought in the EGE opinions, thus having a strong normative influence on both present and future European legal and policy framework in science and new technologies. The QCA of EGE opinions (seen as EU soft law³²) with respect to the prevailing schools of thought, could provide useful insights for potential amendments or recommendations on EGE's constitutional order within the EU treaties. More detailed remarks on the applied QCA are illustrated before the empirical chapter of this thesis.

1.3 Structure of the thesis

This thesis is divided into 5 chapter designed to ensure clarity of understanding. Following the initial introduction in chapter one, chapter two elaborates on moral philosophy as regards normative ethics and provides the fundamental theoretical background on the ethical integration in the European Union with a view to the institutionalisation thereof. Chapter three elaborates on the EGE's evolving mandates, normative opinion structure and its influence in the European legal and policy framework since its inception. Chapter four gives an account of the QCA as the main research method applied in this thesis. Chapter five presents the main findings from the research towards the philosophical schools of thought, which are confined to those that relate to normative ethics. Chapter six then critically discusses the results in the light of the research questions. Overall, chapter five and six constitute the main research contribution of

²⁸ Frans L Leeuw and Hanns Schmeets, *Empirical Legal Research: A Guidance Book for Lawyers, Legislators and Regulators* (Edward Elgar Publishing 2016), 26; Uwe Flick, *An introduction to qualitative research* (4th edn, SAGE 2009), 255.

²⁹ Micke McConville and Wing Hong Chui, *Research methods for law* (Research methods for the arts and humanities, Edinburgh University Press 2007), 5.

³⁰ Flick (n 28), 259.

³¹ Philipp Mayring, 'Qualitative content analysis: theoretical foundation, basic procedures and software solution' (2014) <http://www.ssoar.info/ssoar/bitstream/document/39517/1/ssoar-2014-mayring-Qualitative_content_analysis_theoretical_foundation.pdf> accessed on 21 June 2017, 10.

³² Mariachiara Tallacchini, 'Governing by Values. EU Ethics: Soft Tool, Hard Effects' (2009) 47(3) *Minerva* 281, 291.

this thesis. Chapter seven concludes on the prevailing schools of thought advocated in EGE's opinions and provides an outlook for further investigation.

As a whole, the wording of this thesis tries to adopt as far as possible a gender-neutral tone and perception.

2 The European Union involved with ethics

As seen in the recent past, the EU's institutions are under tremendous strain, both in socio-political as well as economic terms. Among others, the emergence of new technologies and sciences, demographic movements, health threats, global poverty, resource depletion of the planet, citizens' lack of education, (regional) wars and increasing uncertainty on the markets, constitute daunting issues all people of Europe face.³³ While blaming Brussels for many of these problems seems to an appealing solution for some,³⁴ the question remains on how the EU can address these value-laden challenges based on rights and values that are embedded in the Treaties and the CFR.³⁵ Progress in sciences and innovations (e.g. biotechnology, energy, information and communication technologies) might constitute one of the various strategies to combat these issues, but at the same time evokes ethical implications as regards their regulation and assessment.³⁶ In this regard, the EU has established a comprehensive multinational research programme under the auspices of an ethical review process.³⁷

With a view to ensure social cohesion and unification in the EU, it is of the utmost importance to find the right equilibrium in the EU that embraces pluralism and the respect for distinct cultural traditions. That is to say, to respect the differences in the MS' traditions as regards history, philosophy, politics and religion when pursuing the European idea, in other words, 'unity in diversity'.³⁸ Despite the advantages that come with pluralism and diversity in society, they may also lead to a clash of different values or the implementation thereof. This is notable when ethically contentious issues are at stake. Therefore, it is crucial for EU policy makers to precisely articulate those values so as to determine the rights and obligations of its citizens, that is, via an ethical discourse.³⁹ Similarly, Commission President Jean-Claude Juncker in a 'White Paper on the Future of Europe' calls for more reflection on the European values so as to find common ground for the EU's future.⁴⁰

³³ EGE, 'General Report on the Activities of the European Group on Ethics in Science and New Technologies to the European Commission 2005-2010' [2010] (EGE General Report 2010) <http://ec.europa.eu/archives/bepa/european-group-ethics/docs/gar_ege_2005-2010_web.pdf> accessed on July 5, 2017, 20.

³⁴ European Commission, 'White Paper on the Future of Europe – reflections and scenarios for the EU27 by 2025' COM(2017) 2025 (White Paper on EU Future), 12.

³⁵ TEU (n 3), Art 2 and Art 6.

³⁶ Ivan Székely and others, 'Regulating the future?: Law, ethics, and emerging technologies' (2011) 9(3) J of Inf, Com & Eth in Society 180, 181-2.

³⁷ White Paper on EU Future (n 34), 8.

³⁸ White Paper on EU Future (n 34), 26.

³⁹ EGE General Report 2010 (n 33), 11.

⁴⁰ White Paper on EU Future (n 34), 3.

2.1 Setting the stage for moral philosophy (ethics)

Against this background, many EU documents (both binding and non-binding) draw on the terms ‘ethics’ and ‘morality’ without offering a clear guidance on their definition.⁴¹ Needless to say, if a certain conduct is conceived as ‘unethical’ or does not to comply with the public understanding of ‘morality’ based on the underlying values, there might be major consequences.⁴² The following section provides a brief introduction to moral philosophy. This part deals especially with normative ethics, which serve as the foundation for the empirical part of this thesis analysing the EGE’s prevailing schools of thought.

2.1.1 Ethics and morality, a blurred line based on values?

In order to understand ethics and morality, it is advisable to start at the beginning – with values.⁴³ It is well known that there are diverse values humans embrace, for example, those adopted in the Lisbon Treaty⁴⁴. These values may be *intrinsic*, *extrinsic*, or *instrumental* and can vary in their rank or stand in contrast to each other depending on the individual preference.⁴⁵ Moral values are of particular interest as they guide behaviour and relations among humans in a given society.⁴⁶ These values are bound to a historical, cultural, religious, temporal, social or individual dimension. The question reserved for ethics and morality is which values ought to be promoted and how do they rank against each other?⁴⁷

‘Morality’ designates specific factual rules, principles, and code of conducts that are grounded in moral values or set of values thereof.⁴⁸ Based on commonly accepted values, it can be seen as a practical judgement that prescribes what behaviours and decisions are ‘right’ or ‘wrong’ within a given society.⁴⁹ In contrast, ‘Ethics’ (‘Moral Philosophy’) denotes the philosophical study of moral values about the rules, principles and standards (codes) of conducts of what is ‘right’ and ‘wrong’, thereby reaching out to a universal level beyond the limited moral dimensions mentioned above.⁵⁰ Ethics is distinguished from morality insofar as it describes the underlying abstract theory of the right conduct.⁵¹ Ethics can be divided into further sub-

⁴¹ Frischhut (n 2), 531.

⁴² Ibid.

⁴³ Julia Driver, *Ethics: The fundamentals* (Fundamentals of philosophy, Blackwell 2007), 8.

⁴⁴ TEU (n 3), Art 2; EU’s founding values: the respect for human dignity, freedom, democracy, equality, the rule of law, respect for human rights, and minority rights.

⁴⁵ Driver (n 43), 8.

⁴⁶ Reis A Monteiro, *Ethics of Human Rights* (Springer International Publishing 2014), 20.

⁴⁷ Ibid, 20.

⁴⁸ Ibid, 20.

⁴⁹ Ibid, 21.

⁵⁰ Ibid, 21.

⁵¹ Driver (n 43), 2.

branches, normative ethics represents one of them.⁵² The following section provides an overview of normative ethics, resulting in a non-exhaustive list of prominent proponents of each school of thought.

2.1.2 *The schools of thought of normative ethics*

Normative ethics pertains to the study of principles, standards, and norms of the right conduct.⁵³ The focus lies in determining moral theories (schools of thought) on how someone ought to act, or something ought to be. In essence, it is prescriptive towards actions, consequences or character.⁵⁴ As a result, moral theories might also vary in their ethical alignment. Some might be centred around the interests of humans (anthropocentrism).⁵⁵ Others might also value the interests of the environment (e.g. eco-centrism or bio-centrism).⁵⁶ There are three main schools of thought of normative ethics: deontology, consequentialism and virtue ethics.⁵⁷ Figure 2 illustrates the three most important schools of thought of normative ethics.

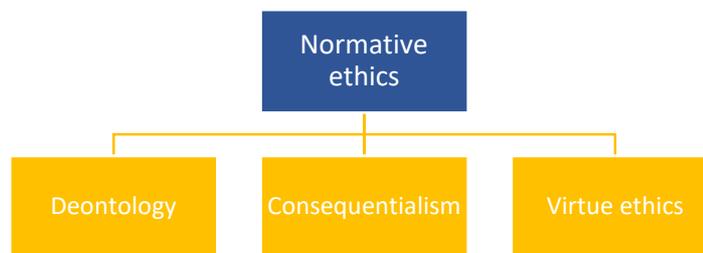


Figure 2: *Normative schools of thought*
Source: own illustration⁵⁸

Though not mutually exclusive, these normative schools of thought may often be in opposition to each other when put in a certain context, leading to ‘*deep-value conflicts*’, for example, in the course of EU integration (as illustrated by the EGE)⁵⁹. This is because the criteria (values) for moral evaluations may differ.⁶⁰

⁵² David Resnik, *The ethics of science: An introduction* (Philosophical issues in science, Routledge 1998), 16.

⁵³ Driver (n 43), 2.

⁵⁴ Noel Stewart, *Ethics: An introduction to moral philosophy* (Polity 2009), 11.

⁵⁵ Resnik (n 52), 17; Onora O’Neill, ‘Environmental Values, Anthropocentrism and Speciesism’ (1997) 6(2) *Environmental Values* 127, 128-9.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*

⁵⁸ Own illustration based on Driver (n 43), 2.

⁵⁹ EGE, ‘General Report on the Activities of the European Group on Ethics in Science and New Technologies to the European Commission 2000-2005’ [2005] (EGE General Report 2005)
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/genactrep05txt_en.pdf>
accessed on July 5, 2017, 2.

⁶⁰ Stewart (n 54), 11.

In light of this, deontology ('deontological ethics') evaluates actions based on human duties and obligations. The focus is on the nature of actions and the underlying motive so as to determine if something is morally right or wrong.⁶¹ One of the leading proponents of deontology who still informs much of the European philosophy as regards the concept of human dignity and peace is Immanuel Kant.⁶² With his categorical imperative underlying rational human thought, Kant prescribes for example, '*act only on those maxims which you can will to be universal law and at the same time treat rational beings not as mere objects, but as ends in themselves with intrinsic value.*'⁶³

What is more, deontology influences among other theories (e.g. divine command theories, natural rights theories)⁶⁴ also contract theories⁶⁵ in political philosophy.⁶⁶ Notably, social contract theories determining the rights and duties in order to maintain social order can be attributed to deontology.⁶⁷ This is achieved by moral norms or duties – that is, carrying normative force based on a voluntary agreement between the state and its citizens, thereby pursuing a just society. This also includes duties towards future generations (intergenerational justice).⁶⁸ Well-known proponents of contractual theories include Thomas Hobbes⁶⁹, Jean-Jacques Rousseau⁷⁰, John Locke⁷¹, and John Rawls.⁷² Furthermore, Onora O'Neil⁷³, Hans Jonas⁷⁴ and Jeremy Waldron⁷⁵ are said to be proponents of deontological schools of thought.

In stark contrast to deontology, consequentialism ('consequentialist ethics') argues that whether actions are right or wrong is contingent upon their consequences, i.e. the outcome of

⁶¹ Ibid, 35.

⁶² Ibid; Frischhut (n 2), 567.

⁶³ Stewart (n 54), 36.

⁶⁴ Divine command theories (based in Judeo-Christian traditions), and natural right theories are also characterized by deontological normative ethics; Stewart (n 54), 50-3.

⁶⁵ Brian Duignan, *Thinkers and theories in ethics* (1st edn, Rosen Education Services 2010), 51ff.

⁶⁶ Paul Kleinman, *Philosophy 101: From Plato and Socrates to ethics and metaphysics, an essential primer on the history of thought* (Adams Media 2013), 268.

⁶⁷ Simon Blackburn, *The Oxford dictionary of philosophy* (Oxford quick reference, 3rd edn, Oxford University Press 2016), 105.

⁶⁸ Jonathan Wolff, *An introduction to political philosophy* (3rd edn, Oxford University Press 2016), 211-14.

⁶⁹ Robert Elliot 'Deontological environmental ethics' in Martin Reynolds, Cris Blackmore and Mark J Smith, *The environmental responsibility reader* (1st edn, Zed 2009), 60

⁷⁰ Duignan (n 65), 61.

⁷¹ Robert Elliot 'Deontological environmental ethics' in Martin Reynolds, Cris Blackmore and Mark J Smith (eds), *The environmental responsibility reader* (1st edn, Zed 2009), 60.

⁷² Ibid, 34, 39, 42; Duignan (n 65), 52.

⁷³ Terry Nardin and David Mapel, *Traditions of international ethics* (Cambridge studies in international relations 17, Cambridge University Press 2004), 151.

⁷⁴ Michel Marie et al., *Animal bioethics: Principles and teaching methods* (Wageningen Academic Publishers 2005), 266.

⁷⁵ Genevieve Fuji Johnson 'Social Connections and Our Political Responsibilities to Future Generations' in Johnson and Michaelis, *Political responsibility refocused: Thinking justice after Iris Marion Young* (1st edn, University of Toronto Press 2013), 107.

the actions. Hence, an action is morally acceptable as long as it produces good consequences.⁷⁶ A prominent sub-discipline of consequentialism represents 'Utilitarianism', which claims that an action is morally right if it produces the largest amount of happiness.⁷⁷ Major proponents of this school of thought include Jeremy Bentham, John Stuart Mill and Niccolò Machiavelli⁷⁸. Peter Singer – a modern bioethicist – is also considered to be a strong proponent of utilitarianism. Singer embraces the so-called 'Preference Utilitarianism', favouring acts that maximise the greatest number of preferences.⁷⁹

Virtue ethics has a long tradition that can even be traced back to the Greek philosopher Aristotle⁸⁰ or the Chinese philosopher Confucius⁸¹. In essence, virtue ethics asks not for the actions or consequences, but the character, '*what kind of person ought I to be?*' The overall goal in life is to cultivate character traits, virtues that should be pursued. Virtues can be integrity, honesty, courage, temperance, humility, sincerity, wisdom among others.⁸² In light of this, modern philosophers such as Michel Foucault⁸³ and Hannah Arendt⁸⁴ might also be perceived as virtue ethicist.

To conclude this section, normative ethical schools of thought can be complex and are often contested in society due to the subjective diversity in views. Therefore, it is common for ethicists or moral philosophers to draw on general ethical principles, instead of advocating entire schools of thought so as to support an ethical decision or policies. Common ethical principles from normative ethics include **dignity, nonmaleficence, beneficence, autonomy, justice, utility, fidelity, honesty, and privacy**. Nevertheless, these ethical principles should only be conceived as flexible guidelines for conduct, since actions or decisions have to be contrasted with facts and values in the situation at hand.⁸⁵

⁷⁶ Driver (n 43), 61.

⁷⁷ Ibid, 40.

⁷⁸ Nigel Warburton, Jonathan Pike, Derek Matravers, *Reading political philosophy: Machiavelli to Mill* (1st edn, Routledge 2000), 38, 42, 48.

⁷⁹ Stewart (n 54), 33.

⁸⁰ Blackburn (n 67), p.30.

⁸¹ Michael Keith et al., *China constructing capitalism: Economic life and urban change* (International library of sociology, 1st eds, Routledge 2014), 37.

⁸² Resnik (n 52), 20.

⁸³ Timothy Dwyer, *Legal and ethical issues in the media* (Key concerns in media studies, Palgrave Macmillan 2012), 14-17.

⁸⁴ Michael D Robertson and Garry Walter, *Ethics and mental health: The patient, profession, and the community* (Taylor & Francis 2014), 19

⁸⁵ Resnik (n 52), 14.

2.1.3 *The relationship between ethics and law*

Despite the fact that law can be unethical, many scholars argue that the main aim of a legal system is to fulfil the moral and ethical consensus of society.⁸⁶ One might even ask if a piece of legislation has a legitimate basis without moral (ethical) reasoning.⁸⁷ Looking at practice, however, the relationship between ethics and law is by no means straightforward. In fact, it is still subject to vivid discussions both in society and philosophy.⁸⁸ On the one hand, law can be perceived as the source of rights and obligations. Whereas on the contrary, ethics can be described as the foundation for rights, obligations, relationships, and a chance to facilitate human-wellbeing, virtue, or moral excellence.⁸⁹ However, there is a growing call for laws to integrate moral and ethical positions, notably in the fields of sciences and new technologies.⁹⁰

Notwithstanding the persisting obstacles towards the relationship of law and ethics, two distinct – albeit not absolute – streams can be identified: ‘*separate realms view*’ and the ‘*correspondence view*’.⁹¹ The former argues that law and ethics have to be perceived as two distinct disciplines, which cannot be combined. Something is either ethical (ethicists view) or legal (legal positivist view). The latter, on the other hand, recognises the relationship of law and ethics as a ‘coexistence’.⁹² This entails the perception that if something is legal, it is also ethical.⁹³ In addition to that, one might even advocate that ethics has a greater scope compared to law, that is, seeing law as ‘*an island floating on a sea of ethics*’.⁹⁴ In other words, law cannot cover every aspect of wrongful behaviour, thereby considering the common law-lag with respect to the developments from sciences and new technologies.⁹⁵ As a consequence, it is often argued that legal standards are subordinate to ‘normative’ standards and thus, can be derived by appealing to normative ethical schools of thought.⁹⁶

It is also crucial to consider how ethics might find its place into a supranational and intergovernmental legal system that is comprised of several MS such as the EU.⁹⁷ In order to attain democratic legitimacy, a political entity needs trust and mutual commitment of its

⁸⁶ Ibid.

⁸⁷ Eric Hilgendorf, 'Recht und Moral' (2001)1(01) *Aufklärung und Kritik* 72, 76.

⁸⁸ Adela Cortina, 'Legislation, Law and Ethics: Introduction' (2000) 3(1) *Ethical Theory and Moral Practice* 3, 3.

⁸⁹ Lynn S Paine, 'Law, Ethics, and Managerial Judgment' in Robert Fr  d  rick (ed), *A companion to business ethics* (Blackwell Publishers Ltd 2011), 194-95.

⁹⁰ Alberto Bondolfi, 'Ethics, Law and Legislation: The Institutionalisation of Moral Reflection' (2000) 3(1) *Ethical Theory and Moral Practice* 27, 27-28.

⁹¹ Paine (n 89), 194.

⁹² Paine (n 89), 196.

⁹³ Ibid, 196.

⁹⁴ Ibid, 200.

⁹⁵ Ibid, 200.

⁹⁶ Marianne Jennings, *Business: Its legal, ethical, and global environment* (10th edn, Cengage Learning 2015), 28.

⁹⁷ Catherine Barnard and Steve Peers, *European Union Law* (2. edition, Oxford Univ. Press 2017), 186.

constituencies, in other words, a common identity of values and interests.⁹⁸ For this purpose, De Witte suggests two dichotomous approaches. On the one hand, **'self-determination'** suggests that a supranational entity ought to embrace moral and ethical diversity, thereby giving individuals wide discretion on how to decide on ethical matters based on their moral values. This is mainly because of member states (MS) having distinct characteristics as regards religion, history, demography, or ideologies that carry a normative weight.⁹⁹ On the other hand, the **'containment approach'** seeks to restrict **'self-determination'**, preventing transnational externalities arising from the MS' ethical expression affecting non-represented interests beyond the territorial scope of the MS. This is achieved by elevating the decision-making power as regards ethics to a supranational level e.g. via the court (ECJ), expert groups, or the market itself.¹⁰⁰ Within the EU, scholars such as De Witte rather oppose the containment approach as it deprives citizens from their fundamental inclination to reason about ethics and morality. He rather conceives it beneficial to have increased ethical and moral diversity – **'self-determination'**, that is converted onto a European level on the basis of deliberation, thus putting the citizens at the heart of political decision-making.¹⁰¹

2.2 The EU's approach to ethical integration

Based on the preceding theoretical background on moral philosophy, the following sheds light on the EU's approach towards ethical integration. To begin with, neither the Treaties¹⁰² nor the EU itself offer a clear definition of ethics and morality.¹⁰³ The EU's ethical approach has to be understood in the light of the diversity of culturally distinct MS trying to integrate commonly accepted values.¹⁰⁴ Therefore, the **'cultural, religious and humanist inheritance of Europe'**¹⁰⁵ from TEU and **'spiritual and moral heritage'**¹⁰⁶ from the CFR inform those commonly accepted values¹⁰⁷ respectively. Nonetheless, the CFR at the same time prescribes the EU to embrace the respect for cultural and traditional diversity as well as for the national identities of the MS.¹⁰⁸

⁹⁸ David Beetham and Christoph, *Legitimacy and the European Union* (Abingdon: Routledge 2013), 33

⁹⁹ Floris de Witte, 'SEX, DRUGS & EU LAW: THE RECOGNITION OF MORAL AND ETHICAL DIVERSITY IN EU LAW' (2013) *Common Market Law Review* 1545, 1550-2.

¹⁰⁰ *Ibid*, 1551-3

¹⁰¹ *Ibid*, 1554-9.

¹⁰² TEU (n 3), Art 36; only references to **'public morality'**; functions as a reason for justification on trade restrictions (TEU Art 34 and 35).

¹⁰³ Frischhut (n 2), p.534.

¹⁰⁴ Frischhut (n 2), p.532.

¹⁰⁵ TEU (n 3), 2nd Recital.

¹⁰⁶ CFR (n 3), 2nd Recital.

¹⁰⁷ CFR (n 3), 1st Recital; TEU (n 3), Art 2.

¹⁰⁸ CFR (n 3), 3rd Recital.

2.2.1 EU values as a basis for ethical deliberation

Hence, the question is what should be the values of the EU or its 'moral source'? According to the Eurobarometer 77 in 2012, **peace, democracy, and human rights** rank among popular values that represent the EU and at the same time are shared by Europeans.¹⁰⁹ In fact, the adopted moral ideals can be found in the Lisbon Treaty. That is to say, Article 2 TEU prescribes the fundamental values on which the EU is based: the respect for **human dignity, freedom, democracy, equality, the rule of law, the respect for human rights and the minority rights**.¹¹⁰ Article 2 continues by highlighting **pluralism, non-discrimination, tolerance, justice, solidarity, and gender equality**, which prevail among the EU's MS.¹¹¹ In addition to promoting peace and the well-being of its people, these values are to be strived for by the EU within its conferred competences.¹¹² What is more, these values also reach beyond the sole sphere of the EU. According to Article 3 para 5 TEU, the EU also has accountability towards the 'wider world', inter alia, in the pursuit of **peace, security, sustainability, solidarity, security, free and fair trade, the combat of poverty, and the protection of human rights**.¹¹³

However, despite that fact that religion (i.e. Judeo-Christian mostly) still constitutes a moral impetus for Europeans¹¹⁴, it is argued that the EU's ethics can only be understood by reference to the just mentioned common values and fundamental rights.¹¹⁵ Most importantly, it is human dignity¹¹⁶ which functions as the core fundamental principle of European ethics – given the emergence of a secularised European society.¹¹⁷ Székely et al. concede though, that the EU's (moral) values – because of its *suis generis* – might be less stable as compared to traditional democracies from the MS.¹¹⁸

¹⁰⁹ European Commission, 'Standard Eurobarometer 77 Spring 2012 - The Values of Europeans' (Eurobarometer 2012) <http://ec.europa.eu/commfrontoffice/publicopinion/archives/eb/eb77/eb77_value_en.pdf> accessed on June 12, 2017, 9-12.

¹¹⁰ TEU (n 3), Art 2; The adopted values are binding simply due to EU membership see Frischhut (n 2), 576.

¹¹¹ Ibid.

¹¹² TEU (n 3), Arts 3 (1) and (6).

¹¹³ TEU (n 3), Art 3 (5).

¹¹⁴ EGE General Report 2010 (n 33), 21.

¹¹⁵ Frischhut (n 2), p.532.

¹¹⁶ See TEU (n 3), Art 2; CFR (n 3), 2nd Recital, Arts 1-5; Human dignity represents the basis for all other rights contained in the CFR, see Catherine Dupré, 'Article 1 – Human Dignity' in Steve Peers and others (eds), *The EU Charter of Fundamental Rights: A Commentary* (Kooperationswerke Beck/Hart/Nomos, 1 Auflage, Nomos Verlagsgesellschaft mbH & Co. KG 2014), 44-6.

¹¹⁷ EGE General Report 2010 (n 33), 17; CFR (n 3), Title I 'Dignity' Arts 1-5; TEU (n 3), Art 2.

¹¹⁸ Székely et al. (n 36), p.181.

The adopted values¹¹⁹ in the Treaties on an equal rank¹²⁰ with the CFR¹²¹ may function as the primary tools for buttressing ethical and moral commitments in the EU. The EU's substantive content of ethics can be expressed by code of conducts, appeals to international law, the EU law itself contingent upon its conferred powers¹²², or by references to ethics groups (committees), as illustrated by Frischhut.¹²³ The latter – i.e. ethics groups – is central to the main discussion of this thesis, whereon the following argumentation is based in order to answer the research questions.

2.2.3 *The ethical touch points in the EU*

Aggestam describes the EU's relationship with ethics as 'inextricably entwined'.¹²⁴ So the question arises where and how does the EU touch on ethics. One of the leading fields among others¹²⁵ in which the EU certainly encounters ethics is represented by the development of sciences and new technologies¹²⁶. Not least because this represents one of the most important agendas for the Commission's strategy to keep the EU as a global player competitive, inter alia, in the rapidly emerging field of biotechnology.¹²⁷ In light of this, the Commission is dedicated to responsible research and innovation (RRI) with the purpose of facilitating social progress and environmental improvement via the internal market¹²⁸ – converting research into products or services.¹²⁹ Apart from the socio-ethical diversity that is taken into account in RRI, the EU Commission also deems human rights as the central European commitment, which is closely related to global progress in research and innovation.¹³⁰ What is more, the Commission points out that the issues of global benefit sharing, privacy protection, sustainability, public research

¹¹⁹ TEU (n 3), Art 2; The adopted values are binding simply due to EU membership see Frischhut (n 2), 576.

¹²⁰ TEU (n 3), Art 6; This provision confers the EU Charter of Fundamental Rights treaty rank.

¹²¹ CFR (n 3), Arts 1-5 'Dignity', Arts 6-19 'Freedoms', Arts 20-26 'Equality', Arts 27-28 'Solidarity', Arts 39-46 'Citizen's Rights', Arts 47-50 'Justice'; The central rights and principles of the CFR are applicable as regards EU's ethical approach; however, the fundamental rights are only binding as regards the implementation of EU law, pursuant to Art 51 thereof.

¹²² TEU (n 3), Art 5(2) lays down the principle of conferral; The EU 'shall only act within the limits of the competencies [Art 3 TEU and Art 2-6 TFEU] conferred upon it by the MS'.

¹²³ Frischhut (n 2), 563.

¹²⁴ Lisbeth Aggestam, 'Introduction: Ethical power Europe?' (2008) 84(1) *Int Affairs* 1, 4.

¹²⁵ Case C-121/85 *Conagate v HM Customs & Excise* ECLI:EU:C:1986:114, [1986] ECR I-01007, margin number 2; This concerns a decision by the ECJ on the justification based 'public morality' to restrict the import of sex dolls.

¹²⁶ European Commission 'Ethical and Regulatory Challenges to Science and Research Policy at the Global Level' [2012] < http://ec.europa.eu/research/science-society/document_library/pdf_06/ethical-and-regulatory-challenges-042012_en.pdf > accessed on June 12, 2017 (Commission Ethical Research Report 2012), 9.

¹²⁷ *Ibid*, 9; European Commission (EC), 'Promoting the competitive environment for the industrial activities based on biotechnology within the Community' (Communication) SEC (1991) 629 final (Communication Biotechnology), 2.

¹²⁸ TEU (n 3), Art 3(3) 'a highly competitive social market economy, aiming full employment and social progress [...] improvement quality of environment'.

¹²⁹ Commission Ethical Research Report 2012 (n 126), 9.

¹³⁰ *Ibid*, 8-12.

funding, and risk management are to be addressed as part of RRI, notably as regards the emerging knowledge societies.¹³¹ Figure 2 illustrates the EU's key components for responsible research and innovation.

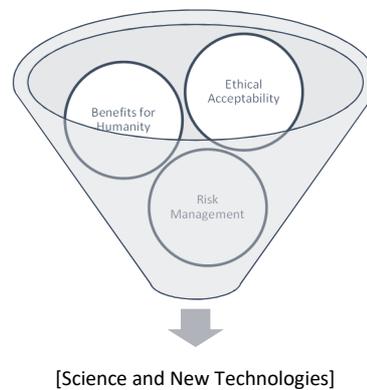


Figure 3: The Commission's Responsible Research and Innovation
Source: own illustration¹³²

With respect to responsible research and innovation, the ethical review process of the Commission as part of framework funding programme Horizon 2020 (between 2014-2020) can be recognised as a major touch point for ethics in the EU.¹³³ That said, it is of utmost importance to be aware of the potential risks (e.g. bioterrorism, mass surveillance) or benefits (e.g. new health technologies) when promoting or restricting values in sciences and new technologies in a normative way.¹³⁴ Of course, in a society that is built on the diversity of traditions¹³⁵, the challenge of finding consensus on colliding values is by far arduous. The emergence of new technologies especially can pose a daunting situation for both the individual or society as a whole that has never been the case before.¹³⁶ Against this background, the Commission also stresses the importance of the precautionary principle¹³⁷ in responsible research which aims at avoiding high risks (e.g. synthetic biotechnology) affecting the environment, as enshrined in Article 191 TFEU.¹³⁸

Considering the EU's normative power both within and outside the EU¹³⁹, it is still left open whose ethics or morality is taken into account. According to Tallachini, in most cases, the final

¹³¹ Ibid, 13.

¹³² Own illustration based on Commission Ethical Research Report 2012 (n 126), 8-10.

¹³³ Regulation (EU) 1290/2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006 OJ L 347/81 (Horizon 2020 Rules Reg), Art 14 para 1.

¹³⁴ Székely et al. (n 36), p.183.

¹³⁵ TEU (n 3), Art 3 'respect its rich cultural and linguistic diversity [...] ensure that Europe's cultural heritage is safeguarded and enhanced'; CFR (n 3) Art 22 'the EU shall respect cultural, religious and linguistic diversity'.

¹³⁶ Székely et al. (n 36), pp.182-3.

¹³⁷ Commission Ethical Research Report 2012 (n 126), 44.

¹³⁸ TEU (n 3), Art 191.

¹³⁹ Manners (n 20), 65.

ethical decision in the EU rests either with the MS governments or the Commission, but not the EU Parliament representing its citizens, thereby challenging the EU's power legitimacy under the rule of law.¹⁴⁰

2.2.4 Ethical integration: competence division or expert ethics

2.2.4.1 The MS's prerogative on ethics

On the one hand, the MS are equipped with a prerogative¹⁴¹ to decide on contentious ethical topics¹⁴² insofar as their decisions do not undermine the EU's objectives and values.¹⁴³ This has to be understood against the backdrop of the principle of subsidiarity and proportionality with a view to the EU's conferred competencies.¹⁴⁴ The principle of conferral set out in Article 5 TEU, *'the Union shall act only within the limits of the competences conferred upon it by the MS in the Treaties to attain the objectives set therein'*¹⁴⁵. This means that due to the very nature of power conferral, the EU is only allowed to act in the fields, where competence has been explicitly conferred upon (Articles 2-6 TFEU)¹⁴⁶, otherwise stays exclusive competence of the MS.¹⁴⁷ Furthermore, pursuant to Article 5(3) TEU, the principles of subsidiarity and proportionality notably limit non-exclusive EU competencies, allowing the Union only to act if the *'objectives cannot be sufficiently achieved by the MS'*¹⁴⁸ in a way that the EU's measures do *'not exceed what is necessary to achieve the objectives of the Treaties'*¹⁴⁹. Similarly, the Preamble and Article 10(3) TEU further sets forth that *'decisions are taken as closely as possible to the citizen'*¹⁵⁰, which is in line with the subsidiarity principle.¹⁵¹

Against this background, ethics might be considered a matter of prima facie not to decide for the EU, but rather for the MS. This is because many ethical contentious issues (e.g. health care, biotechnologies, surveillance technologies, energy) might not be in the exclusive remit of the EU

¹⁴⁰ Tallacchini (n 32), 284; TEU (n 3), Art 2 'rule of law' as a founding value.

¹⁴¹ TEU (n 3), Art 5(3); MS draw on the principle of subsidiarity and proportionality to decide on ethical matters.

¹⁴² Consolidated Version of the Treaty on the Functioning of the European Union [2016] OJ C202/01, Art 36 offers MS a reason for justification on grounds of 'public morality' to limit internal market activities; for further information on the ECJ principle of non-interference ('umbrella philosophy') in regard to national self-expression of morality see Frischhut (n 2), 543-5.

¹⁴³ Nigel Foster, Foster on EU law (7th edn, Oxford University Press 2017), 89-91; The ECJ also imposed a uniform moral approach for the EU as regards human dignity – hence, MS have a wider discretion to decide on public morality within the limits set by the ECJ; Case C-377/98 R *Brüstle v Greenpeace eV* EU:C:2000:415 [2011] ECR I-06229, para 15.

¹⁴⁴ TEU (n 3), Art 5(1).

¹⁴⁵ TEU (n 3), Art 5(2).

¹⁴⁶ TFEU (n 142), Art 3, 4, 6; 'exclusive', 'shared', 'supporting or supplementing' competence respectively.

¹⁴⁷ Foster (n 143), 83.

¹⁴⁸ TEU (n 3), Art 5(3); CFR (n 3), Art 51.

¹⁴⁹ TEU (n 3), Art 5(4).

¹⁵⁰ TEU (n 3), Preamble and Art 10(3).

¹⁵¹ Lorna Woods and Philippa Watson, *Steiner & Woods EU law* (12th edn, Oxford University Press 2014), 60–62.

according to the principles of competence conferral. However, despite critiques that subsidiarity runs counter to the EU's integration process, it seems that it offers MS more discretion on making their own ethical choices. Thus, ethics is ascribed to the MS, albeit only to the public – that is, the government.¹⁵²

2.2.4.2 Ethical expertise as soft law tool 'ethicalisation'

Until recently, ethical reflection was primarily envisaged either in the academic sphere or politics at large.¹⁵³ And yet, the complexities of modern developments in science and technologies (e.g. biotechnology) have challenged fundamental moral and legal presuppositions in societies around the world. Therefore, ethics committees or groups¹⁵⁴ have been installed with a view to providing neutral expert advice – using opinions, recommendations or guidelines – on ethics to parliaments or the executive arms of governments (e.g. technology assessment in biotechnology).¹⁵⁵ Similarly, the Commission integrates ethical decisions in the EU by institutionalising ethics as regards science and new technologies culminating in the inception of the EGE (see Chapter 3).¹⁵⁶

Ethical expert knowledge (as integrated in the political decision-making) not only exerts significant normative influence but also fundamentally changes deliberation about ethics in the public sphere.¹⁵⁷ This shift of ethics can stifle the public debate thereof – entrusting it to the remit of a technocratic academic elite with lacking democratic accountability towards citizens.¹⁵⁸ In addition to that, the ethical expertise, which is often perceived as a priori sound in its argumentation, pervaded the sphere of the legislative process as decisive soft law measure in the course of the European integration process. This is especially by relying on abstract ethical instead of legal principles, where contentious ethical issues are at stake, i.e. the 'ethicalisation of law'.¹⁵⁹

Soft law in that regard pertains to guidelines, rules of conduct, recommendation or opinions, which are neither binding nor enforceable in a court but carry practical relevance.¹⁶⁰ In the

¹⁵² Tallachini (n 32), 293-5.

¹⁵³ EGE General Report 2010 (n 33), 22.

¹⁵⁴ Difference has to be made between: Committees tasked with research ethics or clinical trials; or ethical commissions and committees aimed at offering political or policy advice; See Susan Doods and Colin Thomson, 'Bioethics and democracy: Competing Roles of National Bioethics Organisations' (2006) 20(6) *Bioethics* 326, 327ff.

¹⁵⁵ Federica Lucivero, *Ethical Assessments of Emerging Technologies* (vol 15, Springer International Publishing 2016), 16.

¹⁵⁶ Bondolfi (n 90), 29-36.

¹⁵⁷ Sheila Jasanoff, 'Constitutional moments in governing science and technology' (2011) 17(4) *Science and engineering ethics* 621, 633.

¹⁵⁸ *Ibid*; Tallacchini (n 32), 282.

¹⁵⁹ Lucivero (n 155), 15-6.

¹⁶⁰ Foster (n 143), 127.

context of the EU, soft law is perceived as supporting the interpretation or application of enforceable EU law.¹⁶¹ For example, Article 288 TFEU establishes that ‘recommendation or opinions shall have non-binding force’¹⁶²; however, they can, of course, have a persuasive (normative) influence on individuals, MS or institutions (e.g. the ECJ¹⁶³) when dealing with applicable EU law¹⁶⁴. It is common knowledge that the Commission relies on soft law measures in the form of recommendations, acknowledging a self-regulatory approach at an EU level.¹⁶⁵

Despite the fact that ethics, as institutionalised in the EU, is categorised as ‘neutral’, ‘universal’, ‘values-grounded’ expert advice¹⁶⁶ – different to (soft) law primarily bearing normativity, its normative influence in the EU cannot be denied.¹⁶⁷ Hence, the EU’s ethical advice is conceived as ‘soft normativity’ instrument.¹⁶⁸ That said, the institutionalisation of expert ethics, which essentially disempowers citizens of their need to reason about ethics, may question the underlying premise of the democratic state concept under the ‘rule of law’, as outlined in one of the values of Article 2 TEU.¹⁶⁹ This is especially problematic if those expert bodies are subject to instrumentalisation or political capture, eliciting a certain result or framing ethical agendas in a biased way.¹⁷⁰ Moreover, it is important to realise that there is still no clarification as regards which ethics – from a philosophical point of view – is taken into account by the putative neutral expert groups.¹⁷¹

With this in mind, it can be discerned that ethics in the EU may either be decided by the MS’ prerogative as part of the principle of subsidiarity or on the EU level by the Commission’s expert group. Tallacchini amply illustrated how EU citizens fall short in this process of ethical determination, not being able to express themselves.¹⁷² As a result, it is questionable whether there is a homogenous concept of ethics or morality in the EU – an understanding of the common good – as this would presuppose a belonging to a collective European identity in which individuals can make themselves heard.¹⁷³

¹⁶¹ Ibid.

¹⁶² TFEU (n 142), Art 288.

¹⁶³ C-322/88 *Grimaldi v Fonds des maladies professionnelles* ECLI:EU:C:1989:646, [1989] ECR I-04407.

¹⁶⁴ Thomas Müller, ‘Soft Law im europäischen Wirtschaftsrecht - unionsverfassungsrechtliche Grundfragen’ (2014) 22 *Journal für Rechtspolitik* 112, 114-5.

¹⁶⁵ Linda Senden, ‘SOFT LAW, SELF-REGULATION AND CO-REGULATION IN EUROPEAN LAW: Where Do They Meet?’ (2005) 9 *Electronic Journal of Comparative Law* 1, 24, 27.

¹⁶⁶ Jim Dratwa, ‘How values come to matter at the European Commission’ (2014) 45(3) *Politique européenne* 86, 8.

¹⁶⁷ Tallacchini (n 32), 301.

¹⁶⁸ Ibid, 283; TEU (n 3), Art 2 ‘rule of law’.

¹⁶⁹ TEU (n 3), Art 2; Tallacchini (n), 291.

¹⁷⁰ Dratwa (n 166), 8.

¹⁷¹ Tallacchini (n 32), 293.

¹⁷² Ibid, 303.

¹⁷³ De Witte (n 99), 1559-1560.

2.2.5 The EU's ethical framework build on human dignity

The developments from science and new technologies challenge our traditional understanding of values and thus raise controversial ethical questions.¹⁷⁴ Against this background, both nonbinding and binding European conventions, declarations and code of conducts rooting human rights can offer help in facilitating dialogue on various values, invoking legal as well as ethical principles – i.e. the international ethical framework^{175, 176} With this in mind, it is worthy to note that the principle to respect human dignity plays a focal role in many European human rights provisions.¹⁷⁷ Most importantly, it can be located in the founding EU's values adopted in the Lisbon Treaty¹⁷⁸ and the CFR stating in Article 1, '*Human dignity is inviolable. It must be respected and protected*'.¹⁷⁹ It is not only considered as a 'fundamental right in itself but constitutes the basis of fundamental rights' and 'must, therefore, be respected, even where a right is restricted'.¹⁸⁰ Besides, Europe's philosophical stamp on the concept of human dignity is often affiliated with the deontological theories from Immanuel Kant, stipulating the intrinsic value of human dignity inherent to human beings.¹⁸¹ Furthermore, the ECJ also has addressed the concept of human dignity, thereby relying on the constitutional traditions inherent from the MS.¹⁸² Likewise, the Commission's expert group on ethics (EGE) proclaimed human dignity as the 'fundamental principle of European ethics'.¹⁸³

In light of this, human dignity may serve as a focal point of reference in the EU¹⁸⁴; surprisingly, by both religious and secular interest groups – finding so to say a common moral ground in Europe's pluralistic society, e.g. in bioethics.¹⁸⁵ That said, ambiguities in the interpretation of the human dignity principle persist and therefore offer room for ongoing dispute.¹⁸⁶ On the one hand, human dignity can be understood as empowering one's freedom of choice in line with the

¹⁷⁴ Székely et al. (n 36), 191-2.

¹⁷⁵ As referred to it by the EGE itself; See Appendix: EGE Opinion no. 25 'synthetic biology', 39; Appendix: EGE International Ethical Framework References.

¹⁷⁶ Commission Ethical Research Report 2012 (n 126), 8-11; Christoph G Paulus and Friedrich B Schneider, 'Über die Ethisierung des Rechts' (2013) 35(12) Juristische Ausbildung 1197, 1205.

¹⁷⁷ As an example, in the field of biomedicine; Council of Europe, Convention for the Protection of Human Rights and of the Human Being with regard to the Application of Biology and Medicine (Convention on Human Rights and Biomedicine or the Oviedo Convention) (CETS n. 164) (adopted in Oviedo on April 4 1997), Preamble 'safeguard human dignity'.

¹⁷⁸ TEU (n 3), Art 2; with a view to the adopted values of the EU.

¹⁷⁹ CFR (n 3), 2nd Recital, Title I 'Dignity' Art 1.

¹⁸⁰ Explanation relating to the Charter of Fundamental Rights [2007] OJ 303/17, Explanation relating to Art 1.

¹⁸¹ Deryck Beyleveld and Roger Brownsword, *Human dignity in bioethics and biolaw* (Oxford University Press 2001), 52.

¹⁸² Case C-36/02 *Omega v Bundesstadt Bonn* EU:C:2004:614, [2004] ECR I-09609, para 37.

¹⁸³ EGE General Report 2010 (n 33), 17.

¹⁸⁴ Notably as regards the assessment and control of developments in science and technologies.

¹⁸⁵ Emmanuel Agius, 'Human dignity in European public policy on biotechnology' (2012) 62(1-2) *Melita Theological* 23, 25.

¹⁸⁶ Ruth Macklin, 'Dignity is a useless concept' (2003) 327(7429) *BMJ* (Clinical research ed) 1419, 1420.

value of autonomy. However, it might also be applied the other way round, thus restrict individual autonomy – such as limiting the freedom of research in the EU’s biotechnology industry.¹⁸⁷ Hence, one might wonder how the Commission’s expert group on ethics defines this principle in light of the specific context.

As regards the international framework on ethics, the argumentation of this thesis will mainly concentrate on the Lisbon Treaty¹⁸⁸ and the CFR¹⁸⁹ with a view towards ethical integration in the EU. This is because the EU’s fundamental rights provisions are reflected in the CFR and given primary law status, that is, by Article 6 of the Lisbon Treaty.¹⁹⁰ Similarly, it is important to note that the adoption of the CFR in 2009 – making it legally binding in the EU – can be seen as the collective commitment of the MS to find common ground as regards human rights and the unified application thereof.¹⁹¹ In other words, the EU acknowledges both the ECHR¹⁹² and the constitutional traditions common to the MS based on the EU law principle of subsidiarity.¹⁹³

Against the background of the EU’s ethical approach, the following chapter further elaborates on the role of the EGE within the ethical lattice of the EU, thereby emphasising its relevance in the decision-making process of the EU.

¹⁸⁷ Beyleveld and Brownsword (n 181), 65.

¹⁸⁸ TEU (n 3), Art 2.

¹⁸⁹ CFR (n 3), 1st, 2nd and 3rd Recital mentioning common values; TEU (n 3) Art 6 para 1 provides the CFR with the same rank as the Treaties.

¹⁹⁰ TEU (n 3), Art 6 paras 1-3.

¹⁹¹ Paul Craig and Gráinne de Búrca, *EU law: Text, cases, and materials* (6th edn, Oxford University Press 2015), 369.

¹⁹² Council of Europe, Convention for the Protection of Human Rights and Fundamental Freedoms (European Convention on Human Rights, as amended) (ECHR).

¹⁹³ CFR (n 3), 5th Recital and Art 51.

3 The EGE integrating ethics in the EU

With a view to expanding on the institutionalisation of ethics in the EU, this chapter expounds further on the emergence and role of the EGE within the general ethics lattice of the European legal and policy framework. The focus lies on the competitive impetus from the European biotechnological agenda¹⁹⁴ in which the EGE posits guiding ethical standards in its opinions that have obscured the line between ethics and law.¹⁹⁵ Furthermore, by drawing on the prevailing literature, this chapter illustrates how the EGE prescribes fundamental ethical principles – most pronounced as regards the Biotechnology Directive (98/44/EC)¹⁹⁶ and the ethical review process as part of the research funding programme Horizon 2020¹⁹⁷ – that are philosophically attached to a somewhat restrictive notion of human dignity; hence raising the ethical bar in the EU.

3.1 The EGE emerging from a biotechnological background

In the early nineties, biotechnology was conceived as a key for promoting future competitiveness in Europe's industries.¹⁹⁸ As a result, the European Commission considered it of vital importance to introduce the first European 'ethics' body, which was initially aimed at balancing the tension between the developments in the European biotechnological industry and its contentious public debates thereof.¹⁹⁹

With the creation of the Group of Advisors on Ethical Implications of Biotechnology (GAEIB) – the predecessor of the EGE – in November 1991, the European Commission integrated ethics in its institutional setting by simple communication.²⁰⁰ According to the Commission, the GAEIB was tasked to provide the much-needed ethical expert advice on the discussions surrounding the regulatory framework in biotechnology.²⁰¹ In particular, the heated debates in the Parliament concerning the adoption of the Biotechnology Directive (98/44/EC)²⁰², which has

¹⁹⁴ Communication Biotechnology (n 127), 2.

¹⁹⁵ Busby et al. (n 4), 807

¹⁹⁶ Biotechnology Directive (n 17).

¹⁹⁷ Horizon 2020 Reg (n 19), 29th Recital; Council Regulation (EURATOM) 1314/2013 on the Research and Training of the European Atomic Energy Community (2014-2018) complementing Horizon 2020 Framework Programme for Research and Innovation [2013] OJ L 347/948 (EURATOM Horizon 2020 Reg), 28th Recital.

¹⁹⁸ Ibid, 11.

¹⁹⁹ Tallacchini (n 32), 289.

²⁰⁰ EGE, 'EGE Mandate 1991-1997' <http://ec.europa.eu/archives/bepa/european-group-ethics/archive-mandates/mandate-1991-1997/index_en.htm> accessed on January 7, 2017 (GAEIB Mandate); Herrmann and Rowlandson (n 12), 242.

²⁰¹ Ibid.

²⁰² Biotechnology Directive (n 17).

been notably influenced by its opinions²⁰³, can be seen as a trigger for creating the group.²⁰⁴ It can be argued that with the inception of the GAEIB the task of determining the substantive philosophical content of ethical values in the EU has been left to the remit of expert judgments, as opposed to using ethics as a form of public deliberation in the political decision-making process.²⁰⁵ This was also criticised by the European Parliament in its resolution of the EU commission when the mandate of the GAEIB ended.²⁰⁶

However, with an official Commission Decision²⁰⁷, the European Group on Ethics in Science and New Technologies (EGE), replacing the GAEIB, was established in 1998. The EGE's task compared to its predecessor notably expanded from simply informing citizens on the ethical aspects of biotechnology to serving all '**European decision-makers**' – namely, all three major EU institutions and citizens – with its expertise on all ethical questions arising from science and new technologies.²⁰⁸

Above all, according to the most recent EGE Mandate 2016 the EGE is charged with providing top-notch ethical expertise to the Commission, using analyses and recommendations with a view of **all developments** having '**wider societal implications**' in the fields of sciences and technologies.²⁰⁹ More specifically, the EGE is aimed at buttressing ethical EU legislation and policy-making based on the values and principles emanating from the TEU and the CFR.²¹⁰ In other words, the EGE integrates ethics in the EU on an international level, intra-institutional level, and within the Commission itself.²¹¹ As the EGE put it on the website:

*'[T]he EGE [...] advises on all aspects of Commission policies where ethical, societal and fundamental rights issues intersect with the development of science and new technologies.'*²¹²

²⁰³ Appendix 1.4 EGE Opinion No. 2 'human blood or human plasma products', no. 3 'legal protection for biotechnological inventions' and no 8. 'patenting inventions involving elements of human origin'.

²⁰⁴ Communication Biotechnology (n 194), 16.

²⁰⁵ Tallacchini (n 32), 289.

²⁰⁶ European Parliament, 'Resolution on the mandate of the group of advisors on the ethical implications of biotechnology to the European Commission' [1997] B4-0484, 1.

²⁰⁷ European Commission, 'Decision dated 16 December 1997 creating the European Group on Ethics in Science and New Technologies' SEC [1997] 2404, 1.

²⁰⁸ Ibid, 1; Alison Mohr et al., 'Mapping the role of official bioethics advice in the governance of biotechnologies in the EU: The European Group on Ethics Opinion on commercial cord blood banking' (2012) 39(1) Science and Public Policy 105, 112.

²⁰⁹ EGE Mandate 2016 (n 7), Art 2.

²¹⁰ EGE Mandate 2016 (n 7), Art. 2; TEU (n 3) Art 2 and 6.

²¹¹ EGE Main Website (n 8).

²¹² Ibid.

3.2 EGE's position in the EU

It follows from above that the EGE is central in supporting EU decision-makers, particularly when distinct values, worldviews and facts clash with each other on ethically and technically complex matters having far-reaching effects on the European society as a whole. Thus, it is important for the Commission to promote public deliberation on these scientific and technological matters with a view to integrating ethics in the EU. This should be reflected in EU legislation and policies, via the advice from the EGE.²¹³

3.2.1 EGE's mandate development

Each subsequent EGE mandate has been adapted with significant changes as regards its tasks, composition, working methods and position in the institutional setting of the EU. While the Commission simply announced the first two official EGE mandates (1998-2000; 2000-2005)²¹⁴ following the GAIEB²¹⁵, the last three EGE mandates (2005-2010; 2010-2015; 2016-2021)²¹⁶ were remarkably implemented by formal legal documents establishing the EGE via EU Commission decisions.²¹⁷ The EGE mandates have notably increased²¹⁸ in their term length, starting with two years in its first mandate²¹⁸, followed by a four-year term that was extended for one more year in 2009²¹⁹ and up to five years in its last mandate in 2016²²⁰. The following Figure 4 provides an overview of the EGE's emerging mandates.



Figure 4: EGE Mandates 1991-2021
Source: own illustration²²¹

The emerging nature of EGE mandates can also be seen in the light of the EGE's growing relevance in the EU and the herewith accompanied criticism calling for more 'transparency,

²¹³ EGE, 'General Report on the Activities of the European Group on Ethics in Science and New Technologies to the European Commission 1998-2000' [2000] (EGE General Report 2000) <http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/rap_en.pdf> accessed on June 12, 2017, 20

²¹⁴ Appendix 1.3.1 EGE Mandates Online Communication 1998-2005.

²¹⁵ Appendix 1.3.1 EGE Mandates Online Communication 1991-1997 (GAEIB).

²¹⁶ Appendix 1.3.2 EGE Mandates European Commission Decisions 2005-2021.

²¹⁷ Mohr et al. (n 208), 107.

²¹⁸ Appendix 1.3.1 EGE Mandates Online Communication 1991-1997 (GAEIB).

²¹⁹ Decision 2005/383 on the renewal of the mandate of the European Group on Ethics in Science and New Technologies [2005] OJ L127/17 (EGE Mandate 2005-2010), Art. 1; Decision 2009/757 on the extension of the mandate of the European Group on Ethics in Science and New Technologies and of the period of appointment of its members OJ L270/18 (EGE Mandate Extension 2009), Art. 1.

²²⁰ EGE Mandate 2016 (n 7), Art 1.

²²¹ Own illustration based on Appendix 1.3 EGE Mandates.

openness, and accountability' towards the group's legal basis in the EU treaties.²²² In other words, this has to be perceived against the wider backcloth of the ongoing struggle for power in between the Parliament, Council and Commission, that is, the EU's democratic deficit.²²³ For this reason, based on the Commission White Paper in 2001²²⁴ envisaging better and faster EU governance, a Commission's communication on the collection and use of expert advice purports to support the core principles of 'quality, openness, and effectiveness'²²⁵, which apply to all expert groups giving advice to the Commission; hence, it also binds the EGE.²²⁶

It is important to realise that the new EGE Mandate 2016 under Commission President Juncker has encountered significant adaptations compared to former mandates, notably as regards its membership and operation method. It can be argued that the new mandate provides a greater contribution to the fulfilment of the core principles of good governance, in particular, towards expert groups. As an illustration, the EGE mandate explicitly indicates its legal basis in the treaties.²²⁷ In this regard, Recital 1 of the EGE mandate refers to the founding values of the Union in Article 2 TEU and the CFR by means of Article 6 TEU conferring it treaty rank. In doing so, the mandate acknowledges further that fundamental rights represent general principles of EU law and are thus applicable to the EGE within its remits.²²⁸

3.2.2 EGE's expert membership grounded in the Treaties

Another key point to highlight is that the new EGE Mandate 2016 for the first time formally recognises the EGE as an expert group, thereby establishing a requirement to publish a list of the current 15 EGE members in the register of expert groups to the Commission.²²⁹ In the same way, as servants to the Union EGE members are now required to comply with the obligations of professional secrecy set out in Article 339 TFEU.²³⁰

The expert membership of the EGE has notably increased from 6 members in 1991²³¹ up to 15 members in 2016.²³² Members of the EGE are appointed for 2 ½ years and listed on its

²²² Plomer (n 16), 842.

²²³ Ibid.

²²⁴ European Commission, 'White Paper on European Governance' COM(2001) 428 final OJ C 287/1 (Governance White Paper), 7.

²²⁵ European Commission, 'Communication from the Commission on the Collection and Use of Expertise by the Commission: Principles and Guidelines' COM(2002) 713 final, 1.

²²⁶ Plomer (n 16), 843.

²²⁷ EGE Mandate 2016 (n 7), Preamble.

²²⁸ Ibid, Recital 1.

²²⁹ Ibid, Art 4(9).

²³⁰ EGE Mandate 2016 (n 7), Art 4(11) and Art 5(3).

²³¹ EGE, 'EGE Mandate 1991-1997' <http://ec.europa.eu/archives/bepa/european-group-ethics/archive-mandates/mandate-1991-1997/index_en.htm> accessed on January 7, 2017.

²³² EGE Mandate 2016 (n 7), Art 14(1).

website.²³³ EGE experts come from various fields such as philosophy and ethics, natural and social science and law – e.g. professionals from biotechnology, medicine, information technologies, philosophy of science, and human rights experts.²³⁴ According to the current mandate, EGE members ought to portray a holistic and multidisciplinary attitude towards emerging ethical issues in the EU, rather than solely representing a certain professional perspective in their advising work.²³⁵ Moreover, in line with the current mandate stipulation of having experienced ethicist in the group²³⁶, EGE members are often related to established ethics bodies (e.g. 28 National Ethics Councils) – either by formerly or currently holding a position therein.²³⁷ As a result, this might contribute to producing more authoritative (i.e. legitimate) opinions in the light of the experts’ experience and recognition towards ethics.²³⁸

Furthermore, the appointment procedure of EGE expert members changed compared to the previous mandates. Even though the President of the Commission has the final say in appointing the EGE members following a proposal by the Commissioner of the DG ‘Research, Science and Innovation’, the new mandate now requires an **Identification Committee** to conduct a selection process based on an open call for EGE membership.²³⁹ This is aimed at guaranteeing not only a pronounced level of ‘expertise’, ‘independence’ and ‘pluralism’ among the EGE members, but also to demonstrate a balance concerning the geographic origin, knowledge bases, and areas of interests in its group composition²⁴⁰ – a characteristic previous mandates seemed to lack, as scholars remarked.²⁴¹

In contrast to this, older EGE mandates simply required the President of the Commission to appoint EGE members *ad personam*²⁴² without having in place an Identification Committee for the selection of appropriate members. As a result, critique had been raised towards the EGE’s partial affiliations reflected in the previous group compositions – as evidenced by the fact that most EGE members had Roman Catholic affiliations in 2005.²⁴³ In contrast, EGE members with the current mandate are now required to act in a ‘personal capacity’ and ought to be free from any ‘outside influence’ so as to serve the Commission in the public interest.²⁴⁴

²³³ Members of the EGE are published on its website; EGE, ‘Members of the EGE’ <<http://ec.europa.eu/research/ege/index.cfm?pg=members> > accessed on June 17, 2017.

²³⁴ EGE Mandate 2016 (n 7), Art 4(c).

²³⁵ Ibid, Art 4(6)(c).

²³⁶ EGE Mandate 2016 (n 7), Art 4(6)(d).

²³⁷ Ibid, Art 4(6)(e).

²³⁸ Mohr et al. (n 208), 144.

²³⁹ EGE Mandate 2016 (n 7), Art 4(3).

²⁴⁰ Ibid, Art 4(4).

²⁴¹ Mohr et al. (n 208), 108.

²⁴² EGE Mandate 2010-2015 (n 216), Art 3(2).

²⁴³ Plomer (n 16), 844.

²⁴⁴ EGE Mandate 2016 (n 7) Art 4(2).

However, despite having adopted a more transparent selection procedure that builds on specific quality criteria²⁴⁵ stemming from the new mandate, the EGE might still be prone to ‘politicisation’.²⁴⁶ This is because the final decision for appointing EGE members solely resides with the President of the Commission. The new EGE mandate also put the group more clearly under the sphere of influence of the Commission. That is to say, the Directorate-General (DG) for Research and Innovation – together with the EGE’s chair – is tasked with the coordination of the EGE’s work and thus provides its Secretariat.²⁴⁷ Moreover, the EGE is expected to maintain close relations with Commission departments (that is, the College of Commissioners) that might be interested in the EGE’s work.²⁴⁸

3.3 EGE’s normative ethical advice

The ethical advice given by the EGE comes with published opinions that have increased both in scope and size since its inception.²⁴⁹ Above all, it is the Commission that primarily requests opinions from the EGE or gives the approval to elaborate opinions on certain ethical issues raised by either the Parliament, the Council or the EGE itself via its chair, given that the topics are of vital importance to the EU’s ethical integration.²⁵⁰

Against the background of speeding up EU legislation – that is, to avoid the so-called ‘law lag’,²⁵¹ the EGE’s advice is supposed to be delivered in due time in order to account for the significant effects emerging from the sciences and new technologies.²⁵² This can be observed by the Commission’s power in the EGE Mandate to set a time limit within which the group is required to deliver its opinions.²⁵³ Thus, the group in average releases two opinions in a year since its inception.²⁵⁴ As noted above, the EGE opinions mostly dealt with subjects in the field of bioethics initially, but with new mandates adding more responsibilities and tasks, the EGE opinions also embarked on various other topics with a view of promoting acceptance towards the development of sciences and technologies that provoked ethical tension in the EU.²⁵⁵ In fact, the recent outreach by the group to other ethical issues beyond the field of biotechnology can be seen as a positive development for attaining more legitimacy as an expert ethicist body

²⁴⁵ EGE Mandate 2016 (n 7) Art 6.

²⁴⁶ Plomer (n 16), 845.

²⁴⁷ EGE Mandate 2016 (n 7), Art 5.

²⁴⁸ *Ibid*, Art 5(7).

²⁴⁹ See Appendix 1.4.2 EGE Opinion No. 1-29 Scope and Size.

²⁵⁰ EGE Mandate 2016 (n 7), Art 2.

²⁵¹ Governance White Paper (n 224), 5.

²⁵² Tallacchini (n 32), 297.

²⁵³ EGE Mandate 2016 (n 7) Art 5(4).

²⁵⁴ EGE General Report 2005 (n 59), 4.

²⁵⁵ Tallacchini (n 32), 208.

dealing with broader European values.²⁵⁶ At present, all EGE opinions among other related documents are accessible on both the official and archived EGE website.²⁵⁷

By now the EGE has published 29 Opinions²⁵⁸ elaborating on the ethical aspects of the following topics:

- EU research funding programmes²⁵⁹
- Bioethical issues such as synthetic biology, genetic modification and cloning of animals, human stem cell research and its use, embryo research funding, nanomedicine, ICT implants in the human body, umbilical blood banking, gene-therapy, genetic testing, human tissue banking, cloning, prenatal diagnosis, biotechnological food labelling, products based on human origin, intellectual property rights in biotechnology²⁶⁰
- Citizen participation in the production of knowledge (new healthcare technologies)²⁶¹
- Security and surveillance²⁶²
- Energy supply²⁶³
- Information and communication technologies²⁶⁴
- Agriculture²⁶⁵
- Clinical research in developing countries²⁶⁶
- Doping in sport²⁶⁷

In addition to these topics already dealt with by the EGE, the newly appointed EGE recently discussed its first opinion in a plenary session.²⁶⁸ Commissioner Carlos Moedas in liaison with the Commission President Juncker asked the EGE to discuss the ethical issues related to future work in the following opinion. In this regard, the opinion takes into account the relevant societal,

²⁵⁶ Jim Dratwa (n 170), 108; The group now deals with topics such as, trade, energy, security and surveillance, and citizen participation in the production of knowledge; This can be seen also in the light of TEU (n 3), Art 3 para 5 stipulating more accountability towards the 'wider world'.

²⁵⁷ EGE Main Website (n 8); EGE Mandate 2016 (n 7), Art 5(11).

²⁵⁸ Appendix 1.4 EGE Opinion No. 1-29.

²⁵⁹ Appendix 1.4 EGE Opinion No. 22, 12, 10.

²⁶⁰ Appendix 1.4 EGE Opinion No. 25, 23, 22, 21, 20, 19, 18, 16, 15, 12, 11, 9, 8, 7, 6, 5, 3, 2.

²⁶¹ Appendix 1.4 EGE Opinion No. 29, 13.

²⁶² Appendix 1.4 EGE Opinion No. 28.

²⁶³ Appendix 1.4 EGE Opinion No. 27.

²⁶⁴ Appendix 1.4 EGE Opinion No. 29, 26, 20, 13.

²⁶⁵ Appendix 1.4 EGE Opinion No. 24, 1.

²⁶⁶ Appendix 1.4 EGE Opinion No. 17.

²⁶⁷ Appendix 1.4 EGE Opinion No. 14.

²⁶⁸ EGE, 'Plenary Meeting of the European Group on Ethics in Science and New Technologies' [2017] <http://ec.europa.eu/research/ege/pdf/02_ege_meeting_agenda.pdf> accessed on July 20, 2017 (New Opinion), 1.

political and technological developments (e.g. the emergence of the gig economy, industry 4.0, artificial intelligence, robotics, and machine developments, etc.).²⁶⁹

3.3.1 The normative structure of EGE opinions

In the light of the group’s established Rules of Procedure²⁷⁰, the EGE when giving ethical advice adopted a standard structure in its opinions.²⁷¹ Pursuant to the current mandate, an opinion ought to contain a summary of the relevant state of the art in sciences and technologies, followed by an in-depth analysis of the ethical issue in consideration, and a final recommendation.²⁷² Put in practice, the majority of EGE opinions mainly consist of five parts, which may vary in their extent and chronological order or overlap with each other, depending on the topic at hand. The following provides the standard opinion structure the EGE applies:

<i>EGE Opinion No. [...]</i>
Introduction
Technical or scientific background
Legal framework
Ethical analysis
Recommendation

*Table 1: EGE opinion structure
Source: own illustration²⁷³*

With a view to answering the underlying research questions of this thesis, the empirical part focuses primarily on the ‘**ethical part**’ of the EGE opinions, thereby containing most of the philosophical schools of thought references.

In light of this, the EGE’s line of reasoning draws on normative ethical theories to evaluate the developments from sciences and new technologies. Deontological theories to illustrate universally accepted principles of morality, consequentialist theories to assess the effects of society, and virtue ethics to question the influences on pursuing a good life.²⁷⁴ To support its normative stance on a certain topic in that regard, the EGE applies legal and ethical principles in its opinions, which are inferred from the ‘International Ethical Framework’, mostly rooted in human rights adopted by international institutions, e.g. UN, UNESCO, Council of Europe.²⁷⁵

²⁶⁹ EGE Main Website (n 257).

²⁷⁰ EGE Mandate 2016 (n 7), Art 5(6).

²⁷¹ EGE General Report 2005 (n 59), 10.

²⁷² EGE Mandate 2016 (n 7), Art 5(5).

²⁷³ Own illustration based on EGE General Report 2005 (n 59), 10.

²⁷⁴ Lucivero (n 155), 15.

²⁷⁵ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 39; See Chapter 2.2.5; For a further overview of the numerous international documents the EGE refers to see Appendix 6.

Most prominently, the EGE also harks back to the fundamental ethical principle to respect human dignity.²⁷⁶ This principle, so the EGE argues, represents the fundamental principle of European ethics, of which other ethical principles emanate. Among others, most of the ethical principles (other than dignity) the EGE refers to in its opinions are the following: **autonomy, non-instrumentalisation (commercialisation), privacy, informed consent, non-discrimination, equity** and in recent opinions the groups also advocates the, albeit more legal, precautionary principle.²⁷⁷ In general, the group acknowledges its broader remit and has thus advanced its normative framework as part of its opinions. Therefore, the group has shifted the focus from using ethical principles that purely stem from bioethics to include also principles that can be found in the theories of human rights, thereby addressing also issues of global and social justice.²⁷⁸

What is more, to address the initial lack of transparency, EGE opinions indicate all relevant (legal) documents, opinions, reasons or considerations that have been taken into account in its work – placed before the introductory part of each EGE opinion. For this purpose, the EGE uses common legal phrases such as ‘Having regard to’ and ‘Whereas’ to list the respective references.²⁷⁹ Scholars have argued that EGE in this respect only refers to a selective list of legally binding documents often in combination with non-binding declarations or conventions, with the former providing legal and the latter ethical principles. As a result, there might be an impression that ethical principles carry legal effect.²⁸⁰

It can be argued that the legally nonbinding expert opinions from the EGE convey a ‘quasi-legislative’ status, in which the difference between normative ethical and legal line might not be clear for the layperson dealing with complex issues.²⁸¹ In other words, the EGE opinions – perceived as a soft law body – might trigger substantial normative consequences in the European legal and policy framework.²⁸²

3.3.2 How the EGE operates in the wider ethics reticulation

After conducting confidential discussions on the opinion agenda at hand²⁸³, the EGE is supposed to seek consensus among its members when adopting an opinion. Nevertheless, if the group cannot reach a unanimous opinion, dissenting members should present their view in the

²⁷⁶ EGE General Report 2010 (n 33), 17.

²⁷⁷ Ibid, 12; TFEU (n 142), Art 191 ‘precautionary principle’.

²⁷⁸ EGE General Report 2010 (n 33), 13.

²⁷⁹ Plomer (n 16), 846.

²⁸⁰ EGE General Report 2010 (n 33), 22.

²⁸¹ Plomer (n 16), 844-5.

²⁸² Tallacchini (n 32), 301.

²⁸³ EGE Mandate 2016 (n 7), Art 10.

document.²⁸⁴ In light of this, one can argue that dissent, as opposed to consent in the expert advice, might be beneficial to attain more political legitimacy on their line of reasoning towards controversial ethical subjects. This is because it portrays more diversity in views.²⁸⁵

In general, the opinions are issued after having conducted various meetings, hearings with professionals from the field, and public roundtables that involve all necessary stakeholders (e.g. experts, representatives of NGO's or other organisations, etc.)²⁸⁶ to a certain opinion agenda. Against this background, the EGE publishes a general report on all its activities contributing to the content of the opinions after every mandate expired. This is aimed at increasing transparency and legitimacy in the group's work.²⁸⁷

Moreover, besides having professionals ethicists (e.g. former members of national ethics committees) as members²⁸⁸, the EGE is also encouraged to network with representatives of various ethics bodies in the MS and other third countries, thereby exchanging views towards ethical issues, aligning policies and agreeing on fundamental ethical principles.²⁸⁹ The EGE Secretariat positioned at Commissions' DG for Research and Innovation assists the group in pursuing that aim.²⁹⁰ Therefore, the Secretariat host the General Secretariat of the European Commission's International Dialogue on Bioethics, thereby providing a forum that summons National Ethics Councils (NEC) from 97 Countries (e.g. EU-G20 forum) – that includes all 28 NECs within the EU, which already draw on the EGE as a central reference point.²⁹¹ Likewise, it is responsible for the representation and coordination in international organisations dealing with ethical issues arising in sciences and new technologies such as, for example, the UN, OECD, World Health Organisation (WHO), and the Council of Europe. In light of this, the EGE can contribute to the drafting or amendment of international documents.²⁹² Similarly, the Secretariat coordinates the Inter-service group on Ethics and EU Policies as regards bioethical as well as other ethical issues influencing the Commission's work.²⁹³ It follows that the EGE is arguably located in a reticulation of ethical policy-making, notably in the field of bioethics.²⁹⁴ The

²⁸⁴ Ibid, Art 5(8).

²⁸⁵ Alexander Bogner and Wolfgang Menz, 'How Politics Deals with Expert Dissent: The Case of Ethics Councils' (2010) 35(6) *Science, Technology, & Human Values* 888, 907.

²⁸⁶ EGE Mandate 2016 (n 7), Art 5(7).

²⁸⁷ Ibid, Art 5(12).

²⁸⁸ Ibid, Art 5(6).

²⁸⁹ Ibid, Art 5(6).

²⁹⁰ EGE Main Website (n 8).

²⁹¹ Jim Dratwa (n 170), 105.

²⁹² Ibid; EGE General Report 2010 (n 33), 24-5.

²⁹³ Ibid; EGE Main Website (n 8).

²⁹⁴ Mohr et al. (n 208), 112.

EGE has to be perceived as being embedded in a wider inter-institutional and international ethics lattice that reaches even beyond the EU.²⁹⁵

3.3 EGE as a protagonist in the European Legal and Policy Framework

From a legal perspective, the ethical advice in the form of opinions by the EGE is not legally binding. However, as a may body²⁹⁶ both the EGE and its opinions have achieved considerable recognition in the European legal and policy framework towards ethical issues. This is despite the group's vague position in the EU.²⁹⁷ Some have argued that by advocating fundamental ethical principles, with human dignity as a cornerstone²⁹⁸, the EGE tacitly integrates ethics on complex subjects in the EU, comparable to a '*Trojan horse*'.²⁹⁹

Nevertheless, EU legislation has explicitly referred to the EGE in four regulations³⁰⁰, three directives³⁰¹ – EGE reasoning in regards to patenting biotechnologies was amply reflected in the respective Directive (98/44) on patenting biotechnological inventions³⁰², two opinions of the Advocate General³⁰³ in proceedings at the European Court of Justice (ECJ), and in one final judgement of the ECJ³⁰⁴. Similarly, the European Court of Human Rights (ECtHR) has referred to the EGE's opinions in four cases both explicitly, in three judgements³⁰⁵, and, implicitly, in one judgement³⁰⁶.

Altogether, the EGE with its opinions acts as central protagonist the fields of bioethics and research ethics, in particular, as regards intellectual property rights³⁰⁷, regulatory measures in

²⁹⁵ Dratwa (n 170), 105-106.

²⁹⁶ Müller (n 164), 113.

²⁹⁷ Frischhut (n 2), 550-1.

²⁹⁸ See TEU (n 3), Art. 2; CFR (n 3), Art 1-5; EGE General Report 2010 (n 33), 17.

²⁹⁹ Ibid, 856.

³⁰⁰ Regulation (EC) 1394/2007 on advanced therapy medicinal products [2007] OJ L324/121, 28th Recital; Regulation (EC) 1829/2003 on genetically modified food and feed [2003] OJ L268/01 (Genetically Modified Food Reg), 42nd Recital and Art. 33; Horizon 2020 Reg (n 19), 29th Recital; EURATOM Horizon 2020 Reg (n 197), 28th Recital.

³⁰¹ Busby et al. (n 4), 810; Biotechnology Directive (n 17); Directive 2001/18/EC on the deliberate release into environment of genetically modified organisms and repealing Council Directive 90/220/EC [2001] OJ L 106/01 (Genetically Modified Organisms Directive), 57th Recital and Art 29; Directive 2004/23/EC on setting standards of quality and safety for donation, procurement, testing, and processing, preservation, storage and distribution of human tissues and cells [2004] OJ L 102/48 (Human Tissue Cells Directive), 33rd recital.

³⁰² Busby et al. (n 4), 815.

³⁰³ Case C-34/10 *Brüstle v Greenpeace eV* ECLI:EU:C:2011:138, [2011] ECR I-0982, Opinion of AG Bot, paras 115; Case C-262/08 *CopyGene A/S v Skattenministeriet* ECLI:EU:C:2009:541, [2009] ECR I-0505, Opinion AG Sharpston, para 14.

³⁰⁴ Case C-165/08 *Commission v Republic of Poland* ECLI:EU:C:2009:473, [2009] ECR I-06843, paras 4 and 9.

³⁰⁵ *Parrillo v Italy* App no 46470/11 (ECtHR, 27 August 2015), para. 19/56/181.; *Elberte v Latvia* App no 61243/08 (ECtHR, 13 April 2015), para 39; *VO v France* App no 53924/00 (ECtHR, 8 July 2004), para. 40.

³⁰⁶ *Evans v The United Kingdom* App no 6339/05 (ECtHR, 10 April 2007), para 54.

³⁰⁷ Biotechnology Directive (n 132), 44th Recital and Art 6.

the market³⁰⁸ and ethical standards in research funding programmes³⁰⁹. By providing authoritative normative postulations for regulating biotechnologies and research, the EGE influenced administrative activities, legislative documents and thus, the subsequent jurisprudence in various ways.³¹⁰ This is outlined in the following section using several examples:

- The group's reasoning in drafting the substantive content
- As a reference point in legislation
- The group's ethical review

3.3.1 EGE's relevance in the biotechnology industry

There is compelling evidence that the EGE opinions no. 3/8/16 significantly influenced the drafting of the substantive content of the Biotechnology Directive (98/44/EC).³¹¹ To that end, the directive acknowledges in Recital 44 and Article 7 that the '*EGE evaluates all ethical aspects of biotechnology*'.³¹² Furthermore, the major line of reasoning in Article 6 of the directive – the morality clause '*ordre public*' – listing categories in biotechnologies that are unpatentable because of being contrary to public morality can be attributed to the EGE's work (e.g. human cloning processes).³¹³ It is argued that the EGE in shaping this directive aimed at balancing public fear and European economic interests in the biotechnology industry.³¹⁴ Nevertheless, it is also interesting to recognise how a dissenting remark of one EGE member in EGE opinion no. 16 about the unpatentability of embryonic human stem cells in the light of Article 6 of the Biotechnology Directive³¹⁵ also found its place into the moral reasoning by both the ECJ³¹⁶ and European Patent Office (EPO)³¹⁷ in two guiding decision, as argued by an EGE member.³¹⁸ Both decisions embraced the restrictive understanding of human dignity in patenting human stem cell research (hESC) from the dissenting EGE member, who disapproved the destruction of human embryos in patenting biotechnology inventions.³¹⁹

³⁰⁸ Human Tissue Cells Directive (n 301), 33rd Recital.

³⁰⁹ Horizon 2020 Reg (n 19), 29th Recital.

³¹⁰ Agius (n 185), 38.

³¹¹ Appendix 1.4 EGE Opinion no. 3 'legal protection for biotechnological inventions', no. 8 'patenting inventions involving human origin', no. 16 'patenting inventions involving human stem cells'; Busby et al. (n 4), 812-4

³¹² Biotechnology Directive (n 132), 44th Recital and Art 7.

³¹³ Busby et al. (n 4), 811-816.

³¹⁴ Busby et al. (n 4), 815.

³¹⁵ Appendix 1.4 EGE Opinion no. 16 'patenting inventions involving human stem cells', 19; EGE member Prof. Günther Virt declared '*Human embryonic stem cells and also embryonic stem cell lines are excluded from patentability because we cannot get embryonic stem cell lines without destroying an embryo and that means without use of embryos*'.

³¹⁶ Case C-34/10 Brüstle v Greenpeace eV ECLI:EU:C:2011:138, [2011] ECR I-0982, Opinion of AG Bot, paras 115.

³¹⁷ Case G 002/06 Use of embryos v WARF ECLI:EP:BA:2008:G000206.20081125, [2008].

³¹⁸ Agius (n 310), 46.

³¹⁹ Ibid.

What is more, particular importance is attached to the EGE's opinions as regards the deliberate release of Genetically Modified Organism (GMO). The Genetic Organism Directive (2001/18/EC) provided that the Commission:

*'shall [...] consult any committee it has created with a view to obtaining advice on the ethical implications of biotechnology, such as the **European Group on Ethics**'*.³²⁰

Likewise, the Regulation (1829/2003/EC) on 'genetically modified food and feed' referred to the EGE, albeit in a softened language, by providing that the Commission '*may consult*' the EGE.³²¹ The EGE's relevance as regards the deliberate release of GMO's was further exemplified in a judgement by ECJ³²² involving a Commission infringement proceeding against Poland concerning the obligations set out by the Genetic Organism Directive to allow GMO products, which comply with the (ethical) requirements of the directive respectively³²³.

Concerning tackling safety issues in tissue, cell and blood banking markets, EGE opinion no. 2 'products derived from human blood and plasma' reviewed the contested Directive (89/381).³²⁴ In this connection, the EGE's predecessor emphasised the importance of voluntary blood donation and the principle of non-commercialisation emanating from the principle of human dignity.³²⁵ Similarly, EGE opinion no. 11 on 'human tissue banking', which has also been considered in a judgement at the ECtHR³²⁶, stressed the necessity for regulating the market in human tissues and cells with a view to embracing the ethical principles informed consent and the respect for human dignity among others.³²⁷ As a result, these EGE opinions together on an equal rank, which illustrates EGE's elevated status in the EU, with other international documents (e.g. the CFR³²⁸ and the Oviedo Convention³²⁹), have been explicitly considered by the legislative proposal³³⁰ of the Commission. Hence, they are reflected in the Human Tissue Directive

³²⁰ Genetically Modified Organism Directive (n 301), Art 29 para 1.

³²¹ Genetically Modified Food Reg (n 300), Art 33(1)

³²² Case C-165/08 *Commission v Republic of Poland* ECLI:EU:C:2009:473, [2009] ECR I-06843, paras 4 and 9.

³²³ Genetically Modified Organism Directive (n 301), Art 22 and Art 23 with a view to Art 29.

³²⁴ Directive 89/381 on the harmonisation of laws relating to medicinal products derived from human blood or plasma [1989] OJ L181/44, Preamble.

³²⁵ Busby et al. (n 4), 817.

³²⁶ See *Elberte v Latvia* App no 61243/08 (ECtHR, 13 April 2015), para 39.

³²⁷ Appendix 1.4 EGE Opinion no. 11, 4-5.

³²⁸ CFR (n 3).

³²⁹ Council of Europe Convention for the Protection of Human Rights and of the Human Being with regard to the Application of Biology and Medicine (adopted in Oviedo on April 4 1997) [1999] CETS n. 164 (Convention on Human Rights and Biomedicine or the Oviedo Convention).

³³⁰ Proposal for a Directive on the setting of standards of quality and safety for the donation, procurement, storage and distribution of human tissues and cells [2002] OJ C227E/505 (Human Tissue Cells Dir Proposal), 23rd Recital.

(2004/23).³³¹ The Directive, in essence, aims at guaranteeing the quality and safety standards for tissue and cell markets in the EU. Moreover, EGE opinion no. 19 'on umbilical cord blood banking' also reflects comparable reasoning towards regulating the tissue and cell markets, even though official statements cannot confirm its influence on the Human Tissue Directive.³³² However, the final adopted the Directive (2004/13) exhibits the fundamental ethical principles that were postulated by all of these EGE opinions.³³³ In this regard, scholars have argued that the EGE in its opinions towards tissue, cell and blood banking favours preventing the emergence of a commercial industry therein.³³⁴ This is despite the limited EU competence in this area, that is, only to set quality standards when regulating medical product markets.³³⁵ Above all, one can discern a tendency towards values of altruism and solidarity in the EGE's line of reasoning. This is notable as regards the tissue and cell banking, thus limiting the freedom to conduct business with its influence on legislation, as argued by Busby et al.³³⁶

3.3.2. *EGE's ethical integration in research activities*

Another key area in which the EGE represents its dominant position in integrating ethics constitutes the ethical review (authorisation) process of the EU framework programmes for funding research.³³⁷ In the hitherto largest EU research funding programme Horizon 2020, which amounts to EUR 80 billion³³⁸, it is the Commission's task to '*systematically carry out ethics reviews for proposals raising ethical issues*'.³³⁹ This is to examine the compliance of research proposals with '*ethical principles and legislation*' via so-called '*opening-clauses*' towards ethics.³⁴⁰ Against this background, two regulations providing the legal basis for Horizon 2020 prescribe that the '*EGE opinions should be taken into account*' when carrying out the ethical review of project proposals.³⁴¹ Hence, it can be said that the EGE as an expert group for ethics to the Commission might be the central institution providing guidance towards both the content and the ethics review of EU research funding programmes.

³³¹ Human Tissue Directive (n 301), 33rd Recital.

³³² Mohr et al. (n 208), 113.

³³³ Human Tissue Directive (n 301), 33rd Recital.

³³⁴ Busby et al. (n 4), 816.

³³⁵ TEU (n 3), Art 168 (ex 152 EC) para 4(a).

³³⁶ Busby et al. (n 4), 821.

³³⁷ Frischhut (n 2), 553.

³³⁸ EU Commission, 'What is Horizon 2020' <<https://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020>> accessed on June 17, 2017.

³³⁹ Regulation (EU) 1290/2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006 OJ L 347/81, Art 14 para 1.

³⁴⁰ Hans Christian Wilms, 'Ethisierung des Europarechts – Grundrechtliche Grenzen und politische Praktiken' in Vöneky Silja and others (eds), *Ethics and Law: The Ethicalization of Law (Beiträge zum ausländischen öffentlichen Recht und Völkerrecht 240*, Springer 2013), 287.

³⁴¹ Horizon 2020 Reg (n 19), 29th Recital; EURATOM Horizon 2020 (n 300), 28th Recital.

With this in mind, the EGE opinions No. 12/15/22³⁴² have taken the lead in shaping the content and implementation of the previous framework programmes (FP), as illustrated by Busby et al.³⁴³ This is notable as regards the ethical review process of ethically contested human stem-cell research, namely in the fifth, sixth and seventh framework programme – FP5, FP6 and FP7 respectively.³⁴⁴ Consequently, key features which provided guidance by the EGE in previous programmes are also applicable to the new framework programmes, as firmly acknowledged by the Commission in the ‘*European Citizens’ Initiative “One of Us”*’³⁴⁵.

More importantly, EGE opinion no. 22 provided central instructions towards the ethical review of hESC research proposals as part of the framework programmes,³⁴⁶ such as researchers who engage in hESC research are asked to pursue ‘*social, political and ethical debates*’ as part of their funding proposals.³⁴⁷ To this end, the EGE’s guidance in (hESC) research pertaining to the controversial question of when human life begins has even been the subject of decisions at European Court of Human Rights (ECtHR) in Strasbourg.³⁴⁸

Against this backdrop, despite promoting progress and innovation in the biotechnology industry without excluding hESC research a priori, the group still provides stricter guidelines on the moral status of human embryos, thereby conferring legal protection thereon. Hence, this creates constraints for EU funded stem cell research that utilises embryos, more precisely, the destruction thereof.³⁴⁹ Based on the ethical principles that emanate from the CFR³⁵⁰, the group, in this regard, emphasises the fundamental ethical principle human dignity to prevent the ‘*instrumentalisation of human life*’ as regards the research with human stem cells using embryos.³⁵¹ This stance was even affirmed by the Commission as regards the research funding programme Horizon 2020, thereby promoting alternatives to hESC research with the same potential.³⁵² Hence, one can argue that with these EGE opinions embracing human dignity as the central ethical principle, the group has been paramount in establishing higher ethical standards on the funding and guidance of scientific research as part of European policymaking. Yet, this

³⁴² Appendix 1.4 EGE Opinion no. 12 ‘research involving the use of human embryos in the context of the 5th framework programme’, 15 ‘human stem cell research and use’ and 22 ‘ethical review of hESC FP7 research projects’.

³⁴³ Busby et al. (n 4), 826-830.

³⁴⁴ Ibid, 821.

³⁴⁵ European Commission, ‘Communication from the Commission on the European Citizens’ Initiative “One of Us” COM(2014) 355 final (Citizens’ Initiative), 7.

³⁴⁶ Appendix 1.4 EGE Opinion no. 22 ‘ethical review of hESC FP7 research projects’, 24.

³⁴⁷ Ibid, 830.

³⁴⁸ *Parrillo v Italy* App no 46470/11 (ECtHR, 27 August 2015), para. 19/56/181.; *VO v France* App no 53924/00 (ECtHR, 8 July 2004), para. 40.

³⁴⁹ Agius (n 185), 52.

³⁵⁰ CFR (n 3), Art 6.

³⁵¹ Agius (n 185), 52.

³⁵² Citizens’ Initiative (n 345), 18.

could be seen as an affront to liberal MS that not only co-fund the EU's research funding programmes but from a moral perspective disapprove the EGE's restrictive approach on research funding with a view to the principle to respect human dignity, as argued by Herrmann and Rowlandson.³⁵³

As for research in nanotechnology, it is interesting to observe that EGE opinion no. 10³⁵⁴ in part exhibits a remarkable congruence with the subsequently published code of conduct for responsible nanosciences and nanotechnology research.³⁵⁵ In this context, the group puts great emphasis on the '**precautionary principle**' that foresees a proper evaluation of risks involved in nanoscience and nanotechnology projects.³⁵⁶ This is, in particular, to increase the accountability of researchers and institutions as regards the consequences from nanotechnologies.³⁵⁷ In doing so, it is argued that the EGE putatively attributes inferior weight again to the freedom of research as compared to other fundamental rights, which emanate from the CFR, as amply illustrated by Wilms.³⁵⁸

3.4 Reflecting on the status quo of the EGE

In light of the above, it cannot be denied that as a soft law body the EGE has an equivocal and decisive role in law, society, economic policies, scientific progress, and new technologies within the EU. Above all, the group buttresses the EU's decision-making with ethical acceptance embedded in a diverse set of cultures, that is, united in diversity.³⁵⁹ Nonetheless, with a view to integrating ethics in the EU, the EGE has also been subject to various streams of critique, both negative as well as positive.³⁶⁰

On the one hand, scholars claim that with the EGE's vague normative moral and legal order having no definite democratic basis within the EU Treaties as well as in the EU's legislative procedures, the group creates unreasonable moral restraints in science and new technologies.³⁶¹ By obscuring the line between ethics, politics and law, it is argued that MS are deprived of their sovereignty to decide on ethically contentious issues falling within their competence (self-

³⁵³ Herrmann and Rowlandson (n 12), 251.

³⁵⁴ Appendix 1.4 EGE Opinion no. 21 'on the ethical aspects of nanomedicine', 1.

³⁵⁵ Recommendation 2008/345 on a code of conduct for responsible nanosciences and nanotechnologies research [2008] OJ L116/46.

³⁵⁶ TFEU (n 142), Article 191 enshrines the precautionary principles as regards protecting the environment.

³⁵⁷ Appendix 1.4 EGE Opinion no. 21 'on the ethical aspects of nanomedicine', 295.

³⁵⁸ Wilms (n 340), 294.

³⁵⁹ Mohr et al. (n 208), 106; Frischhut (n 2), 532.

³⁶⁰ Dratwa (n 170), 111.

³⁶¹ Plomer (n 16), 850-52;

determination), according to the Treaties.³⁶² This, in essence, undermines the fundamental EU principle of subsidiarity.³⁶³

Furthermore, criticism has been raised that the EGE (with its elite expert knowledge) falls short of democratic legitimacy – that is, also known as the ‘science of ethics’ – primarily pursues the EU’s economic interests in order to promote technological innovations and scientific progress.³⁶⁴ This is especially by using shallow ethical principles that do not entail any regulatory effects, which account for public concerns or pluralism thereof.³⁶⁵ At the same time, however, other scholars purport that by predominantly drawing on the fundamental ethical principle to respect human dignity, the EGE rather compromises freedom within the EU, either to conduct business or research.³⁶⁶ This is especially as part of the legislation or the administrative activities in the EU. Having said this, one has to be aware of the ‘*paradox of ethicisation*’.³⁶⁷ Not only are EGE members are prone to external influence favouring a specific result, that is, the instrumentalisation of its expert knowledge potentially serving various interest groups, e.g. the Commission. Setting and framing ethical agendas within the group might also convey the feeling that citizens are deprived of their essential foundation of ethics, that is, deliberating about moral practices.³⁶⁸

On the other hand, scholars have also given credit to the EGE, in particular, towards its work. For example, when the EGE’s advice was sought where ethically controversial issues potentially corroded ‘*high politics*’ or politicians simply abstained from reaching a decision, that is, a ‘*political deadlock*’.³⁶⁹ In this respect, the EGE contributed by providing an ethical reflection or an ethical framework for implementing policies and legislation that intersect with ethical issues, as argued by the current head of the EGE Secretariat Dratwa.³⁷⁰ However, Dratwa at the same time concedes that the EGE is a dynamic institution, which persistently reflects on and redefines its position in the EU, and what values the EU in the past, present and future advocates.³⁷¹ In this regard, scholars also approved the EGE’s effort by seeing it as a useful deliberative instrument that reconciles science and technology on the one hand, with ethics, politics, and law on the

³⁶² Plomer (n 16), 853.

³⁶³ Mohr et al. (n 208), 106; Busby (n 4), 809.

³⁶⁴ Tallacchini (n 32), 284, 285, 290, 303.

³⁶⁵ Ibid.

³⁶⁶ Herrmann and Rowlandson (n 12), 251.

³⁶⁷ Dratwa (n 170), 114-15.

³⁶⁸ Ibid.

³⁶⁹ Appendix 1.4 EGE Opinion no. 10 ‘on the 5th research framework programme’, 1; Citizens’ Initiative (n 345), 7; Appendix 1.4 EGE Opinion no. 27 ‘framework for assessing research, production and use of energy’, 1; This mainly concerned the debates surrounding hESC research and the global justice debate on energy.

³⁷⁰ Dratwa (n 368), 109-12.

³⁷¹ Ibid.

other hand.³⁷² Nevertheless, one might argue that it would be beneficial to have the EGE as a deliberative chamber more clearly installed within the sphere of influence of all three EU institutions, that is, the Parliament, the Council, and [not only] the Commission.³⁷³

Above all, considering the EGE's pivotal weight in integrating ethics in the EU, its putative independence and its discretion on deliberating about ethical contested issues, the EGE's potential bias must be called into question. This is due to the sheer partial affiliations or expert technocratic reasoning underpinning its philosophical orientations on ethically contentious topics.³⁷⁴ Therefore, the EGE's lines of argumentation towards normative ethical schools of thought are the central focus of the following qualitative content analysis in the next chapter. For this purpose, the inductive research examines the EGE's prevailing schools of thought of normative ethics, which are abundantly reflected in its opinions.³⁷⁵

³⁷² Sheila Jasanoff, *Designs on nature: Science and democracy in Europe and the United States* (Princeton University Press 2007), 90-91.

³⁷³ Plomer (n 16), 859; Frischhut (n 2), 571; This would increase political legitimacy and diversity as regards the EGE's institutional setting. However, this is not case as, according to Art 3 of the EGE Mandate 2016-2021, 'the Commission may [only] draw attention' to ethical issues raised by 'the Parliament and the Council'.

³⁷⁴ Plomer (n 16), 844.

³⁷⁵ Lucivero (n 155), 15.

4 Qualitative content analysis of EGE opinions

Chapter four discussed the origins and role of the EGE in advancing ethical integration in the European legal and policy framework. Against this background, this chapter gives an understanding of the qualitative content analysis (QCA) applied for the socio-legal research towards the prevailing schools of thought of normative ethics depicted in EGE opinions. First, it explains how the document analysis as part of the QCA was best fit to answer the research questions of this study. Furthermore, it gives account of how the research dealt with obstacles that arose during the research and consequently limited the research. Lastly, elaborates on the approach of QCA in which used CAQDAS, namely MAXQDA³⁷⁶, to systematically investigate and confine the 29 published opinions of the EGE by **inductive category formation**.³⁷⁷

4.1 General remarks on the research approach

For the purpose of studying the normative ethical schools of thought advocated by EGE opinions, the underlying research approach can be described as a mixed method of qualitative and quantitative. On the one hand, the QCA needs to assign (code) categories in the relevant materials in a qualitative way – immersing in text and labelling relevant passages – and on the other hand, analyses and interprets category frequencies from a quantitative perspective.³⁷⁸ Demonstrating how many times specific categories occur can add considerable value to the qualitative analysis and the interpretation thereof.³⁷⁹ Therefore, by interpretive epistemology³⁸⁰, the QCA aims at subjectively describing and analysing the underlying EGE opinions with respect to the underlying schools of thought in a systematic way to address research questions at hand.³⁸¹

As regards the underlying research material, this study examines, categorises and interprets documents in the public domain³⁸² in order to answer the given research questions. Social scientists recommend explaining how the materials were investigated in light of the research

³⁷⁶ Flick (n 28), 367.

³⁷⁷ Mayring (n 31), 79.

³⁷⁸ Ibid, 9.

³⁷⁹ Mayring (n 31), 41.

³⁸⁰ Alan Bryman and Emma Bell, *Business Research Methods* (4th edn, Oxford 2015), 26.

³⁸¹ Margrit Schreier, *Qualitative content analysis in practice* (SAGE 2012), 1-2.

³⁸² Geoff Payne and Judy Payne, *Key concepts in social research* (SAGE 2004), 61; Martyn Denscombe, *The good research guide: For small-scale social research projects* (4th ed. McGraw-Hill/Open University Press 2010), 221; Appendix 1.4 EGE Opinions no. 1-29.

questions and evaluating the quality of the documents used in the research.³⁸³ It is recommended that documents which are used as a primary source for the analysis ought to be evaluated on authenticity, credibility, representativeness and meaning.³⁸⁴

The 29 EGE opinions³⁸⁵ subject to this document analysis were downloaded from the official EGE websites.³⁸⁶ All opinions contained the official EGE – formerly known as GAEIB³⁸⁷ – logo and headings. Therefore, the authenticity of the published opinions cannot be denied. Furthermore, as all opinions are available and archived either on the EGE websites or later opinions³⁸⁸ via ISBN numbers in the official EU bookstore, the criterion of representativeness – that is, availability and persistence³⁸⁹ – is also satisfied. Regarding credibility, which is to be evaluated with a view on reliability and accuracy³⁹⁰, one can discern that references in footnotes to certain schools of thought are incoherently stated³⁹¹ and sometimes lack transparency in terms of missing bibliographies or incorrect citation. Above all, the credibility of EGE opinions is confined to the discretion of the incumbent members of the group producing the material as well as the official EGE mandate prescribing certain document formats.³⁹² The criterion of meaning in EGE opinions is satisfied as the main parts of all opinions are produced in English with recent opinions³⁹³ adding summarising recommendations in French and German. However, the emphasis for the QCA was primarily put on the English parts of the opinions in order to coherently investigate the underlying research questions.

4.2 The research design of QCA with MAXQDA

The central research design of this QCA can be described as inductive, insofar as it does not pursue the common approach of a *'hypothetico-deductive'* method, which builds on a theory *prima facie* that is then empirically tested.³⁹⁴ On the contrary, with the inductive design the focus

³⁸³ Lindsay Prior, *Using documents in social research* (Introducing qualitative methods, SAGE 2003), 4.

³⁸⁴ John Scott, *A matter of record: Documentary sources in social research* (Polity 1990), 6.

³⁸⁵ Appendix 1.4 EGE Opinion no. 1-29.

³⁸⁶ N.B. opinions were accessed on January 7, 2017 from both the new <<https://ec.europa.eu/research/ege/index.cfm>> and the archived <http://ec.europa.eu/archives/bepa/european-group-ethics/index_en.htm> websites; Appendix: EGE Websites.

³⁸⁷ Group of Advisers on the Ethical Implications of Biotechnology to the European Commission (mandate 1991-1997).

³⁸⁸ See Appendix 1.4 EGE Opinion no. 24-29.

³⁸⁹ Scott (n 384), 25.

³⁹⁰ Flick (n 30), 258.

³⁹¹ E.g. Appendix 1.4 EGE Opinion no. 24, 52.

³⁹² EGE Mandate 2016 (n 7).

³⁹³ See (n 388); N.B. that EGE Opinion no. 11-20 are also available in German and French.

³⁹⁴ Edwin A Locke, 'The Case for Inductive Theory Building?' (2007) 33(6) *Journal of Management* 867, 867.

lies on generating theories from the underlying material.³⁹⁵ This research inductively codes (inductive category formation³⁹⁶) the text of the EGE opinions in order to derive a theory in an explorative way with a view to identifying the underlying schools of thought.³⁹⁷ In this regard, categories were coded in accordance to the research questions by reading step-by-step through all EGE opinions totalling **1205 pages**³⁹⁸. More precisely, the category formation was carried out by a **latent** analysis, which can be perceived as the ‘interpretive reading’ of the text – as opposed to the sole literal reading – so as to focus on the ‘deep structural meaning’ of the EGE documents.³⁹⁹

For easing the coding (category formation) process, the CAQDAS was deployed. Given the increasing scope of EGE opinions⁴⁰⁰, the advantage of using the software in qualitative research is that it helps to store, process, organise, search and display substantial amounts of data in regards to the coding of categories.⁴⁰¹ In general, there are numerous software programs available to complement qualitative research.⁴⁰² However, this thesis uses the recognised software MAXQDA⁴⁰³ since it allows the researcher to depict code distributions and the intersection of codes accurately.⁴⁰⁴ Furthermore, not only does MAXQDA contain all the standard features offered by similar CAQDAS, but it is also capable of conducting lexical searches, which were applied to eliminate code redundancies.⁴⁰⁵

³⁹⁵ Julian Birkinshaw et al., 'From a Distance and Generalizable to up Close and Grounded: Reclaiming a Place for Qualitative Methods in International Business Research' (2011) 42(5) *Journal of International Business Studies* 573, 573.

³⁹⁶ Mayring (n 31), 16.

³⁹⁷ *Ibid.*

³⁹⁸ See Appendix 1.4.2 EGE Opinions Scope and Size.

³⁹⁹ Ole R Holsti, *Content analysis for the social sciences and humanities* (Addison-Wesley op. 1969), 12.

⁴⁰⁰ The scope of the opinions significantly increased with the mandate under the EU Commission President Barroso, who initiated most of the recently published opinions (2005-2015).

⁴⁰¹ Mayring (n 31), 361.

⁴⁰² Flick (n 30), 366-7.

⁴⁰³ MAXQDA 'MAXQDA Plus 12' <<http://www.maxqda.com/products/new-in-maxqda-12>> accessed on June 12, 2017.

⁴⁰⁴ Flick (n 30), 367.

⁴⁰⁵ MAXQDA 'Lexical search' <<http://www.maxqda.com/max12-tutorial/h-the-search-function-and-automatic-coding>> accessed on June 12, 2017.

4.3 The research process establishing the coding framework

In order to answer the research questions at hand, the material obtained from the EGE opinions was coded based on the underlying theoretical background.⁴⁰⁶ The following Figure 2 illustrates the pursued coding process as part of the research.

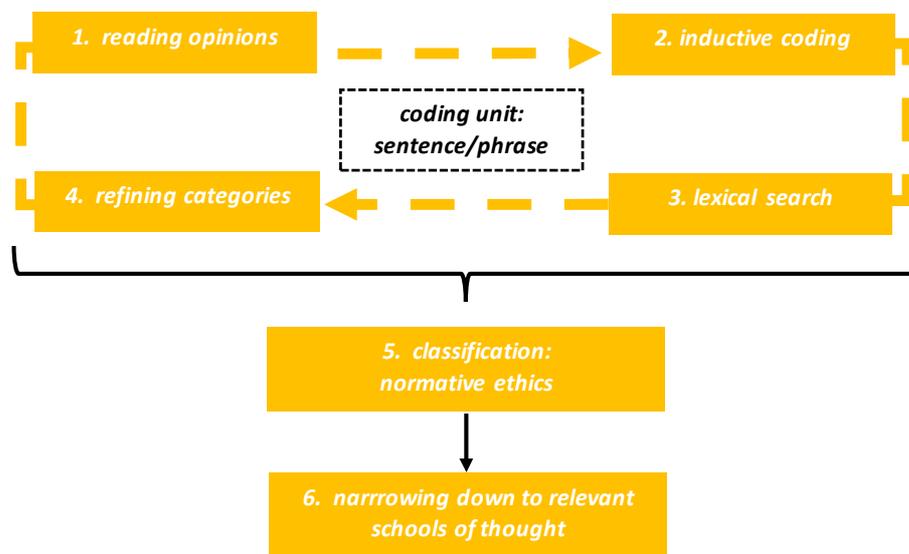


Figure 5: Research process
Source: own illustration⁴⁰⁷

As Figure 2 shows, the first step after having evaluated the documents on their quality was to read the EGE opinions line-by-line. In doing so, direct references (in-text) towards potential schools of thought were inductively coded⁴⁰⁸, thereby initially considering references to scholars in the field of philosophy, political philosophy, legal philosophy, bioethics and other related fields to such as law, sociology and political science.⁴⁰⁹ In general, the coding unit⁴¹⁰ accounted for the whole sentence in which the reference occurred – both the in-text and the accompanied footnote reference was recognised as distinct coding units. In a third step, the research process involved a lexical search. On the one hand, the lexical search was used to search via keywords like ‘[philosopher names]’, ‘philosophy’, ‘utilitarianism’, ‘consequentialism’, ‘deontology’, ‘virtue’, and ‘human dignity’ for references to potential schools of thought in the context. On

⁴⁰⁶ Schreier (n 381), 52.

⁴⁰⁷ Own illustration.

⁴⁰⁸ Additional references such as to the international ethical framework (international documents) – as described by the EGE itself, were also coded to support the research. The results can be observed in the appendix; Appendix 6 International Ethical Framework.

⁴⁰⁹ Resnik (n 52), 13.

⁴¹⁰ Mayring (n 31), 51; A code unit is defined as the smallest proportion of text which can be perceived as a category in QCA.

the other hand, the lexical search was deployed to spot the remaining references in the opinions towards the already identified categories and hence to complete the category formation process. The coded categories were cross-checked with each other for overlaps and subsequently refined. The coding process was reiterated until all categories were coherently determined and prepared. In a final step, the results for the analysis and discussion were classified and narrowed down to those schools of thought that can be related to normative ethics according to the prevailing literature and on which the EGE expands further in its argumentation.⁴¹¹

4.4 Limitations of the QCA research

The QCA of this thesis faced several limitations. Above all, the research topic ought to be feasible within the given time horizon. Hence, despite having various footnote references to potential schools of thought from various (modern) scholars in philosophy, social science, political science, bioethics, or international relations among others, the QCA mainly took those into account which were **primarily** referred to in the **main line of reasoning (in-text citation or direct references)** in the opinions. The QCA **excluded** standalone **footnote references**⁴¹² in the first place. Nevertheless, footnote references were considered in the analysis and discussion if they could be brought into connection⁴¹³ with the main schools of thought identified in the main text or provided further elaboration. As the overall goal of this thesis is to obtain a holistic picture of the EGE's underlying philosophical schools of thought towards normative (prescriptive) ethics in the branch moral philosophy, a detailed account of philosophical theories pertaining to meta-ethics⁴¹⁴, applied ethics⁴¹⁵ or the vast number of other branches in philosophy are not provided. These philosophical theories will only be briefly dealt with in the discussion if necessary in the light of a particular subject matter.

In the course of the research, it was found that – apart from a one footnote reference in EGE opinion no. 20⁴¹⁶ – the EGE mainly referred to philosophical schools of thought within the **EGE opinions no. 23-29**⁴¹⁷, thereby also broadening the scope of its ethical elaboration in the specific

⁴¹¹ Rhonda M Shaw, *Ethics, moral life and the body: Sociological perspectives* (Palgrave Macmillan 2015), 11-15; i.e. deontology, consequentialism and virtue ethics.

⁴¹² The opinions often make references to a diverse set of literature without elaborating further on a topic (philosophical/ethical theory) at hand. As a result, those references were excluded from the primary QCA.

⁴¹³ i.e. when the group mentioned a specific philosophical definition in the footnote other than mere references to related literature.

⁴¹⁴ Blackburn (n 67), 302.

⁴¹⁵ *Ibid*, 162.

⁴¹⁶ Appendix 1.4 EGE opinion no. 20 'ICT implants in the human body', 22.

⁴¹⁷ Appendix 1.4 EGE Opinions no. 23-29 (covering following subject matters: animal cloning for food supply, modern agricultural technologies, synthetic biology, information and communication technologies, energy, security and surveillance, new health technologies [knowledge production]).

subject matter at hand. Hence, EGE opinion no. 23-29 opinions are considered to be the focal point of the analysis and subsequent discussion. What is more, the potential philosophical schools of thought encountered in the research process were further narrowed down for the analysis and discussion to those philosophers who are recognised scholars⁴¹⁸ in the field of normative ethics and prevalent among the opinions as this is the main focus of the research questions.⁴¹⁹ As regards the lexical search function, the above-described keywords were used in a combination of the full words, abbreviated words and augmented by the symbol (*) in order to capture as many results as possible for the category coding and elimination of redundancies in observations e.g. **'Immanuel Kant*', 'kan*', 'deon', "deontology"**. Similarly, this method was used as part of the overall research process to determine text references to international documents prescribing ethical principles (e.g. CFR, EHCR).⁴²⁰

Based on the just set out research method, the following chapter provides the main findings of this research, which is subsequently discussed and analysed in the light of the European legal and policy framework.

⁴¹⁸ As evidenced by the available literature or encyclopaedia entries.

⁴¹⁹ Driver (n 43), 2.

⁴²⁰ See Appendix 6.1 International Ethical Framework: main references; This provides a non-exhaustive list of the main international documents the group refers to for supporting their arguments.

5 EGE’s underlying philosophical stance

Based on the preceding chapter explaining the outlined inductive research methodology, this chapter provides the primary findings of the schools of thought which have been observed in the EGE’s opinions. What is more, in a subsequent step the discerned schools of thought are narrowed down and categorised according to their normative ethical streams.⁴²¹ Finally, the results are assigned to the respective subject matters in order to provide a holistic overview of the EGE’s underlying line of argumentation in its opinions. The discussion in Chapter 6 is based on the findings of this Chapter 5 and concentrates on those identified schools of thought that clearly exhibit a normative ethical prescription with respect to the European legal and policy framework.

5.1 EGE’s schools of thought

To begin with, the QCA (using MAXQDA) investigated the EGE opinions for definitions that are related to normative ethics in order to discern potential schools of thought. The following Table 2 provides an overview of the results.

<i>EGE Opinion</i> ⁴²² <i>*no. of hints</i>	no. 12	no. 19	no. 22	no. 23	no. 25	no. 28	SUM
<i>Virtue ethics</i>	0	0	0	0	0	2	2
<i>Consequentialism</i>	1	0	0	1	2	0	4
<i>Deontology</i>	1	1	1	0	0	0	3
<i>SUM</i>	2	1	1	1	2	2	9

Table 2: Hints on normative ethical definitions and concepts
Source: own illustration⁴²³

Table 2 shows that a total of 9 hints towards definitions on normative ethics can be found in 6 out of 29 EGE opinions. The majority of the hints are related to consequentialism and deontology, thereby pertaining to the field of bioethics, i.e. human embryonic research⁴²⁴,

⁴²¹ ‘Deontology, consequentialism and virtue ethics’; Blackburn (n 67), 127, 100, 498.

⁴²² Appendix 1.4 EGE Opinion no. 12 ‘human embryo FP5 research’, no. 19 ‘umbilical cord blood banking’, no. 22 ‘hESC FP7 research projects’, no. 23 ‘animal cloning for food supply’, no. 25 ‘synthetic biology’, no. 28 ‘security and surveillance technologies’.

⁴²³ Own Illustration based on Appendix 4.3 Normative ethics content: concept/definitional references.

⁴²⁴ Appendix 1.4 EGE Opinion no. 12 ‘human embryo FP5 research’, 8; Appendix 1.4 EGE Opinion no. 22 ‘hESC FP7 research projects’, 103.

umbilical cord blood banking⁴²⁵, animal cloning⁴²⁶ and synthetic biology⁴²⁷. Hints towards virtue ethics are discerned with regards to the opinion on security and surveillance technologies.⁴²⁸

A closer look reveals that only the hints in EGE Opinion no. 12⁴²⁹, 23⁴³⁰, 25⁴³¹ and 28⁴³² can be directly associated with definitions of normative ethics, whereas EGE Opinion no. 19⁴³³ and no. 22⁴³⁴ only deal with mere references to official deontological code of conducts. However, it is interesting to note that the EGE in opinion no. 12 acknowledges **deontology** and **consequentialism** as the two focal theories when it comes to research involving human embryos in Europe.⁴³⁵ Nevertheless, the EGE opinion no. 12 does not provide any further references to proponents of specific schools of thought.

In the following steps, the research focused on potential schools of thought related to proponents in the fields of philosophy, politics, law, international relations among others that are evident in the EGE's opinions. The following Table 3 provides the results of potential schools of thought.

<i>EGE Opinion</i> ⁴³⁶ <i>*no. of hints</i>	<i>no.</i> 23	<i>no.</i> 24	<i>no.</i> 25	<i>no.</i> 26	<i>no.</i> 27	<i>no.</i> 28	<i>no.</i> 29	<i>SUM</i>
Schools of thought	7	7	35	7	3	76	14	149

Table 3: Potential schools of thought
Source: own illustration⁴³⁷

With a total of 149 hints, Table 3 shows that the EGE just recently buttresses its line of argumentation with references to proponents of potential schools of thought.⁴³⁸ The group draws on various schools of thought **only** within the **EGE opinions no. 23-29** covering the following issues⁴³⁹: animal cloning, modern agricultural technologies, synthetic biology,

⁴²⁵ Appendix 1.4 EGE Opinion no. 19 'umbilical cord blood banking', 15.

⁴²⁶ Appendix 1.4 EGE Opinion no. 23 'animal cloning', 33.

⁴²⁷ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 42, 96.

⁴²⁸ Appendix 1.4 EGE Opinion no. 28 'security and surveillance technologies', 59, 72.

⁴²⁹ Appendix 1.4 EGE Opinion no. 12 'human embryo FP5 research', 8.

⁴³⁰ Appendix 1.4 EGE Opinion no. 23 'animal cloning', 33.

⁴³¹ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 42, 96.

⁴³² Appendix 1.4 EGE Opinion no. 28 'security and surveillance technologies', 59, 72.

⁴³³ Appendix 1.4 EGE Opinion no. 19 'umbilical cord blood banking', 15.

⁴³⁴ Appendix 1.4 EGE Opinion no. 22 'hESC FP7 research projects', 103.

⁴³⁵ Appendix 1.4 EGE Opinion no. 12 'human embryo FP5 research', 8.

⁴³⁶ Appendix 1.4 EGE Opinion no. 23 'animal cloning for food supply', no. 24 'modern agricultural technologies', no. 25 'synthetic biology', no. 26 'ICT', no. 27 'research, production and use of energy', no. 28 'security and surveillance technologies', no. 29 'NHT and citizen participation'.

⁴³⁷ Own illustration based on Appendix 5.1 Schools of thought occurrences: overview.

⁴³⁸ Appendix 5.1 Schools of thought occurrences: overview.

⁴³⁹ With the exception of EGE opinion no. 20, both footnote and in-text references as regards schools of thought are only observed in EGE opinions no. 23-29; a single reference on human dignity is provided in Appendix: EGE Opinion no. 20 'ICT implants in the human body', 22.

information and communication technologies, energy, security and surveillance technologies, and NHT and citizen participation.⁴⁴⁰ Following an initial categorisation based on the available literature⁴⁴¹, the results are further confined to those schools of thought which can be directly associated with philosophy or specific normative schools of thought. The following Table 4 illustrates the results that serve as a basis for the subsequent discussion towards normative ethical schools of thought.

EGE Opinion ⁴⁴² *no. hints	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
<i>Philosophers w/o</i> ⁴⁴³	0	0	16 (-9)	1	0	14	0	31 (-9)
<i>Deontology</i>	0	5	8 (+9)	0	3	12	0	28 (+9)
<i>Consequentialism</i>	7	1	0	0	0	2	0	10
<i>Virtue ethics</i>	0	0	1	4	0	2	5	12
SUM	7	6	25	5	3	30	5	81

Table 4: Confined schools of thought (philosophers & normative ethics)
Source: own illustration⁴⁴⁴

Table 4 shows that a total of 81 hints can be directly linked to philosophical schools of thought. EGE Opinion no. 25 ‘synthetic biology’ and no. 28 ‘security and surveillance technologies’ exhibit the largest accumulation of philosophical schools of thought, 25 and 30 hints respectively.

As regards the categorised normative ethical streams⁴⁴⁵, the results from Table 4 suggest that deontological schools of thought amounting to 28 (+9) out of 50 (+9) hints seem to prevail compared to other streams in the EGE opinions.⁴⁴⁶ Moreover, one can observe that EGE opinion no. 23 ‘animal cloning’ solely exhibits 7 hints towards consequential schools of thought. With 3 hints in total, EGE opinion no. 27 ‘research, production and use of energy’ only draws on deontological schools of thought. EGE opinion no. 26 ‘ICT’ and no. 29 ‘NHT and citizen participation’ mainly refer to virtue-based schools of thought with 4 and 5 hints respectively.

31 hints could not have been clearly categorised according to the literature towards normative ethical schools of thought. However, all identified philosophical hints are subject to

⁴⁴⁰ Appendix 4.1 Normative schools of thought content: main findings included in QCA.

⁴⁴¹ Appendix 2.2.1 Schools of thought classification: philosophy and normative ethics.

⁴⁴² Appendix 1.4 EGE Opinion no. 23 ‘animal cloning for food supply’, no. 24 ‘modern agricultural technologies’, no. 25 ‘synthetic biology’, no. 26 ‘ICT’, no. 27 ‘research, production and use of energy’, no. 28 ‘security and surveillance technologies’, no. 29 ‘NHT and citizen participation’.

⁴⁴³ w/o=without clear affiliation.

⁴⁴⁴ Own illustration based on Appendix 5.1 Schools of thought occurrences: overview.

⁴⁴⁵ Appendix 2.2.1 Schools of thought classification: philosophy and normative ethics.

⁴⁴⁶ As the discussion in Chapter 6 shows, 9 hints can be attributed to deontological schools of thought by means of the EGE’s reasoning.

the following analysis and discussion in Chapter 6 if they can be affiliated with specific normative ethical schools of thought in the context of the opinions.

5.2. Additional ethical accounts from the EGE

What is more, as part of the research it was also found that EGE opinions refer to 3 people affiliated with the EGE (Maurizio Salvi, Jim Dratwa, and Emmanuel Agius) in the footnotes of EGE opinion no. 24 ‘animal cloning’⁴⁴⁷, no. 25 ‘synthetic biology’⁴⁴⁸ and no. 28 ‘security and surveillance technologies’⁴⁴⁹. However, they were only used as reference points for further literature without providing any clear normative ethical guidance in their own right.

It is also interesting to note that as it regards the ethical contested topic of synthetic biology dealing with the concepts of life, the EGE relies on arguments from the Roman Catholic Church featuring a normative ethical prescription in the footnote. The Church does not qualify human research intervention in synthetic biology as ‘illicit’ so long as it benefits the ‘order, beauty, and usefulness of the individual being’.⁴⁵⁰ Hence, this anthropocentric argumentation might support the previous claims of the EGE’s affiliation to the **Roman Catholic Church** when it comes to controversial ethical questions.⁴⁵¹

5.3 EGE’s recent philosophical reflection

In the final analysis, the 81 hints that have been identified can be related to **24 distinct schools of thought**, whereon the EGE grounds its ethical line of argumentation. The EGE started to elaborate on those schools of thought within opinion **no. 23** to **no. 29**, thereby moving beyond the sole field of biotechnology and bioethics to technological developments in agriculture, energy, ICT, security and surveillance, and citizen participation in NHT. It can be argued that the group’s recent reflection – as of **2008** with the EGE mandate under Commission President Barroso⁴⁵² – on various philosophical schools of thought accompanied the emerging development of the EGE’s mandate.⁴⁵³ In fact, the increasing number of references to various schools of thought might also be perceived against the backdrop of substantially expanding the EGE’s discussions on ethical issues at hand.⁴⁵⁴ For this purpose, the EGE might aim at increasing its legitimacy as an expert ethicist body when dealing with broader EU values and subjects. The

⁴⁴⁷ Appendix 1.4 EGE Opinion no. 24 ‘modern agricultural technologies’, 52.

⁴⁴⁸ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 40, 46, 97.

⁴⁴⁹ Appendix 1.4 EGE Opinion no. 28 ‘security and surveillance technologies’, 61.

⁴⁵⁰ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 40.

⁴⁵¹ Plomer (n 16), 844.

⁴⁵² Appendix 1.4 EGE Opinion no. 1-29 Document Description.

⁴⁵³ Jim Dratwa (n 170), 108.

⁴⁵⁴ Appendix 1.4.2: EGE Opinion no. 1-29 Scope and Size.

following Table 5 provides a list of the 24 encountered philosophical schools of thought, which are reflected in the EGE's line of reasoning.

EGE Opinion <small>*no. of hints</small>	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
<i>School of thought:</i>								
John Rawls	0	5	5	0	0	0	0	10
David Resnik	0	0	7	0	0	0	0	7
Hugo Grotius⁴⁵⁵	0	0	7	0	0	0	0	7
Giorgio Agamben	0	0	0	0	0	6	0	6
Thomas Hobbes	0	0	0	0	0	5	0	5
Hans Jonas	0	0	2	0	3	0	0	5
Hannah Arendt	0	0	0	3	0	0	1	4
Michel Foucault	0	0	0	0	0	0	4	4
Zygmunt Bauman	0	0	0	1	0	2	0	3
Jeremy Waldron	0	0	0	0	0	3	0	3
Jeremy Bentham	2	0	0	0	0	1	0	3
John Stuart Mill	2	1	0	0	0	0	0	3
Peter Singer	3	0	0	0	0	0	0	3
Aristotle	0	0	1	1	0	1	0	3
Deryck Beyleveld & Roger Brownsword⁴⁵⁶	0	0	2	0	0	0	0	2
Walter Bryce Gallie	0	0	0	0	0	2	0	2
Baruch Spinoza	0	0	0	0	0	2	0	2
Max Weber	0	0	0	0	0	2	0	2
John Locke	0	0	0	0	0	2	0	2
Immanuel Kant	0	0	1	0	0	0	0	1
Jean-Jacques Rousseau	0	0	0	0	0	1	0	1
Onora O'Neil	0	0	0	0	0	1	0	1
Niccolò Machiavelli	0	0	0	0	0	1	0	1
Confucius	0	0	0	0	0	1	0	1
SUM	7	6	25	5	3	30	4	81

Table 5: Philosophical schools of thought reflected in EGE opinion no. 23-29
Source: own illustration⁴⁵⁷

As Table 5 illustrates, the EGE elaborates on a number of philosophical schools of thought. However, the discussion in Chapter 6 only concentrates on those schools of thought that are highlighted in grey in Table 5. This is because of their evidenced normative ethical affiliation,

⁴⁵⁵ Hugo Grotius can be attributed to deontological schools of thought as the following discussion shows; See Chapter 6.4.

⁴⁵⁶ Deryck Beyleveld & Roger Brownsword can be attributed to deontology as the discussion shows; See Chapter 6.1.2; Both authors are counted as one school of thought in the sense that Beyleveld only is officially recognized as a bioethicist; thus counts as a philosophical school of thought.

⁴⁵⁷ Own illustration based on Appendix 4.1 Normative schools of thought content: main findings included in QCA.

either by literature or the EGE's line of argumentation. Those normative ethical schools of thought are solely dealt with in the following seven EGE opinions:

- **EGE Opinion no. 23 'animal cloning'** elaborates on the ethical issues related to animal cloning technologies for food supply. The discussion mainly surrounds the moral status of animals.⁴⁵⁸
- **EGE Opinion no. 24 'agriculture technologies'** concentrates on the ethical issues that are faced with the new developments in agricultural technologies. In other words, the EU must address the issues of food security, safety, and sustainability when being a global actor in agriculture, thereby embracing human dignity and justice as the fundamental ethical principles for the discussion.⁴⁵⁹
- **EGE Opinion no. 25 'synthetic biology'** deals with ethical concerns of safety, security, and patenting issues related to synthetic biology, wherein scientist endeavour to artificially modify existing organisms.⁴⁶⁰
- **EGE Opinion no. 26 'information and communication technologies'** surrounds the ethical discussion on how ICT affects our personal behaviour, lifestyles, relationships and, in particular, the societal awareness on how information might be compiled from individuals to obtaining consent or not.⁴⁶¹
- **EGE Opinion no. 27 'research, production and use of energy'** facilitates an ethical debate about the issues related to the future energy mix in Europe as regards human well-being. In this regard, the group focused on supply security, energy storage, competing for food and water supplies, and the effects on the environment.⁴⁶²
- **EGE Opinion no. 28 'security and surveillance technologies'** evaluates the current governance of technologies for security and surveillance measures in the EU. With a view to human flourishing, the main discussion focuses on the trade-off between security and freedom without compromising human dignity.⁴⁶³
- **EGE Opinion no. 29 'NHT and citizen participation'** sheds light on the changing notion of how citizens participate in the knowledge production process in healthcare and the research thereof. All the while taking into account the complex technological and societal developments.⁴⁶⁴

⁴⁵⁸ Appendix 1.4 EGE Opinion no. 23 'animal cloning for food supply', 32.

⁴⁵⁹ Appendix 1.4 EGE Opinion no. 24 'modern agricultural technologies', 8.

⁴⁶⁰ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 3.

⁴⁶¹ Appendix 1.4 EGE Opinion no. 26 'information and communication technologies', 10.

⁴⁶² Appendix 1.4 EGE Opinion no. 27 'research, production and use of energy', 15.

⁴⁶³ Appendix 1.4 EGE Opinion no. 28 'ethics of security and surveillance technologies', 14-15, 77.

⁴⁶⁴ Appendix 1.4 EGE Opinion no. 28 'NHT and citizen participation', 14-15.

In the light of the identified schools of thought in Table 5 and relevant opinions⁴⁶⁵, the next Chapter 6 provides further discussion on how the EGE constructs its line of argumentation towards the normative ethical streams in the EGE opinion no. 23-29.

6 EGE's normative ethical approach put in context

The preceding chapter exhibited the main finds of the QCA towards the prevailing philosophical schools of thought that are amply reflected in the EGE's line of argumentation. Against this background, this Chapter 6 concentrates the discussion solely on those schools of thought that can be clearly associated with normative ethics in the relevant context of the opinions so as to answer the research questions. Furthermore, if possible, the argumentation aims to link the normative ethical schools of thought to the ethical principles referred to in light of specific contexts and the European legal and policy framework by the EGE. This chapter further sheds light on the EGE's guiding normative definitions towards human dignity, closely attached to restrictive deontological interpretations.

6.1 Deontology: EGE's schools of thought

Overall, the QCA showed that the EGE attaches great importance to deontological schools of thought in its line of reasoning. This is primarily aimed towards the ethical issues of modern agricultural technologies, synthetic biology, energy, and security and surveillance technologies with regard to the principle to respect human dignity and contract theories.⁴⁶⁶ The following Table 6 presents an overview of the deontological schools of thought that are reflected in EGE opinions, including those identified as such⁴⁶⁷ in the following discussion.

⁴⁶⁵ Appendix 1.4 EGE Opinion no. 23/24/25/26/27/28/29.

⁴⁶⁶ Appendix 5.3 Schools of thought occurrences: per normative ethical stream.

⁴⁶⁷ The reasoning based on Hugo Grotius and Deryck Beyleveld & Roger Brownsword can be understood as carrying a deontological normative force.

EGE Opinion *no. of hints	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
Hugo Grotius	0	0	7	0	0	0	0	7
Deryck Beyleveld & Roger Brownsword	0	0	2	0	0	0	0	2
John Rawls	0	5	5	0	0	0	0	10
Thomas Hobbes	0	0	0	0	0	5	0	5
Hans Jonas	0	0	2	0	3	0	0	5
Jeremy Waldron	0	0	0	0	0	3	0	3
John Locke	0	0	0	0	0	2	0	2
Immanuel Kant	0	0	1	0	0	0	0	1
Jean-Jacques Rousseau	0	0	0	0	0	1	0	1
Onora O'Neil	0	0	0	0	0	1	0	1
SUM	0	5	17 (-9)	0	3	12	0	37 (-9)

Table 6: Deontology reflected by the EGE
Source: own illustration⁴⁶⁸

6.1.1 Intergenerational thoughts: Rawls and Jonas

John Rawls (10 hints in total), who is well-known for being a deontological proponent⁴⁶⁹ – strongly influenced by Immanuel Kant, has been the most dominant single school of thought in the EGE’s argumentation.⁴⁷⁰ This is particularly towards the discussion on justice (global as well as in between generations) when it comes to EGE opinions no. 24 on modern technologies in agriculture (5 hints) and no. 25 on synthetic biology (5 hints) with respect to the relationship between citizens and the state as well as the remit of the state to protect and promote human rights.⁴⁷¹

In light of this, the EGE especially embraces his theory of the ‘original position’ behind the ‘veil of ignorance’ to allocate rights and duties as part of the social contract. In essence, this promotes a maximising strategy so that also the least well-off benefits.⁴⁷² The group, therefore, considers the principle of justice of vital importance when dealing with the developments in synthetic biology⁴⁷³ or modern technologies in agriculture⁴⁷⁴. By referring to the CFR (e.g. as enshrined in Article 2 of the TEU⁴⁷⁵), the group stipulates that the principle of justice (distributive, social, and intergenerational) represents the ‘institutional dimension of ethics’ in the EU pertaining to ‘equality, fairness and equity’ between citizens and all societies.⁴⁷⁶

⁴⁶⁸ Based on Appendix 5.3 Schools of thought occurrences: per normative ethical stream.

⁴⁶⁹ Genevieve Fuji Johnson and Lorealea Michaelis, *Political responsibility refocused: Thinking justice after Iris Marion Young* (University of Toronto Press 2013), 107.

⁴⁷⁰ Appendix 4.1 Normative schools of thought: main findings included in QCA.

⁴⁷¹ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 45; Appendix 1.4 EGE Opinion no. 24 ‘modern agricultural technologies’, 51.

⁴⁷² John Rawls, *A theory of justice* (Rev. ed. Oxford University Press 1999), 121.

⁴⁷³ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 45.

⁴⁷⁴ Appendix 1.4 EGE Opinion no. 24 ‘modern agricultural technologies’, 50-51.

⁴⁷⁵ TEU (n 3), Art 2.

⁴⁷⁶ Appendix 1.4 EGE Opinion no. 24 ‘modern agricultural technologies’, 48-49.

It seems that the EGE puts great emphasis on Rawls when it comes to obligations towards future generations in the context of agriculture and synthetic biology.⁴⁷⁷ Natural resources and the environment are to be preserved sustainably as future generations might have legitimate claims in terms of distributive justice. Therefore, when there is an intergenerational conflict, the group stipulates that policies should not be pursued to the detriment of future generations.⁴⁷⁸

Likewise, as regards generations to come, the deontological thoughts of **Hans Jonas**⁴⁷⁹ are advocated in the EGE opinion no. 25 ‘synthetic biology’ (2 hints) and, even more elaborate, in the EGE opinion no. 27 ‘research, production and use of energy’ (3 hints).⁴⁸⁰ Jonas underlines, in particular, the **principle of responsibility** as regards the implications of science and new technologies on future generations and the environment, for which current generations bear certain obligations, e.g. a responsible energy mix policy and strategy.⁴⁸¹ As a result, the EGE in opinion no. 27 on energy directly links Jonas’ thoughts with the legal ‘**precautionary principle**’ from Article 191 TFEU⁴⁸², thereby drawing attention to preventive actions concerning expected harms or risks that are involved in advancing sciences or new technologies and affect the environment.⁴⁸³

The EGE continues in opinion no. 27 on energy research, production and use by arguing that the scope of responsibility has been expanded when developing new technologies or promoting industries in light of the current challenges such as the climate change and environmental destruction among others.⁴⁸⁴ Hence, the group establishes the **principle of sustainability** that accounts for present responsibilities towards future generations in regards to the way we utilise natural resources as part of our lifestyle.⁴⁸⁵ It is worthy to note that the EGE firmly acknowledges that ethics constitutes an integral component in the EU legal and policy, which aims to address responsibilities towards global and future generations.⁴⁸⁶ Put into the context of the sustainable energy mix debate, in which the group represented a central mediating function in a political deadlock situation⁴⁸⁷, the EGE calls for a ‘*responsible decision-making*’ grounded in the common values from the CFR. This has to be perceived with a view to addressing energy security, safety

⁴⁷⁷ Appendix 1.4 EGE Opinion no. 24 ‘modern agricultural technologies’, 52; Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 4.

⁴⁷⁸ Appendix 1.4 EGE Opinion no. 24 ‘modern agricultural technologies’, 52; Hans Jonas, *Das Prinzip Verantwortung* (Insel Verlag 1979), 8.

⁴⁷⁹ Marie et al. (n 74), 266.

⁴⁸⁰ Appendix 5.3 Schools of thought occurrences: per normative ethical stream.

⁴⁸¹ Appendix: EGE Opinion no. 27 ‘research, production and use of energy’, 49-50.

⁴⁸² TFEU (n 142), Art 191 ‘*precautionary principle*’.

⁴⁸³ Appendix: EGE Opinion no. 27 ‘research, production and use of energy’, 49.

⁴⁸⁴ *Ibid.*

⁴⁸⁵ Appendix 1.4 EGE Opinion no. 27 ‘research, production and use of energy’, 49.

⁴⁸⁶ *Ibid.*

⁴⁸⁷ Dratwa (n 166), 112.

and sustainability, in which human dignity, justice and solidarity are considered as the overarching ethical framework for future EU energy policies by the EGE.⁴⁸⁸

6.1.2 Human dignity inspired by Kant

In EGE opinion no. 25 ‘synthetic biology’ human dignity constitutes a paramount ethical principle, whereto the group attributes superior weight in its bioethical argumentation.⁴⁸⁹ By referring to Article 1 of the CFR⁴⁹⁰ and the relevant explanation⁴⁹¹, the group even acknowledges human dignity as the ‘*core of the ethics framework*’ that is intimately attached to the ‘*principle of justice and solidarity*’.⁴⁹² Against this background, the EGE particularly stresses the definition of the medical expert Cheshire⁴⁹³ on human dignity:⁴⁹⁴

*‘[T]he exalted moral status which every being of human origin uniquely possesses. Human dignity is a given reality, **intrinsic** to human substance, and not contingent upon any functional capacities which vary in degree [...] The possession of human dignity **carries certain immutable moral obligations**. These include, concerning the treatment of all other human beings, the **duty** to preserve life, liberty, and the security of persons, and concerning animals and nature, **responsibilities** of stewardship.’⁴⁹⁵*

In the same discussion on human dignity of the EGE opinion no. 25, the EGE refers to moral responsibilities which the deontologist Immanuel Kant (1 hint) advocates.⁴⁹⁶ Considering the universal approach of Cheshire (i.e. ‘*intrinsic to human substance [...] immutable moral obligations*’⁴⁹⁷), one might argue that this substantively resembles the deontological school of thought from Kant.⁴⁹⁸ Even though the EGE acknowledges the variety of interpretations on human dignity, the group elaborates on the restrictive approach in more detail, protecting vulnerable human beings from being treated as ‘mere’ objects.⁴⁹⁹ In the same argumentation,

⁴⁸⁸ Appendix 1.4 EGE Opinion no. 27 ‘research, production and use of energy, 49-50.

⁴⁸⁹ See Chapter 3.3.2; Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 39.

⁴⁹⁰ CFR (n 3), Article 1 ‘Human dignity is inviolable. It must be respected and protected’;

⁴⁹¹ Explanation relating to the Charter of Fundamental Rights [2007] OJ 303/17, Explanation relating to Art 1.

⁴⁹² Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 39.

⁴⁹³ Although William P Cheshire provides ethical/philosophical definitions in the EGE’s opinions, he was not considered in the main QCA. This is due to his profession as a medical expert without a general philosophical recognition. See Stephen Dilley and Nathan J Palpant, *Human dignity in bioethics: From worldviews to the public square* (Routledge annals of bioethics vol 13, Routledge 2013), 365.

⁴⁹⁴ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 39.

⁴⁹⁵ William P Cheshire, ‘Toward a Common Language of Human Dignity’ (2002) *Ethics and Medicine* 18(2), 1, 7-10.

⁴⁹⁶ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 39.

⁴⁹⁷ Cheshire (n 495), 7-10.

⁴⁹⁸ See Chapter 2.1.2.

⁴⁹⁹ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 39.

the group draws on the definitional approach – which thus can be perceived as a deontological school of thought – from the bioethicist Beyleveld and his co-author Brownsword describing human dignity as:⁵⁰⁰

*‘a particular practical attitude to be cultivated in the face of human **finitude** and **vulnerability** (and, concomitantly, the **natural** and **social adversity** that characterises the human condition)’⁵⁰¹*

Considering the importance that the EGE attributes to these definitions on human dignity, it can be claimed that with regards to bioethics⁵⁰² (notably in synthetic biology) deontological schools of thought play a dominant role in the EGE’s line of reasoning, albeit in a restrictive way. In essence, this might further substantiate the EGE’s conservative ethical integration approach on human dignity when it comes to science and new technologies involving bioethical issues, as illustrated by one of the EGE’s members.⁵⁰³

6.1.3 The EGE’s philosophical stance on patenting and common heritage

As Chapter 3.3.1 amply illustrated, the EGE plays an essential role in evaluating the ethical acceptability of biotechnological inventions in the course of Article 7 of the Biotechnology Directive (98/44EC)⁵⁰⁴. Against this backdrop, the EGE in opinion no. 25 ‘synthetic biology’ again affirms its status in this regard and calls upon the European Patent Offices and the National Patent Offices to refer to the group in biotechnological patent applications pertaining to ethical issues of general relevance.⁵⁰⁵

In this connection, the EGE provides a comprehensive discussion by one of its members on patenting with respect to biotechnology and synthetic biology in the annex of EGE opinion no. 25.⁵⁰⁶ The group notably addresses the crucial role of patenting systems in promoting innovations and progress, i.e. the scientific endeavour, thereby serving both public and private

⁵⁰⁰ Ibid.

⁵⁰¹ Beyleveld and Brownsword (n 181), 2.

⁵⁰² Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 39; The EGE on the same page refers to older opinions that pertain bioethical issues: Appendix 1.4 EGE Opinion no. 21 ‘nanomedicine’, Appendix 1.4 EGE Opinion no. 21 ‘nanomedicine’, Appendix 1.4 EGE Opinion no. 20 ‘ICT implants in the human body’.

⁵⁰³ See Chapter 3.3.1; The EGE’s influence on patenting human stem cell research with a restrictive notion on human dignity; Agius (n 185), 45-54.

⁵⁰⁴ Biotechnology Directive (n 17), Art 7.

⁵⁰⁵ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 68.

⁵⁰⁶ Appendix 1.4 EGE Opinion no. 25 ‘synthetic biology’, 87ff; essential content of the attached paper in the annex is also reflected in the ethical analysis in the main part of the opinion; see pages 45-47.

interests.⁵⁰⁷ In this regard, the group even refers to arguments from the bioethicist Resnik (7 hints)⁵⁰⁸ claiming that the primary *'ethical and policy rationale for granting patents is utilitarian'*.⁵⁰⁹

Furthermore, the EGE extensively elaborates on which biotechnological inventions should be patentable from an ethical point of view. The EGE recognises the general perception in Europe that some inventions should not be patented, thus also not be commercially exploited. This is especially in regards to inventions that constitute an affront to human dignity, such as processes for cloning human beings, which resembles Article 6 of the Biotechnology Directive.⁵¹⁰ More striking though, is that the EGE provides three categories in opinion no. 25, wherein the group as part of the ethical evaluation in Article 7 of the Biotechnology Directive differentiates patentable from unpatentable biotechnological inventions:⁵¹¹

1. 'That which is **common to all humankind**, and should not be patentable or directly exploited for commercial gain.'⁵¹²
2. 'That which, for a variety of reasons should be placed in the public domain for all to use and exploit ('the commons') [...].'⁵¹³
3. 'That which may, at the inventor's discretion, be protected through an intellectual property rights system to encourage innovation.'⁵¹⁴

It is revealing to observe that the EGE explicitly stipulates to include the inventions from the human genome⁵¹⁵ in the first category.⁵¹⁶ This implies that human genomes inventions cannot give rise to financial gains and thus cannot be patented. With this in mind, the EGE in the annex of opinion no. 25, extensively elaborates on the concept of common heritage. The group highlights in this regard the UNESCO Universal Declaration on the Human Genome.⁵¹⁷ Pursuant

⁵⁰⁷ Ibid.

⁵⁰⁸ Appendix 5.3 Schools of thought occurrences: per normative ethical stream.

⁵⁰⁹ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 96.

⁵¹⁰ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 46.

⁵¹¹ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 89-90.

⁵¹² Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 46, 90.

⁵¹³ Ibid, 99-100; This includes inventions that are too expensive for single entities or not to restrict information in the public interest.

⁵¹⁴ Ibid, 99-100; Here the group stresses that patenting biotechnological inventions are aimed at utility, that is the distribution of benefits for the society.

⁵¹⁵ The group also includes here comprehensive projects such the hap-map project; 'Hap-map project' <https://www.ncbi.nlm.nih.gov/variation/news/NCBI_retiring_HapMap/> accessed on September 1, 2017.

⁵¹⁶ Ibid.

⁵¹⁷ United Nations Educational, Scientific and Cultural Organisation (UNESCO), Universal Declaration on the Human Genome and Human Rights (adopted 11 November 1997).

to Article 1 *'the genome is the heritage of humanity'* and Article 2 *'its natural state, shall not give rise to financial gains [...]*'.⁵¹⁸

In the light of this, the group saliently harks back on the arguments from the legal scholar Bovenberg⁵¹⁹, who in turn quotes natural law theories from the philosopher Grotius (7 hints)⁵²⁰, thereby promoting the common heritage principle.⁵²¹ In essence, this prevents private appropriation of nature on the grounds of being common heritage. According to Grotius:

*'[T]hat which cannot be occupied, or which never has been occupied, cannot be the property of anyone, because all property has arisen from occupation.'*⁵²²

For this purpose, Grotius refers the nature, e.g. sun, air, and water among others, which cannot be subject to occupation and therefore are designated for common use (*res omnium communes*).⁵²³ Similarly, the EGE remarkably recognises the human genome as common property, albeit qualifies that derived products might be privately owned.⁵²⁴ In other words, the EGE argues:

*'[I]t is conceivable that the **genome** and **much** of that which is used to **produce** a synthetic [biological] product is common to all', but the 'product as such could be owned and thus patented.'*⁵²⁵

Keeping everything in context, one can discern that as regards the patenting category of the human genome, the EGE prominently features the schools of thought of Grotius, even though the group also contrasts his arguments with other philosophical schools of thought⁵²⁶ on the human genome. Therefore, provided that Grotius can be attributed to deontological schools of thought (regarding his theories on natural law establishing moral duties⁵²⁷), one might claim the

⁵¹⁸ Ibid, Art 1 and 2.

⁵¹⁹ Jasper Bovenberg, 'Mining The Common Heritage of our Dna: Lessons learned from Grotius and Pardo' (2006) Duke Law & Technology Review 8, para. 12.

⁵²⁰ Appendix 5.3 Schools of thought occurrences: per normative ethical stream.

⁵²¹ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 95, 96.

⁵²² Jasper A Bovenberg, *Property rights in blood, genes & data: Naturally yours?* (Nijhoff law specials vol 66, Martinus Nijhoff Publishers 2006), 54-55.

⁵²³ Ibid.

⁵²⁴ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 96.

⁵²⁵ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 96.

⁵²⁶ The EGE also refers to the bioethicist David Resnik, who claims that the human genome cannot be perceived as common heritage; Appendix: EGE Opinion no. 25 'synthetic biology', 96.

⁵²⁷ Larry Chouinard, David Fiensy, George F Pickens, *Christian ethics: The issues of life and death* (Wipf & Stock Publishers 2010), 11.

EGE notably puts forward deontological schools of thought when it comes to avoiding the patentability of human genomes on the basis of the common heritage principle.

6.1.4 Contract theories on security and freedom: Hobbes, Locke, Rousseau, Waldron

As regards the EGE opinion no. 28 ‘security and surveillance technologies’, the EGE relies on a number of schools of thought dealing with social contract theories. This is where individuals agree to cede individual freedoms in exchange for security (trade-off).⁵²⁸ Provided that the contract theories of **Hobbes** (5 hints), **Locke** (2 hints), and **Rousseau** (1 hints) are considered to be deontological in the sense that they establish universal moral obligations on individuals based on a commonly agreed to contract⁵²⁹, one can argue that the EGE portrays a significant deontological reasoning as regards the ethical issue of security and surveillance technologies.⁵³⁰ However, the EGE in this regards mainly conceptualises the notion of security⁵³¹ in the light of the social contract (state-citizen relationship) and human rights, instead of providing clear normative prescriptions directly associated with the European legal and policy framework.⁵³²

Regarding the balancing of security and freedom in the context of security and surveillance technologies, the EGE points out that human dignity cannot be subject to trade-off.⁵³³ The group states that human dignity is closely attached to both values of freedom and responsibility between individuals, companies and the state, for which an equilibrium has to be struck.⁵³⁴ In light of this, the group refers to deontological arguments from **Waldron** (2 hints)⁵³⁵ in order to illustrate the relevance of rights⁵³⁶ in establishing moral obligations and responsibilities as part of theories of justice.⁵³⁷ The EGE draws on Waldron to emphasise transparency in balancing security measures (i.e. limiting and prioritising fundamental rights) by the state.⁵³⁸ Waldron argues that as individuals are capable of reason, i.e. to comprehend, law and dignity are intimately intertwined. Hence, refusing citizens the transparency in laws or the reason thereon

⁵²⁸ Appendix 5.2 Schools of thought occurrences: philosophical references.

⁵²⁹ Elliot (n 71), 60.

⁵³⁰ Appendix 5.2 Schools of thought occurrences: philosophical references.

⁵³¹ Here the EGE also refers to the philosopher Baruch Spinoza, however, he cannot be clearly associated with any normative stream; Dahlbeck Johan, *Spinoza and education: Freedom, understanding and empowerment* (New directions in the philosophy of education Routledge 2016), 21.

⁵³² Appendix 1.4 EGE Opinion no. 28 ‘security and surveillance technologies’, 61-65.

⁵³³ Appendix 1.4 EGE Opinion no. 28 ‘security and surveillance technologies’, 76.

⁵³⁴ Ibid.

⁵³⁵ Appendix 1.4 EGE Opinion no. 28 ‘security and surveillance technologies’, 78-79.

⁵³⁶ Jeremy Waldron, ‘Is this torture necessary?’ (2007) *New York Review of Books* 54(16) 40, 40; Waldron argues that ‘rights are supposed to restrict trade-offs, not be traded off themselves’.

⁵³⁷ Johnson (n 469), 107.

⁵³⁸ Appendix 1.4 EGE Opinion no. 28 ‘security and surveillance technologies’, 78.

would infringe the ethical principle to respect human dignity.⁵³⁹ For this purpose, the group makes an analogy on how fundamental rights (e.g. Article 8 CFR⁵⁴⁰ on data protection) can be limited pursuant to Article 51(1) of the CFR under certain reasonable conditions (e.g. proportionality).⁵⁴¹ One might put forward the claim that as regards security and surveillance technologies the EGE applies a more subtle approach towards a deontological understanding of human dignity, in which rights are prioritised in the light of proportionality and effectiveness when assessing technologies.⁵⁴²

6.2 Consequentialism: EGE's schools of thought

Overall, one can discern that the EGE mainly portrays consequential schools of thought with regards to the consequences (benefits vs risks) that arise from the developments in science and new technologies. For example, in the field of synthetic biology, the EGE points out the anthropocentric approach, which considers the consequences on human beings that are related to the use of synthetic biology (risk assessment).⁵⁴³ Likewise, the group draws on the consequential schools of thought from **Machiavelli** (1 hints) in EGE opinion no. 28 on 'security and surveillance technologies' to conceptualise the role of the state in providing security: a 'reaction to risks, threats, dangers' in order to provide safety (benefits) for citizens.⁵⁴⁴ Nevertheless, as the following discussion discloses, the group also addresses eco-centric issues with consequential considerations, in particular towards animals. Table 7 provides an overview of the consequential schools of thought reflected in EGE opinions.

⁵³⁹ Appendix 1.4 EGE Opinion no. 28 'security and surveillance technologies', 77-78.

⁵⁴⁰ CFR (n 3), Art 8.

⁵⁴¹ CFR (n 3), Art 51(1) '*Any limitation on the exercise of the rights and freedoms recognised by this Charter must be provided for by law and respect the essence of those rights and freedoms. Subject to the principle of proportionality, limitations may be made only if they are necessary and genuinely meet objectives of general interest recognised by the Union or the need to protect the rights and freedoms of others*'.

⁵⁴² Appendix 1.4 EGE Opinion no. 28 'security and surveillance technologies', 77-85.

⁵⁴³ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 42.

⁵⁴⁴ Appendix 1.4 EGE Opinion no. 28 'security and surveillance technologies', 61.

EGE Opinion *no. of hints	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
<i>Jeremy Bentham</i>	2	0	0	0	0	1	0	3
<i>John Stuart Mill</i>	2	1	0	0	0	0	0	3
<i>Peter Singer</i>	3	0	0	0	0	0	0	3
<i>Niccolò Machiavelli</i>	0	0	0	0	0	1	0	1
SUM	7	1	0	0	0	2	0	10

Table 7: Consequentialism reflected by the EGE
Source: own Illustration⁵⁴⁵

6.2.1 *Animals as moral subjects: Mill, Bentham and Singer*

The QCA reveals that the EGE notably features consequential schools of thought in its argumentation on ‘animal cloning for food supply’ (7 hints in total). This is especially towards a more eco-centric approach on the moral status of animals, whereto the group explicitly refers to consequential schools of thought. By means of **Bentham** (2 hints)⁵⁴⁶, **Mill** (2 hints)⁵⁴⁷, and **Singer**⁵⁴⁸ (3 hints), the group sets forth the theory that animals are sentient beings. As sentient beings, animals can experience pleasure and pain.⁵⁴⁹ Therefore, animals ought to be considered as moral subject, according to which actions that inflict pain on animals are unacceptable from a moral point of view. As a corollary, the EGE argues that cloning technologies which impact the ‘*animal welfare and health*’ are ‘*ethically problematic*’.⁵⁵⁰ This, in essence, reflects the overall group disapproval⁵⁵¹ of animal cloning considering the effects on the welfare and health of animals.⁵⁵²

Against this background, the EGE refers to Article 13 TFEU⁵⁵³ to substantiate its argumentation that animals are recognised as ‘sentient beings’ in the EU.⁵⁵⁴ As a result, and despite the fact that animals are necessary as a means for an end regarding the supply of food

⁵⁴⁵ Based on Appendix 5.3 Schools of thought occurrences: per normative ethical stream.

⁵⁴⁶ The group mainly elaborates on normative prescription of Bentham in EGE Opinion no. 23; however, a brief reference without providing any normative guidance can also be identified in Appendix: EGE Opinion no. 28 ‘security and surveillance’, 69.

⁵⁴⁷ The group mainly advocates Mill in EGE Opinion no. 23. Opinion, even though a vague reference to Mill in the context of intergenerational justice can be identified; see Appendix 1.4 EGE Opinion no. 24, 52.

⁵⁴⁸ Peter Singer, *In defence of animals* (Blackwell 1985).

⁵⁴⁹ Appendix 5.2 Schools of thought occurrences: philosophical references.

⁵⁵⁰ Appendix 1.4 EGE Opinion no. 26 ‘animal cloning for food supply’, 33-34.

⁵⁵¹ However, one EGE member explicitly includes a dissenting view which endorses the cloning of animals from an anthropocentric perspective, that is, underlining the benefits of food supply to human beings; Appendix 1.4 EGE Opinion no. 26 ‘animal cloning for food supply’, 49.

⁵⁵² Appendix 1.4 EGE Opinion no. 26 ‘animal cloning for food supply’, 45.

⁵⁵³ Now enshrined in the Lisbon Treaty; TFEU (n 142), Art 13 ‘[I]n formulating and implementing the Union’s [...] internal market, research and technological development [...], the Union and the Member States shall, since animals are sentient beings, pay full regard to the welfare requirements of animals [...];

⁵⁵⁴ Appendix 1.4 EGE Opinion no. 26 ‘animal cloning for food supply’, 40.

for humans, the group underlines the existing EU legal and policy standards with a view to animal welfare. In this context, Article 13 TFEU entails horizontal obligations (for the EU and MS) to respect the ‘welfare [...] of animals’ when advancing the EU legal and policy framework.⁵⁵⁵

In regard to intensive animal breeding, the group further recommends to establish a new code of conduct⁵⁵⁶, thereby taking into account the legally non-binding guidance by the World Organisation for Animal Health (OAE) on the five freedoms^{557;558}

- *‘from hunger, malnutrition and thirst.’*
- *‘from fear and distress.’*
- *‘from physical and thermal discomfort.’*
- *‘from pain, injury and disease.’*
- *‘to express normal patterns of behaviour.’*

By elevating the moral status of animals using consequential schools of thought, one can argue that the EGE notably integrates a broader ethical eco-centric awareness in the EU. This is by taking into account the effects of human actions on the environment.⁵⁵⁹

6.3 Virtue ethics: EGE’s schools of thought

With a view to virtue-based ethical schools of thought, the EGE only deals with EGE opinions related to information technologies such as no. 26 ‘ICT’, no. 28 ‘security and surveillance technologies’ and no. 29 ‘NHT and citizen participation’, albeit with no emphasis on normative prescriptions (ethical principles). The group in that regards utilizes virtue-based schools of thought to challenge the technological influences in the pursuit of a good life.⁵⁶⁰ Table 8 provides an overview of the virtue ethical schools of thought reflected in EGE opinions.

⁵⁵⁵ See (n 553).

⁵⁵⁶ Appendix 1.4 EGE Opinion no. 26 ‘animal cloning for food supply’, 46.

⁵⁵⁷ World Organisation for Animal Health, ‘Animal Welfare’ <<http://www.oie.int/en/animal-welfare/animal-welfare-at-a-glance/>> accessed on June 12, 2017.

⁵⁵⁸ Appendix 1.4 EGE Opinion no. 26 ‘animal cloning for food supply’, 40.

⁵⁵⁹ Arne Naess, ‘A Defence of the Deep Ecology Movement’ (1984) 6(3) *Environmental Ethics* 265, 265.

⁵⁶⁰ Appendix 4.3 Normative ethics: concept/definitional references; This can be amply discerned by the normative definitions on virtue ethics, which the EGE uses; Lucivero (n 155), 15;

EGE Opinion *no. of hints	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
Hannah Arendt	0	0	0	3	0	0	1	4
Michel Foucault	0	0	0	0	0	0	4	4
Aristotle	0	0	1	1	0	1	0	3
Confucius	0	0	0	0	0	1	0	1
SUM	0	0	1	4	0	2	5	12

Table 8: Virtue ethics reflected by the EGE
Source: own illustration⁵⁶¹

On the one hand, the EGE relies on arguments from modern schools of thought of **Arendt**⁵⁶² (3 hints in no. 26 and 1 in no. 29) and **Foucault**⁵⁶³ (4 hints in no. 29) to describe the impacts of pursuing a good life with a view to new technologies.⁵⁶⁴ The former discussing the importance of privacy for human flourishing and thereto the threats arising from the corroding of the private as part of introducing new ICT tools.⁵⁶⁵ The latter illustrating the changing notion of how people participate in matters of health with new technologies, that is, via normalising or medicalisation of health in the pursuit of both public and individual goals.⁵⁶⁶ Despite that the EGE describes virtue ethical schools of thought, the group does not clearly stipulate any normative ethical guidance on the basis of virtue ethics in this regards.

Furthermore, the virtue-based school of thought from Aristotle can be identified in three EGE opinions (no. 25⁵⁶⁷, no. 26⁵⁶⁸ and no. 28⁵⁶⁹) with a single reference each. However, only the EGE's line of argumentation in no. 26 on the radical change in the notion of friendship via ICT (e.g. social networks) can be said to exhibit virtue ethical tendencies, as the EGE thereto contrasts it with the traditional philosophical perception of friendship, i.e. the pursuit of '*mutual care between equals*'.⁵⁷⁰

Finally, as part of quoting the deontological philosopher **O'Neil** (1 hint)⁵⁷¹ in opinion no. 28, the EGE applies a virtue ethical reasoning from the Chinese philosopher **Confucius** (1 hint) to underline the importance of trust when it comes to uncertainties being faced in modern

⁵⁶¹ Based on Appendix 5.3 Schools of thought occurrences: per normative ethical stream.

⁵⁶² Robertson and Walter (n 84), 19.

⁵⁶³ Dwyer (n 83), 14-17.

⁵⁶⁴ Appendix 5.2 Schools of thought occurrences: philosophical references.

⁵⁶⁵ Appendix 1.4 EGE Opinion no. 26 'information and communication technologies', 44-45.

⁵⁶⁶ Appendix 1.4 EGE Opinion no. 29 'NHT and citizen participation', 40.

⁵⁶⁷ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 11.

⁵⁶⁸ Appendix 1.4 EGE Opinion no. 26 'information and communication technologies', 42.

⁵⁶⁹ Appendix 1.4 EGE Opinion no. 28 'security and surveillance technologies', 64.

⁵⁷⁰ See (n 568).

⁵⁷¹ Nardin and Mapel (n 73), 151; Onora O'neil is said to be strongly influenced by deontological schools of thought as she used to be a former student of John Rawls.

societies against the background of new security and surveillance technologies.⁵⁷² In light of this, the EGE questions the effectiveness of providing security measures at Airports as regards surveilling technologies.⁵⁷³

⁵⁷² Appendix 1.4 EGE Opinion no. 28 'synthetic biology', 54

⁵⁷³ Ibid.

7 Conclusion

Without a doubt, the EGE and its opinions are conceived as a central soft law body that have adopted a paramount role in integrating ethics into the European legal and policy framework. This is especially in regards to the developments in science and new technologies (see Chapter 3)⁵⁷⁴. For this purpose, the EGE with its opinions primarily has dealt with contentious ethical issues in the field of biotechnology. But with significant changes to the EGE's mandate with respect to broader legitimacy (as an official expert group to the EU), the group also has embarked on other ethical issues.⁵⁷⁵ The EGE grounds its argumentation in the common values of the EU, pursuant to Article 2 TEU and the CFR. This is primarily with a view to respecting human dignity, which the group emphasises as being the **fundamental ethical principle** in the EU. Nevertheless, due to the prevalent critique of the EGE's sheer partial affiliations and expert technocratic reasoning, this research has investigated the underpinning philosophical schools of thought of normative ethics reflected in the EGE's opinions.

The research disclosed that as of late (**EGE opinion no. 23-29**) the EGE substantiates its ethical reasoning on various philosophical schools of thought, thereby touching on the ethical issues of *animal cloning, modern agricultural technologies, synthetic biology, ICT, energy, security and surveillance technologies, and citizen participation in NHT*. However, even though the group features various philosophers in its line of reasoning, only a few are unequivocally manifested in normative ethical schools of thought.

Generally, the EGE's argumentation demonstrates normative ethical schools of thought to evaluate the developments in science and new technologies: deontology to illustrate universally accepted principles of morality, consequentialism to assess the effects of the ethical issue at hand and virtue ethics to question the influences on pursuing a good life.⁵⁷⁶ Despite the fact that the EGE draws on all the main normative streams to a varying degree in its opinions, consequentialism and, even more pronounced, deontology, seemingly dominate the EGE's substantive reasoning on ethical issues (Chapter 5 and 6).

Above all, the data gathered and the subsequent discussion suggests that deontological schools of thought prevail in the EGE's line of reasoning. This is notably in regards to moral obligations arising out of social contract theories or the respect for human dignity. For example,

⁵⁷⁴ Mohr et al. (n 208), 112; Tallacchini (n 32), 301.

⁵⁷⁵ Jim Dratwa (n 166), 108.

⁵⁷⁶ Lucivero (n 155), 15.

the EGE remarkably advocates the deontological theories of John Rawls⁵⁷⁷ or Hans Jonas⁵⁷⁸ to stress the moral obligations of preserving the environment for future generations (Chapter 6.1.1). This finds resonance in the precautionary principle, as prescribed by the Commission⁵⁷⁹ and enshrined in Article 191 TFEU.

In line with the preceding literature⁵⁸⁰, the research has exposed the EGE's restrictive interpretation on human dignity in the fields of bioethics. This is palpably inspired by a Kantian deontological school of thought (Chapter 6.1.2). As a result, the EGE's deontological account of human dignity also mirrors the groups' reasoning – based on Hugo Grotius' common heritage principle⁵⁸¹ – to exclude human genome inventions from being patentable as part of the provisions in the Biotechnology Directive (Chapter 6.1.3).

In contrast, however, the research also exemplified that the EGE notably utilises consequential schools of thought from an eco-centric perspective to confer animals a moral status. This can be perceived against the backdrop of Article 13 TFEU, recognising animals as 'as sentient beings'.⁵⁸² As a corollary, the EGE explicitly disapproves animal cloning, considering their current suffering in that respect (Chapter 6.2.1).

Notwithstanding the eco-centric outreach on consequentialism, the EGE's philosophical stance can be described as being primarily attached to deontology, thereby embracing human dignity from an anthropocentric perspective. As a result, the EGE's deontological bias might impose an undue burden on liberal MS in the EU. This is if human dignity is applied in a too restrictive way as part of the EGE's ethical integration process in the EU. For example, as regards the EGE's new commentary⁵⁸³ on the unpatentable categories in the Biotechnology Directive⁵⁸⁴ or the EGE's role in the ethical review process in framework funding programmes⁵⁸⁵.

Maintaining this piece of knowledge, future research might investigate how the EGE integrates other ethical considerations in the EU, thereby using normative ethical schools of thought. Additional research can be conducted on the various other schools of thought not being dealt with in this research, but extensively referred to in footnotes of the EGE's opinions.⁵⁸⁶

Ultimately, this thesis puts forward the claim that the EGE not only is a dynamic institution which persistently reflects on and redefines its position in the EU, but is also distinctively inspired

⁵⁷⁷ Rawls (n 470).

⁵⁷⁸ Jonas (n 478).

⁵⁷⁹ Commission Ethical Research Report 2012 (n 126), 44.

⁵⁸⁰ Agius (n 185), 25.

⁵⁸¹ Bovenberg (n 522), 54-5.

⁵⁸² TFEU (n 142), Art 13

⁵⁸³ Appendix 1.4 EGE Opinion no. 25 'synthetic biology', 89-90.

⁵⁸⁴ Biotechnology Directive (n 17), Art 6 and Art 7.

⁵⁸⁵ Horizon 2020 Rules Reg (133), Art 14 para 1.

⁵⁸⁶ Appendix 4.2 Normative schools of thought content: additional findings excluded from QCA

by deontological schools of thought when it articulates the values of the EU, i.e. in the past, present and future.

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Appendix

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On the one hand, the appendix contains key references and information to the EGE and its opinions.

On the other hand, the appendix provides excerpts of the data, which were gathered as part of the QCA using MAXQDA, in the form of exported excel tables. The data excerpts resulting from the QCA have to be perceived as being a source in their own rights; thus they cannot give rise to plagiarism.

Appendix 1 EGE & Opinions

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Appendix 1.3 EGE Mandates

Appendix 1.3.1 Online Communication

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Appendix 1.3.2 European Commission Decisions 2005-2021

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<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/avis17_en.pdf> accessed on January 6, 2017
- EGE Opinion no. 18 'ethical aspects of genetic testing in the workplace' [2003]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/avis18_en.pdf> accessed on January 6, 2017
- EGE Opinion no. 19 'ethical aspects of umbilical cord blood banking' [2004]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/avis19_en.pdf> accessed on January 6, 2017
- EGE Opinion no. 20 'ethical aspects of ICT implants in the human body' [2005]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/avis20_en.pdf> accessed on January 6, 2017
- EGE Opinion no. 21 'on the ethical aspects of nanomedicine' [2007]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/opinion_21_nano_en.pdf> accessed on January 6, 2017
- EGE opinion no. 22 'recommendations on the ethical review of hESC FP7 research projects' [2007] <http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/opinion_22_final_follow_up_en.pdf> accessed on January 6, 2017
- EGE Opinion no. 23 'ethical aspects of animal cloning for food supply' [2008]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/opinion23_en.pdf> accessed on January 6, 2017
- EGE opinion no. 24 'ethics of modern developments in agricultural technologies' [2008]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/opinion24_en.pdf> accessed on January 6, 2017
- EGE Opinion no. 25 'ethics of synthetic biology' [2009]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/opinion25_en.pdf> accessed on January 6, 2017
- EGE Opinion no. 26 'ethics of information and communication technologies' [2012]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/ict_final_22_february-adopted.pdf> accessed on January 6, 2017
- EGE Opinion no. 27 'an ethical framework for assessing research, production and use of energy' [2014] <http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/opinion_no_27.pdf> accessed on January 6, 2017
- EGE Opinion no. 28 'ethics of security and surveillance technologies' [2013]
<http://ec.europa.eu/archives/bepa/european-group-ethics/docs/publications/opinion_no_28.pdf> accessed on January 6, 2017

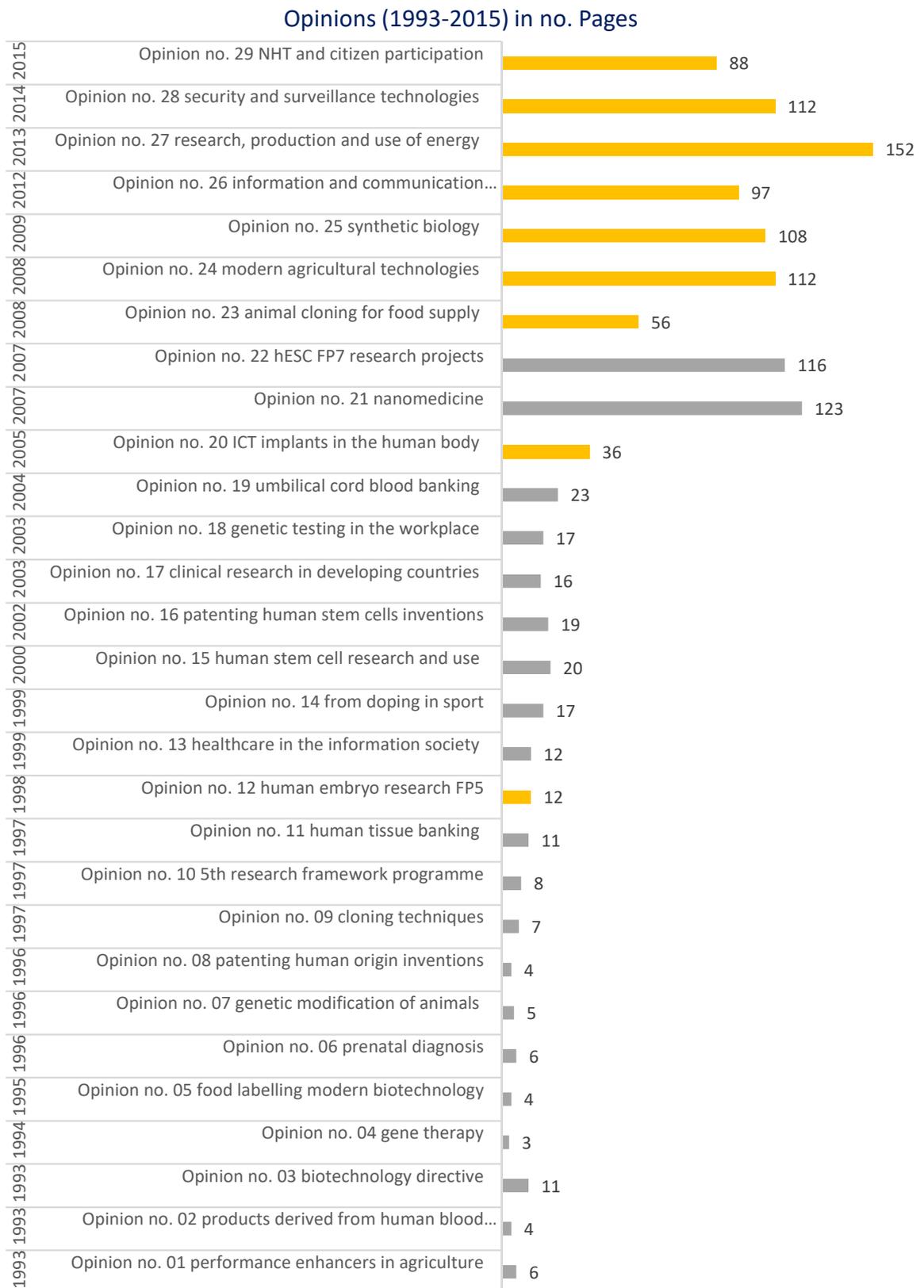
ethics/docs/publications/ege_opinion_28_ethics_security_surveillance_technologies.pdf>
accessed on January 6, 2017

EGE Opinion no. 29 'the ethical implications of new health technologies and citizen participation' [2015] <http://ec.europa.eu/research/ege/pdf/opinion-29_ege.pdf#view=fit&pagemode=none> accessed on January 6, 2017

Appendix 1.4.1 EGE Opinion no. 1-29 Document Description

Year of Publication	Document name	Date of Publication	Initiative	Mandate	Description	Pages	Opinion Languages <small>(Only attached/recommended)</small>
1993	Opinion no. 01 performance enhancers in agriculture	12/03/1993	Commission	1991-1997	ethical implications of the use of performance-enhancers in agriculture and fisheries	6	EN
1993	Opinion no. 02 human blood or human plasma products	12/03/1993	EGE	1991-1997	products derived from human blood or human plasma	4	EN
1993	Opinion no. 03 biotechnology directive	30/09/1993	EGE	1991-1997	directive on legal protection for biotechnological inventions	11	EN
1994	Opinion no. 04 gene therapy	13/12/1994	Commission	1991-1997	ethical implications of gene therapy	3	EN
1995	Opinion no. 05 food labelling modern biotechnology	05/05/1995	Commission	1991-1997	the labelling of food derived from modern biotechnology	4	EN
1996	Opinion no. 06 prenatal diagnosis	20/02/1996	EGE	1991-1997	prenatal diagnosis	6	EN
1996	Opinion no. 07 genetic modification of animals	21/05/1996	EGE	1991-1997	genetic modification of animals	5	EN
1996	Opinion no. 08 patenting human origin inventions	25/09/1996	Commission	1991-1997	patenting inventions involving elements of human origin	4	EN
1997	Opinion no. 09 cloning techniques	28/05/1997	Commission	1991-1997	cloning techniques	7	EN
1997	Opinion no. 10 5th research framework programme	11/12/1997	Commission	1991-1997	5th research framework programme	8	EN
1997	Opinion no. 11 human tissue banking	21/07/1998	EGE	1998-2000	human tissue banking	11	EN/GE/FR
1998	Opinion no. 12 human embryo FP5 research	11/09/1998	Commission	1998-2000	research involving the use of human embryo in the FP5	12	EN/GE/FR
1999	Opinion no. 13 healthcare in the information society	30/07/1999	EGE	1998-2000	healthcare in the information society	12	EN/GE/FR
1999	Opinion no. 14 from doping in sport	11/11/1999	Commission	1998-2000	doping in sport	17	EN/GE/FR
2000	Opinion no. 15 human stem cell research and use	14/11/2000	EGE	1998-2000	human stem cell research and use	20	EN/GE/FR
2002	Opinion no. 16 patenting human stem cells inventions	07/05/2002	Commission	2001-2004	patenting inventions involving human stem cells	19	EN/GE/FR
2003	Opinion no. 17 clinical research in developing countries	04/02/2003	Commission	2001-2004	clinical research in developing countries	16	EN/GE/FR
2003	Opinion no. 18 genetic testing in the workplace	28/07/2003	EGE	2001-2004	genetic testing in the workplace	17	EN/GE/FR
2004	Opinion no. 19 umbilical cord blood banking	16/03/2004	President Prodi	2001-2004	umbilical cord blood banking	23	EN/GE/FR
2005	Opinion no. 20 ICT implants in the human body	16/03/2005	EGE	2005-2009	ICT implants in the human body	36	EN/GE/FR
2007	Opinion no. 21 nanomedicine 2007	17/01/2007	President Barroso	2005-2009	ethical aspects of nanomedicine	123	EN
2007	Opinion no. 22 hESC FP7 research projects	20/06/2007	President Barroso	2005-2009	review of hESC FP7 research projects	116	EN
2008	Opinion no. 23 animal cloning for food supply	16/01/2008	President Barroso	2005-2009	animal cloning for food supply	56	EN
2008	Opinion no. 24 modern agricultural technologies	17/12/2008	President Barroso	2005-2009	modern developments in agricultural technologies	112	EN/GE*/FR*
2009	Opinion no. 25 synthetic biology	17/11/2009	President Barroso	2005-2009	synthetic biology	108	EN/GE*/FR*
2012	Opinion no. 26 information and communication technologies	22/02/2013	President Barroso	2010-2015	information and communication technologies	97	EN/GE*/FR*
2013	Opinion no. 27 research, production and use of energy	16/01/2013	President Barroso	2010-2015	framework for assessing research, production and use of energy	152	EN/GE*/FR*
2014	Opinion no. 28 security and surveillance technologies	20/05/2014	President Barroso	2010-2015	security and surveillance technologies	112	EN/GE*/FR*
2015	Opinion no. 29 NHT and citizen participation	13/10/2015	President Juncker	2010-2015	new health technologies and citizen participation	88	EN/GE*/FR*

Appendix 1.4.2 EGE Opinion no. 1-29 Scope and Size



- References to potential schools of thought or ethical concepts

Appendix 2 Main normative/philosophical findings

Appendix 2.1 Schools of thought classification: philosophy and normative ethics

Philosopher	No. of hints	Schools of thought: Normative Ethics	Source
John Rawls	10	Deontology	Genevieve Fuji Johnson and Lorelea Michaelis, <i>Political responsibility refocused: Thinking justice after Iris Marion Young</i> (University of Toronto Press 2013), 107.
David Resnik	7	W/O	David Resnik, <i>The ethics of science: An introduction</i> (Philosophical issues in science, Routledge 1998), 98-99.
Hugo Grotius	7	W/O	Jeremy Seth Geddert, <i>Hugo Grotius and the modern theology of freedom: Transcending natural rights</i> (Routledge innovations in political theory, Routledge 2017), 1.
Giorgio Agamben	6	W/O	Alex Murray, <i>Giorgio Agamben</i> (Routledge critical thinkers, 1st edn, Routledge 2010), 1.
Thomas Hobbes	5	Deontology	Robert Elliot 'Deontological environmental ethics' in Martin Reynolds, Cris Blackmore and Mark J Smith, <i>The environmental responsibility reader</i> (1st edn, Zed 2009), 60
Hans Jonas	5	Deontology	Michel Marie et al., <i>Animal bioethics: Principles and teaching methods</i> (Wageningen Academic Publishers 2005), 266.
Hannah Arendt	4	Virtue Ethics	Michael D Robertson and Garry Walter, <i>Ethics and mental health: The patient, profession, and the community</i> (Taylor & Francis 2014), 19
Aristotle	3	Virtue Ethics	Timothy Dwyer, <i>Legal and ethical issues in the media</i> (Key concerns in media studies, Palgrave Macmillan 2012), 17.
Michael Foucault	4	Virtue Ethics	Timothy Dwyer, <i>Legal and ethical issues in the media</i> (Key concerns in media studies, Palgrave Macmillan 2012), 14-17.
John Stuart Mill	3	Consequentialism	Nigel Warburton, <i>Jonathan Pike, Derek Matravers, Reading political philosophy: Machiavelli to Mill</i> (1st edn, Routledge 2000), 327.

Jeremy Bentham	3	Consequentialism	Michael J Sandel, <i>Justice: What's the right thing to do?</i> (1st ed. Farrar Straus and Giroux 2010), 34.
Peter Singer	3	Consequentialism	Kok-Chor Tan, <i>What is this thing called global justice?</i> (Routledge 2017), 8.
Zygmunt Bauman	3	W/O	Søren Juul, <i>Solidarity in individualized societies: Recognition, justice and good judgement</i> (Routledge advances in sociology vol 92, Routledge 2013), 192.
Jeremy Waldron	3	Deontology	Genevieve Fuji Johnson 'Social Connections and Our Political Responsibilities to Future Generations' in Johnson and Michaelis, <i>Political responsibility refocused: Thinking justice after Iris Marion Young</i> (1st edn, University of Toronto Press 2013), 107.
Baruch Spinoza	2	W/O	Dahlbeck Johan, <i>Spinoza and education: Freedom, understanding and empowerment</i> (New directions in the philosophy of education Routledge 2016), 21.
John Locke	2	Deontology	Robert Elliot 'Deontological environmental ethics' in Martin Reynolds, Cris Blackmore and Mark J Smith, <i>The environmental responsibility reader</i> (1st edn, Zed 2009), 60.
Max Weber	2	W/O	Nikolas Gane, <i>Max Weber and postmodern theory: Rationalization versus re-enchantment</i> (Palgrave 2004), 1-4.
Walter Bryce Gallie	2	W/O	Robert J Joustra, <i>The religious problem with religious freedom in North America: Perspectives on political theology</i> (Routledge studies in religion and politics, 1 edn, Routledge 2017), 63.
Confucius	1	Virtue Ethics	Michael Keith et al., <i>China constructing capitalism: Economic life and urban change</i> (International library of sociology 1st edition, Routledge 2014), 37.
Niccolò Machiavelli	1	Consequentialism	Nigel Warburton, Jonathan Pike, Derek Matravers, <i>Reading political philosophy: Machiavelli to Mill</i> (1st edn, Routledge 2000), 38.
Jean-Jacques Rousseau	1	Deontology	Brian Duignan, <i>Thinkers and theories in ethics</i> (1st eds, Rosen Education Services 2010), 61.
Immanuel Kant	1	Deontology	MacKinnon Barbara and Andrew Fiala, <i>Ethics: Theory and contemporary issues</i> (8th edn, Cengage Learning 2015), 114 ff.
Onora O'neil	1	Deontology	Terry Nardin and David Mapel, <i>Traditions of international ethics</i> (Cambridge studies in

			international relations 17, Cambridge University Press 2004), 151.
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*W/O= without clear affiliation

Appendix 2.2 Scholars defining human dignity

<i>Name</i>	<i>No. of hints</i>	<i>Academic field</i>	<i>Source</i>
Deryck Beyleveld & Roger Brownsword	2	Legal scholar (bioethics)	Deryck Beyleveld and Roger Brownsword, Human dignity in bioethics and biolaw (Oxford University Press 2001), 2.
William P Cheshire	4	Medical expert	William Cheshire 'Toward a Common Language of Human Dignity' (2002) Ethics and Medicine 18(2), 7-10.

Appendix 2.3 Schools of thought classification: other related disciplines

<i>Name</i>	<i>No. of hints</i>	<i>Professional field</i>	<i>Source</i>
David Lyon	9	Sociologist	'Queens University' < http://www.queensu.ca/sociology/people/faculty/david-lyon > accessed on June 13, 2017.
Piet Hein van Kempen	9	Legal scholar	'Radboud University' < http://www.ru.nl/law/@753344/kempen-piet-hein/ > accessed on June 13, 2017.
Richard Gold	6	Legal Scholar	'McGill Faculty of Law' < https://www.mcgill.ca/law/about/profs/gold-richard > accessed on June 13, 2017.
Viktor Mayer-Schönberger	6	Internet Governance	'Oxford Internet Institute' < https://www.oii.ox.ac.uk/people/viktor-ms/ > accessed on June 13, 2017.
Jasper Bovenberg	5	Legal scholar	'J A Bovenberg' < http://www.jbovenberg.com/ > accessed on June 13, 2017.
Bruce Schneider	3	Internet Governance	'Schneier on Security' < https://www.schneier.com/blog/about/ > accessed on June 12, 2017.
Nicholas Rose	3	Sociologist	'Kings College London' < http://www.kcl.ac.uk/sspp/departments/sshm/ >

			KCfGA/People/GHSM/Professor-Nikolas-Rose.aspx> accessed on June 17, 2017.
Julie E Cohen	3	Legal scholar	'Georgetown Law' < https://www.law.georgetown.edu/faculty/cohen-julie-e.cfm > accessed on June 17, 2017.
Neil Richards	3	Legal scholar	'Stanford Law School' < http://cyberlaw.stanford.edu/about/people/neil-richards > accessed on June 12, 2017.
Pieter Van Dijk	2	Legal scholar	Van Dijk et al., Theory and practice of the European Convention on Human Rights (Antwerpen-Oxford, Intersentia, 4th edn, 2006), 457.
Carl Schmitt	2	Political theorist	'The Stanford Encyclopedia of Philosophy' < https://plato.stanford.edu/entries/schmitt/ > accessed on June 13, 2017.
Barry Buzan	2	Political scientist (IR)	London School of Economics' < http://www.lse.ac.uk/researchAndExpertise/Experts/profile.aspx?KeyValue=b.g.buzan%40lse.ac.uk > accessed on June 12, 2017.
James C Scott	2	Political scientist	'Yale University department of Political Science' < http://politicalscience.yale.edu/people/james-scott > accessed on June 13, 2017.
Jaap de Wilde	2	Political scientist (IR)	'University of Groningen' < http://www.rug.nl/staff/j.h.de.wilde/ > accessed on June 13, 2017.
Ole Waever	2	Political scientist (IR)	'University of Copenhagen' < http://politicalscience.ku.dk/staff/Academic_staff/?pure=en%2Fpersons%2Fole-waever(616ba573-b094-46ed-a29b-56d8f2a5049e)%2Fpublications.html > accessed on June 17, 2017.
Yaron Ezrahi	2	Political scientist	'The Hebrew University of Jerusalem' < http://en.politics.huji.ac.il/people/faculty/emeritus > accessed on June 17, 2017.
Antoinette Rouvroy	2	Legal scholar	'Université de Namur' < https://directory.unamur.be/staff/arouvroy > accessed on June 13, 2017.
Audrey R Chapman	2	Legal scholar	'University of Connecticut' < https://www.law.uconn.edu/faculty/profiles/audrey-r-chapman-phd > accessed on June 17, 2017.
Ulrich Beck	1	Sociologist	'Sage Publishing' < https://us.sagepub.com/en-us/nam/author/ulrich-beck > accessed on June 13, 2017.

Bartha Knoppers	1	Legal scholar	'MCGILL UNIVERSITY AND GENOME QUEBEC INNOVATION CENTRE' < http://www.mcgillgenomecentre.org/bartha-maria-knoppers/ > accessed on June 17, 2017.
Edward Hallett "Ted" Carr	1	Political scientist	'The Encyclopedia of Philosophy' < https://plato.stanford.edu/entries/realism-intl-relations/ > accessed on June 17, 2017
Hans Morgenthau	1	Political scientist	'The Stanford Encyclopedia of Philosophy' < https://plato.stanford.edu/archives/spr2017/entries/realism-intl-relations/#HanMorReaPri > accessed on June 13, 2017.

*w/0 = without clear affiliation

Appendix 2.4 Schools of thought: EGE members

Name	No. of hints	EGE Role	Source
Emmanuel Agius	3	Current EGE Member / Theologian	'Members of the EGE' < https://ec.europa.eu/research/ege/index.cfm?pg=members > accessed on June 12, 2017.
Jim Dratwa	1	Head of EGE Office	'Contact EGE' < https://ec.europa.eu/research/ege/index.cfm?pg=contact > accessed on June 12, 2017.
Maurizio Salvi	1	Former EGE Member	Maurizio Salvi, <i>Rationalising individuality: the notion of individuality in biology, philosophy, (bio)ethics</i> (Maastricht University Press, 2002).

Appendix 3 Additional findings excluded from QCA

Appendix 3.1 Philosophical schools of thought: standalone references⁵⁸⁷

Name	No. of hints	Schools of thought: Normative Ethics	Source
Bernard E Rollin	4	Consequentialism	Henk Verhoog 'Animal Integrity' in Michel Marie et al., <i>Animal bioethics: Principles and teaching methods</i> (Wageningen Academic Publishers 2005), 98.
John Harris	4	Consequentialism	David C Thomasma, David N Weisstub and Christian Hervé, <i>Personhood and Health Care</i> (International Library of Ethics, Law, and the New Medicine vol 7, Springer 2001), 289.
Alan Gewirth	2	Deontology	Terry Nardin and David Mapel, <i>Traditions of international ethics</i> (Cambridge studies in international relations 17, Cambridge University Press 2004), 151.
Robert Nozick	2	Deontology	Alon Harel, <i>Why law matters</i> (Oxford legal philosophy, 1st edn, Oxford University Press 2014), 113.
Marcel Dol	1	Deontology	Marcel Dol, <i>Recognizing the intrinsic value of animals: Beyond animal welfare</i> (Animals in philosophy and science, Van Gorcum 1999), 36
David Hume	1	Consequentialism	Julia Driver, <i>Consequentialism</i> (New problems of philosophy, 1st edn, Routledge 2012), 7-8
Tom Reagan	1	Deontology	Mylan Engel 'The Common Case Against Animal Experimentation' in Susan Armstrong and Richard G Botzler, <i>The animal ethics reader</i> (2nd edn, Routledge 2008), 1715.
Rene Descartes	1	Virtue ethics	Lisa Shapiro, <i>The correspondence between Princess Elisabeth of Bohemia and René Descartes</i> (The other voice in early modern Europe, University of Chicago Press 2007), 34-35.
John Wiedhofft	1	W/O	John Wiedhofft Gough, <i>Social Contract: A Critical Study of Ist Development</i> (Clarendon Press 1957).

⁵⁸⁷ Standalone footnote references providing definitions that might be of interest; Not included in the main results of the QCA;

Michael Segelid	1	W/O	Seumas Miller and Michael J Selgelid, 'Ethical and Philosophical Consideration of the Dual-use Dilemma in the Biological Sciences' (2007) 13(4) Science and Engineering Ethics 523.
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W/O=without clear affiliation

Appendix 3.2 Other schools of thought: standalone references (non-exhaustive list)⁵⁸⁸

Name	No. of hints	Academic field	Source
Erik Parens	4	Philosopher	Erik Parens, 'Making Cells Like Computers' (2008) Boston Globe 18.
Rahul Kumar	4	Philosopher	Jon Miller and Rahul Kumar, <i>Reparations: Interdisciplinary inquiries</i> (Oxford University Press 2007).
Ernest Partridge	4	Philosopher	Ernest Partridge, <i>Responsibilities to Future Generations. Environmental Ethics</i> (New York: Prometheus Books 1981).
Andrew Dobson	3	Political scientist	Andrew Dobson Andrew, <i>Fairness and Futurity. Essays on Environmental Sustainability</i> (Oxford: Oxford University Press 1999).
Jon Miller	3	Philosopher	Jon Miller and Rahul Kumar, <i>Reparations: Interdisciplinary inquiries</i> (Oxford University Press 2007).
Derek Parfit	3	Philosopher	Derek Parfit, <i>Reasons and Persons</i> (Oxford: Oxford University Press 1986)
Brian G Norton	3	Philosopher	Bryan G Norton, <i>Why preserve natural Variety?</i> (Princeton University Press Princeton 1986)
Michel Hutchins	2	Philosopher	Bryan G Norton, Michael Hutchins, Terry Maple, Elisabeth Stevens, <i>Ethics on the Ark</i> (Smithsonian Institutions 1969).
R. I. Sikora	2	Philosopher	Richard I Sikora and Brian M Barry, <i>Obligations to Future Generations</i> (White Horse Press 1996).
Brian Barry	2	Philosopher	Richard I Sikora and Brian M Barry, <i>Obligations to Future Generations</i> (White Horse Press 1996).

⁵⁸⁸ Additional standalone footnote references in EGE opinions without clear relation to normative ethics; not included in the QCA; potential for further research.

Paul Ricoeur	2	Philosopher	Paul Ricœur, <i>Oneself as another</i> (University of Chicago Press 1992).
John Arthur Passmore	2	Philosopher	John A Passmore, <i>Man's responsibility for nature: Ecological problems and Western traditions</i> (Scribner 1974).
Torbjörn Tännsjö	2	Philosopher	Jesper Ryberg and Torbjör Tännsjö, <i>The repugnant conclusion: Essays on population ethics</i> (Kluwer Academic Publishers 2004).
Jesper Reyberg	2	Philosopher	Jesper Ryberg and Torbjör Tännsjö, <i>The repugnant conclusion: Essays on population ethics</i> (Kluwer Academic Publishers 2004).
Murray Bookchin	2	Political theorist	Murray Bookchin, <i>The philosophy of social ecology: Essays on dialectical naturalism</i> (Black Rose Books 1990).
Hans Werner Ingensiep	2	Philosopher	Hans Werner Ingensiep et al., <i>Philosophie der natürlichen Mitwelt: Grundlagen, Probleme, Perspektiven : Festschrift für Klaus Michael Meyer-Abich</i> (Königshausen & Neumann 2002).
Galileo Galilei	1	Philosopher	'Galileo Galilei', <i>The Stanford Encyclopedia of Philosophy</i> (Spring edn, 2017) < https://plato.stanford.edu/archives/spr2017/entries/galileo/ > accessed June 12, 2017.
Jan C Heller	1	Philosopher	Nick Fotion and Jan C Heller, <i>Contingent Future Persons: On the Ethics of Deciding Who Will Live, or Not, in the Future</i> (Theology and Medicine 9, Springer 1997).
Nick Fotion	1	Philosopher	Nick Fotion and Jan C Heller, <i>Contingent Future Persons: On the Ethics of Deciding Who Will Live, or Not, in the Future</i> (Theology and Medicine 9, Springer 1997).
Gerald A Gohen	1	Philosopher	Gerald A Cohen, <i>If you're an egalitarian, how come you're so rich?</i> (Harvard Univ. Press 2000).
Bernard Williams	1	Philosopher	Bernard Williams, <i>Problems of the self: Philosophical papers: 1956-1972</i> (Cambridge University Press 1982).
Naess Arne	1	Philosopher	Arne Naess, 'A Defence of the Deep Ecology Movement' (1984) 6(3) <i>Environmental Ethics</i> 265.
Issac Newton	1	Philosopher	Isaac Newton', <i>The Stanford Encyclopedia of Philosophy</i> (Spring edn, 2017) < https://plato.stanford.edu/archives/spr2017/entries/newton/ > accessed June 12, 2017

Robert Paul Wolff	1	Philosopher	Robert Paul Wolff, <i>Understanding Rawls</i> (University Press 1997).
Ruud Van Den Boss	1	Philosopher	Ruud Van den Boss et al., <i>Animal consciousness and animal ethics: Perspectives from the Netherland</i> (Animals in philosophy and science, Van Gorcum 1997).
Suuki D & Knudson	1	W/O	Suzuki D & Knudson P, <i>Genethics, the ethics of engineering life</i> (Stoddart Publishing Co Toronto 1987)
Michael Walzer	1	Political theorist	Walzer M (ed), <i>Toward a global civil society</i> (Berghahn Books 1998).
John O'Neil	1	Philosopher	Tim Hayward and John O'Neil, <i>Justice, Property and the Environment: Social and Legal Perspectives</i> (Ashgate Pub. 1997).
Tim Hayward	1	Philosopher	Tim Hayward and John O'Neil, <i>Justice, Property and the Environment: Social and Legal Perspectives</i> (Ashgate Pub. 1997).
Eric T Olsen	1	Philosopher	Eric T Olson, <i>The human animal: Personal identity without psychology</i> (Philosophy of mind series, Oxford University Press 1997).

*w/o= without clear affiliation

Appendix 4 Schools of thought MAXQDA content

Appendix 4.1 Normative schools of thought content: main findings included in QCA

<i>EGE Opinion no.</i>	<i>Normative school of thought</i>	<i>Proponent</i>	<i>Findings</i>
23	Consequentialism	Peter Singer	The first theory comes back to the philosophy of Bentham and Mill ⁶⁹ , and has been advocated more recently, inter alia, by Peter Singer
23	Consequentialism	John Stuart Mill	The first theory comes back to the philosophy of Bentham and Mill ⁶⁹ , and has been advocated more recently, inter alia, by Peter Singer.
23	Consequentialism	Jeremy Bentham	The first theory comes back to the philosophy of Bentham and Mill ⁶⁹ , and has been advocated more recently, inter alia, by Peter Singer.
23	Consequentialism	Peter Singer	Singer P. (1985) In Defence of Animals N.Y.: Blackwell
23	Consequentialism	Peter Singer	Singer P. (1990) Animal Liberation N.Y.: Avon Books
23	Consequentialism	Jeremy Bentham	Jeremy Bentham, The Introduction to the Principles of Morals and Legislation, edited by J. H. Burns and H. L. A. Hart, London: Athline Press, 1970. Many of John Stuart Mill's works are relevant, especially his Utilitarianism and On Liberty.
23	Consequentialism	John Stuart Mill	Many of John Stuart Mill's works are relevant, especially his Utilitarianism and On Liberty
24	Deontology	John Rawls	The contemporary discussions on the concept of justice emerged from the philosophical debate on the relationship between the state and citizens with the work of J. Rawls (133) and its critics (134), but also concerns the role of the state in protecting and advancing human rights as such.
24	Deontology	John Rawls	Rawls develops what he claims are principles of justice by using an entirely and deliberately artificial device which he calls the 'original position', in which everyone decides principles of justice from behind a 'veil of ignorance'.

24	Deontology	John Rawls	Rawls claims that all those in the original position would adopt a 'maximin' strategy which would maximise the position of the least well-off.
24	Deontology	John Rawls	Rawls claims that parties in the original position would adopt two such principles, which would then govern the assignment of rights and duties and regulate the distribution of social and economic advantages across society (Rawls, 1971)
24	Consequentialism	John Stuart Mill	See Mill, Chapter 5 (1969)
24	Deontology	John Rawls	See Rawls (1971 and 1991), D. Parfit (1987), Partridge (1981) and Miller and Kumar (2007)
25	Virtue ethics	Aristotle	Such an approach has been used since before the time of Aristotle, and, in a more formal way, by Descartes, G. Galile and Newton
25	Deontology	Hans Jonas	Jonas H. (1979) Das Prinzip Verantwortung Insel Verlag
25	Deontology	Hans Jonas	Jonas H. (1987) 'Creazione dell'uomo' il Mulino (XXXVI) Bologna 615-626; Monod J. (1967) Chance and Necessity N.Y. Vintage Books
25	Deontology	Immanuel Kant	The Kantian understanding of human dignity emphasises moral responsibility.
25	Deontology	John Rawls	J. Rawls
25	Deontology	John Rawls	Rawls develops what he claims are principles of justice by using an entirely and deliberately artificial device which he calls the original position', in which everyone decides principles of justice from behind a 'veil of ignorance'.
25	Deontology	John Rawls	Rawls claims that all those in the original position would adopt a maximin strategy which would maximise the position of the least well-off.
25	Deontology	John Rawls	Rawls claims that parties in the original position would adopt two such principles, which would then govern the assignment of rights and duties and regulate the distribution of social and economic advantages across society (Rawls, 1971)
25	Deontology	John Rawls	See Rawls (1971 and 1991)
25	W/O	Hugo Grotius	Bovenberg JA (2006) 'Mining The Common Heritage of our Dna: Lessons learned from Grotius and Pardo' Duke Law & Technology

25	W/O	Hugo Grotius	He addresses the first through the medium of the arguments of Grotius in relation to the legal status of the sea.
25	W/O	Hugo Grotius	In his arguments Grotius traced the origin of these terms, and hence the use to which each of these could be put.
25	W/O	Hugo Grotius	Grotius reached two conclusions from these definitions of property. '[F]irst, that which cannot be occupied, or which never has been occupied, cannot be the property of anyone, because all property has arisen from occupation.' Second, 'all that which has been so constituted by nature that although serving some one person it still suffices for the common use of all other persons, is today and ought in perpetuity to remain in the same condition as when it was first created by nature.'
25	W/O	Hugo Grotius	Based on these conclusions, Grotius then listed many objects that by nature were open
25	W/O	Hugo Grotius	Bovenberg JA (2006) 'Mining The Common Heritage of our Dna: Lessons learned from Grotius and Pardo' Duke Law & Technology Review
25	W/O	Hugo Grotius	Grotius' argument about the sea and its contents could conceivably be extended to ownership of all that falls within the high and low water marks.
25	W/O	David Resnik	Resnik (34) has argued very differently. In his article, The human genome: common resource but not common heritage, he states that '[T]hose who oppose proprietary control of DNA have voiced a variety of objections to the patenting of DNA sequences, including the claim that patenting DNA violates human dignity, the assertion that patenting DNA violates the sacredness of nature, and hypothesis that patenting DNA will have adverse effects on the progress of science, medicine and agriculture
25	W/O	David Resnik	The article quoted does not address these issues directly, but rather the idea that the human genome is the common heritage of mankind – to which Resnik takes exception.
25	W/O	David Resnik	He argues that the 'main ethical and policy rationale for granting patents is utilitarian: patents promote scientific and technological progress by giving financial incentives to inventors, investors and entrepreneurs'

25	W/O	David Resnik	Resnik's primary argument is that 'A moment's reflection on the nature of DNA is sufficient to show that there are some significant problems with regarding the human genome as mankind's common heritage. The first problem is that there is not a single, identifiable thing (or set of things) that constitute(s) the human genome. There is a significant amount of genetic variation among members of the species Homo sapiens. Although human beings share most of their DNA, there are thousands of single-nucleotide polymorphisms (SNPs), which vary from person to person (Venter et al. 2001). Human beings also exhibit a great deal of variation in haplotypes (or patterns of sequence variation). The second problem is that there is not a single, identifiable set of people who inherit the human genome. Human beings share 98.5% of the DNA with chimpanzees, 95% with other primates, a great percentage of their DNA with other species, including fruit flies and yeast (Venter et al. 2001). So, only 1.5% of the human genome is actually 'our' common heritage;
25	W/O	David Resnik	(34) http://library.wur.nl/frontis/ethics/13_resnik.pdf
25	W/O	David Resnik	In essence Resnik argues 'the human genome is not literally our common heritage.
25	W/O	David Resnik	Substantively, it would appear that Resnik is questioning that there is such a thing as the human genome at all. If in agreement, one would need to ask then what it is that teams of scientists all over the world have spent billions of dollars and years sequencing; was the project misguided from the start, or is knowing the basis of human chemical life composition not an important research question?
26	W/O	Zygmunt Bauman	Cf. for the concept of identity as 'fluid' or 'liquid': Zygmunt Baumann: Liquid Life. Cambridge: Polity Press 2005
26	Virtue Ethics	Aristotle	Aristotle addressed friendship as mutual care between equals; as such it has been conceptualised frequently throughout the history of moral philosophy and moral theology
26	Virtue Ethics	Hannah Arendt	In the 1950s, Hannah Arendt was one of the first scholars to observe the political importance of privacy.
26	Virtue Ethics	Hannah Arendt	Arendt's defence of the importance of the private sphere warns about dangers arising from the erosion of the private, a situation which some

			consider as deriving from the use of ICT as communication tools
26	Virtue Ethics	Hannah Arendt	Hannah Arendt, 1958, <i>The Human Condition</i> , University of Chicago Press
27	Deontology	Hans Jonas	In the 1970s, Hans Jonas introduced his principle of responsibility for the era of science, technology and knowledge societies, directing our attention towards a concept of responsibility that is not only concerned with implications of present or past actions, but rather with the implications of today's action on future generations.
27	Deontology	Hans Jonas	Jonas' approach is echoed in part in the implementation of the 'precautionary principle' in the legal EU framework, which reverses the burden of proof — the argument for the greater overall benefit of an action — in cases of expected harms or risk of envisioned technologies.
27	Deontology	Hans Jonas	More striking, however, is Jonas' attention to long term effects for which present generations must shoulder their responsibility. This newly awakened consciousness and conscientiousness towards future generations is striking because it is only since the industrialisation in the 19th and 20th centuries that the impact of human action is such that it may destroy the very conditions of the well-being of future generations simply by continuing to live as we currently do.
28	W/O	Walter Bryce Gallie	From a definitional perspective 'security' is a peculiar notion, at one and the same time the object of an easy, familiar and immediate understanding and also a paragon of Gallie's (47) "essentially contested concept".
28	W/O	Walter Bryce Gallie	W.B. Gallie, 'Essentially Contested Concepts', <i>Proceedings of the Aristotelian Society</i> (1956) 167–198: Paper delivered to the Aristotelian Society on 12 March 1956
28	Consequentialism	Niccolò Machiavelli	Machiavelli (<i>The Prince</i> , 1513) analysing the phenomenon of security of state (principality), envisaging security as a reaction to risks, threats, challenges and dangers to guarantee safety for the citizens in the state, identifies it with the exercise of absolute political power.
28	Deontology	Thomas Hobbes	Thomas Hobbes (<i>Leviathan</i> , 1651) considers the state of nature as the original condition in which the instinctive individual acts freely and selfishly according to his own interests (self-preservation).

28	Deontology	Thomas Hobbes	Hobbes thematises the transition from the state of nature to a civil state as essential to overcome the intolerable condition of constant danger, conflict and aggressiveness (<i>homo homini lupus</i>), which creates individual fear and social insecurity.
28	W/O	Baruch Spinoza	Spinoza (<i>Political Treatise</i> , 1677) considers security as the origin and purpose of the state: the state comes into being because social order (peace) — ensured through the threat of force — is a necessary (albeit not sufficient) condition for the realization of the individual's desire for safety (self-preservation) and wellbeing
28	Deontology	John Locke	In opposition to the absolutist perspective, John Locke (<i>Second Treatise of Government</i> , 1690) interprets the concept of security and social contract in a liberal framework: the state of nature is a condition in which innate natural laws exist (life, health, liberty, property...
28	Deontology	Thomas Hobbes	Focusing now on Hobbes' conceptualisation, as indicated above, the social contract as an occurrence in the course of which individuals came together and ceded some of their individual rights so that others would cede theirs — i.e. a mutualised trade-off.
28	Deontology	Thomas Hobbes	It is on those bases that Hobbes' work served as a foundation for the realist theories of international relations — as advanced by E.H. Carr and Hans Morgenthau — in the middle of the Twentieth Century.
28	W/wO	Giorgio Agamben	Giorgio Agamben — in his oeuvre as in his intervention on the occasion of the public Open Round Table in the context of the development of the present Opinion — draws attention to an array of grave difficulties whenever engaging with security.
28	W/O	Giorgio Agamben	In <i>Homo Sacer: Sovereign Power and Bare Life</i> and in <i>State of Exception</i> , Agamben traces the concept of "state of exception" (<i>Ausnahmezustand</i>) used by Carl Schmitt (whose "Sovereign" is the one who has the power to decide the state of exception) to Roman <i>justitium</i> and <i>auctoritas</i> .
28	W/O	Giorgio Agamben	Whereas Schmitt aims to include the necessity of state of emergency under the rule of law, Agamben demonstrates on the contrary that all life cannot be subsumed under the law.
28	W/O	Giorgio Agamben	Agamben examines the increases of power which governments resort to in supposed times of crisis.

28	W/O	Giorgio Agamben	Furthermore, Agamben examines how the suspension of laws in a state of exception — of emergency or crisis — can become continued state of affairs
28	W/O	Giorgio Agamben	Giorgio Agamben also draws attention to how modern liberal economics has contributed to push from a prevention perspective towards a “laissez faire” approach in which one has to manage the effects (rather than the causes) of issues or risks or crises — and consequently to surveil and control — in the name of security.
28	Deontology	Jean-Jacques Rousseau	Security not only forms part of the fabric of the human rights framework, it is also the cornerstone of the social contract ; be it for Hobbes, Locke, Spinoza or Rousseau, all those theorists of politics have made civil safety, civil security, the motive and end of the social contract, (256) as discussed above.
28	W/O	Baruch Spinoza	Security not only forms part of the fabric of the human rights framework, it is also the cornerstone of the social contract ; be it for Hobbes, Locke, Spinoza or Rousseau, all those theorists of politics have made civil safety, civil security, the motive and end of the social contract, (256) as discussed above.
28	Deontology	John Locke	Security not only forms part of the fabric of the human rights framework, it is also the cornerstone of the social contract ; be it for Hobbes, Locke, Spinoza or Rousseau, all those theorists of politics have made civil safety, civil security, the motive and end of the social contract, (256) as discussed above.
28	Deontology	Thomas Hobbes	Security not only forms part of the fabric of the human rights framework, it is also the cornerstone of the social contract ; be it for Hobbes, Locke, Spinoza or Rousseau, all those theorists of politics have made civil safety, civil security, the motive and end of the social contract, (256) as discussed above.
28	W/O	Max Weber	Max Weber’s terms (in Politics as a vocation), the monopoly on the legitimate use of violence or force.
28	W/O	Max Weber	This powerful finding — dating back to Max Weber and even Aristotle — has been compellingly documented in the work of James C. Scott (Scott 1998) as well as Yaron Ezrahi (Ezrahi 1990).

28	Virtue Ethics	Aristotle	This powerful finding — dating back to Max Weber and even Aristotle — has been compellingly documented in the work of James C. Scott (Scott 1998) as well as Yaron Ezrahi (Ezrahi 1990).
28	Deontology	Onora O'Neil	As observed by Baroness Onora O'Neil in her 2002 Reith Lectures on trust (268), "Confucius told his disciple Tzu-kung that three things are needed for government: weapons, food and trust. If a ruler can't hold on to all three, he should give up the weapons first and the food next. Trust should be guarded until the end: without trusts we cannot stand
28	Virtue Ethics	Confucius	Confucius told his disciple Tzu-kung that three things are needed for government: weapons, food and trust. If a ruler can't hold on to all three, he should give up the weapons first and the food next. Trust should be guarded until the end: without trusts we cannot stand.
28	Consequentialism	Jeremy Bentham	Dystopic fictional scenarios such as George Orwell's 1984, with the Orwellian fear of being punished for 'thoughtcrime', political writings as Bentham's Panopticon, and the present debate on security have to do with control, the knowledge necessary to be in control, what living in a state of permanent surveillance means, as well as about both the technological and moral limits of control.
28	W/O	Zygmunt Bauman	David Lyon in his dialogue with Zygmunt Bauman warns "And while the loss of privacy might be the first thing that springs to many minds when surveillance is in question, arguably privacy is not the most significant casualty. The issues of anonymity, confidentiality and privacy should not be ignored, but they are also bound up with those of fairness and justice, civil liberties and human rights. This is because, as we shall see, social sorting is primarily what today's surveillance achieves, for better or for worse. (...) the logic of statistics and software that drives today's surveillance produces outcomes that are uncannily consistent. Not merely — and religiously — do 'Arabs' and 'Muslims' find that they are subject to far more 'random' scrutiny than others at airports, but also, as Oscar Gandy demonstrated, the social sorting achieved by contemporary consumer surveillance constructs a world of cumulative disadvantage".
28	W/O	Zygmunt Bauman	Zygmunt Bauman and David Lyon, Liquid Surveillance, Polity press 2013, 13-14 ISBN 9780745662824 and as an ebook (9780745664026

28	Deontology	Jeremy Waldron	Waldron argues that the law and dignity are so tightly inter-related exactly because a person who is capable of reasoning must, at least in principle, be in a position to comprehend the laws. Law-givers must respect this capability to ask for reasons, and they respect the dignity of the citizens in doing so. Denying citizens the transparency or the reasons why they should apply certain laws therefore lacks this respect — and can only be justified if ‘secrecy’ is itself required to apply a given law. This is the case for certain activities of ‘secret services’ in the name of security or other superior interests of the state.
28	Deontology	Jeremy Waldron	As Waldron aptly shows, the stakes are particularly high in the trade-off between liberty and security.
28	Deontology	Jeremy Waldron	J. Waldron: Is this torture necessary? New York Review of Books, 2007, Vol. 54/16, 40
29	Virtue Ethics	Michel Foucault	Some sociologists have grappled with these trends by referring to the literature within the Foucauldian tradition to understand normalising tendencies around health and medicalisation.
29	Virtue Ethics	Michel Foucault	Following Foucault, Nikolas Rose draws on the notion of ‘healthism’ as a doctrine that links the ‘public objectives for the good health and good order of the social body with the desire of individuals for health and well-being’
29	Virtue Ethics	Michel Foucault	In his analysis of modern society, Michel Foucault argues that the body is the target of discrete disciplining practices that seek to regulate its existence
29	Virtue Ethics	Michel Foucault	Foucault, M., Naissance de la clinique, ibid., 3
29	Virtue Ethics	Hannah Arendt	Arendt, H. (1951), The Origins of Totalitarianism, New York: Harcourt

w/o = without clear affiliation

Appendix 4.2 Normative schools of thought content:
additional findings excluded from QCA⁵⁸⁹

<i>EGE Opinion no.</i>	<i>Normative ethics</i>	<i>Proponent</i>	<i>Segment</i>
23	Consequentialism	Bernard E Rollin	See: Animal Rights & Human Morality by Bernard E. Rollin (Prometheus Books. September 30, 2006)
23	Deontology	Tom Regan	Regan T. (1983) The Case for Animal Rights Berkeley California.: University of California Press
23	Consequentialism	Bernard E Rollin	Rollin B. (1998) The Unheeded Cry. Animal Consciousness animal Pain and Science. Oxford University Press
23	Deontology	Marcel Dol	Dol et al. (1999) Recognizing the intrinsic value of animals Van Gorcum & ComAsse
23	Consequentialism	Bernard E Rollin	Rollin B. (1989) The Frankenstein Syndrome. Ethical and Social Issues in the Genetic Engineering of Animals Cambridge University Press.
23	Consequentialism	Bernard E Rollin	Rollin B. (1998) On telos and genetic engineering in Holland and Jonson (eds.) Animal Biotechnology and Ethics Chapman and Hall London 1998:16
24	Deontology	Robert Nozick	R. Nozick (1974)
24	W/O	Emmanuel Agius	E. Agius, 'Towards a relational theory of intergenerational ethics', in Bijdragen, 50 (1989), 293–313
25	Virtue Ethics	René Descartes	Such an approach has been used since before the time of Aristotle, and, in a more formal way, by Descartes, G. Galilei and Newton
25	Deontology	Robert Nozick	Nozick R (1981) Philosophical Explanations, Oxford University Press
25	W/O	Maurizio Salvi	Salvi. M (2002) Rationalising individuality : the notion of individuality in biology, philosophy, (bio)ethics. Maastricht University Press, 30
25	Consequentialism	John Harris	John Harris, 'Who's Afraid of a Synthetic Human?' The Times, May 17, 2008.

⁵⁸⁹ These findings have not been included in the QCA as the were merely referred to in the footnote by the EGE; might of interest for further research.

25	W/O	Michael Selgelid	S. Miller and M. Selgelid: Ethical and philosophical consideration of the Dual-use dilemma in the biological sciences. Centre for Applied Philosophy and Public Ethics, Australian National University and Charles Sturt University, Canberra, Australia (2006).
25	W/O	Emmanuel Agius	Should we treat the human germ-line as a global human resource? In: Agius, E. and Busuttill, S. (eds.) Germ-line intervention and our responsibilities to future generations. Dordrecht, 85-102
25	Consequentialism	John Harris	John Harris, 'Who's Afraid of a Synthetic Human?' The Times
25	Consequentialism	John Harris	John Harris, «Who's Afraid of a Synthetic Human?», The Times, 17 mai 2008.
25	Consequentialism	John Harris	John Harris, „Who's Afraid of a Synthetic Human?“ The Times, 17. Mai 2008.
25	W/O	Emmanuel Agius	Juengst, E.T., 1998. Should we treat the human germ-line as a global human resource? In: Agius, E. and Busuttill, S. eds. Germ-line intervention and our responsibilities to future generations. Kluwer Academic Press, Dordrecht, 85-102
28	W/O	Jim Dratwa	Jim Dratwa, “Risque, Rixe, Rhizome: Guerre et Paix avec l'Analyse des Risques et les Organisations Internationales”, Techniques et Philosophies des Risques, ed. G.Hottois & C.Kermisch, Paris: Vrin, 2007
28	W/O	John Wiedhofft Gough	The second form of social contract may be more accurately called the contract of government, or the contract of submission....” J. W. Gough,
28	Consequentialism	David Hume	In other words the first is concerned with the origin of the state, while the second concerns the contract — the modus vivendi — between the ruler(s) and the ruled, between the governed and the government. This duality of the social contract is at the heart of David Hume's critique of the concept
28	Deontology	Alan Gewirth	Cf. for example: Alan Gewirth: Reason and Morality, Chicago 1978 who argued that the transition from values to rights is necessary from the point of view of the agent, and is the presupposition for the agent's 'willingness' to grant others exactly the same conditions for their agency

28	Deontology	Alan Gewirth	Gewirth coined them as rights to freedom and well-being, and provided a (formal) hierarchy of basic rights, non-subtractive rights, and additional rights. While there is considerable debate on the relationship between dignity and rights, and 'basic' or 'natural' human rights and other kinds of rights, such as political (freedom) rights, or legal rights, this can be left to philosophical debate; for our purpose here, it suffices to acknowledge that any theory of rights requires to argue for the prioritization between the kinds of rights, and the equal application of rights to all individuals
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Appendix 4.3 Normative ethics content: concept/definitional references

<i>EGE Opinion no.</i>	<i>Normative concept</i>	<i>Segment</i>
12	Deontology	a deontological approach, in which duties and principles control the ends and consequences of our actions
12	Consequentialism	utilitarian or consequentialist approaches in which human actions are evaluated in terms of means and ends or consequences
19	Deontology	On the other hand, in the eyes of civil law of contracts and medical deontology , the validity or the enforceability of the contracts by which parents are prompted to the taking and conservation of the cord blood for their child...
22	Deontology	The Code of Deontology for Physicians of the Romanian College of Physicians, www.cmr.ro
23	Consequentialism	Many of John Stuart Mill's works are relevant, especially his Utilitarianism and On Liberty
25	Consequentialism	Anthropocentric approaches to synthetic biology focus much more on consequential considerations and issues related to potential consequences from the use of synthetic biology for human beings (risk assessment and management and hazard considerations (178))

25	Consequentialism	He argues that the ‘main ethical and policy rationale for granting patents is utilitarian : patents promote scientific and technological progress by giving financial incentives to inventors, investors and entrepreneurs’ The argument is reiterated that ‘[u]nder a theory known as the patent ‘bargain’, the government grants an inventor a private right in exchange for public disclosure of information in the patent application.’
28	Virtue ethics	Self-regulatory governance works to promote (virtuous) behaviour by involving stakeholders and establishing bottom-up soft regulations. U
28	Virtue ethics	This view, called the “post-privacy-movement” also advocates that actively giving up privacy would determine the flourishing of a personal and social virtue based on people’s freedom to introduce and share whatever data on their own lives they desire

Appendix 4.4 EGE Reference to the Roman Catholic Church

<i>EGE Opinion no.</i>	<i>Reference</i>	<i>Segment</i>
25 <u>‘synthetic biology’</u>	p. 40	The Roman Catholic Church has asserted that ‘the human person does not commit an illicit act when, out of respect for the order, beauty and usefulness of individual living beings and their function in the ecosystem, he intervenes by modifying some of their characteristics or properties’. However, the Roman Catholic Church has also made a strong appeal for responsibility in this endeavour. See http://www.vatican.va/roman_curia/pontifical_councils/justpeace/documents/rc_pc_justpeace_doc_20060526_compendio-dott-soc_en.html , Article 473

Appendix 5 MAXQDA occurrences

Appendix 5.1 Schools of thought occurrences: overview

EGE Opinion ⁵⁹⁰ no. of hints	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
<i>Name</i>								
<i>Schools of thought: Other proponents</i>								
David Lyon	0	0	0	0	0	9	0	9
Piet Hein van Kempen	0	0	0	0	0	9	0	9
Richard Gold	0	1	5	0	0	0	0	6
Viktor Mayer-Schönberger	0	0	0	2	0	2	2	6
Jasper Bovenberg	0	0	4	0	0	0	0	4
Bruce Schneier	0	0	0	0	0	3	0	3
Nicholas Rose	0	0	0	0	0	0	3	3
Julie E Cohen	0	0	0	0	0	2	1	3
Neill Richards	0	0	0	0	0	3	0	3
Pieter van Dijk	0	0	0	0	0	2	0	2
Carl Schmitt	0	0	0	0	0	2	0	2
Barry Buzan	0	0	0	0	0	2	0	2
James C Scott	0	0	0	0	0	2	0	2
Jaap de Wilde	0	0	0	0	0	2	0	2
Ole Waever	0	0	0	0	0	2	0	2
Yaron Ezrahi	0	0	0	0	0	2	0	2
Antoinette Rouvroye	0	0	0	0	0	1	1	2
Audrey R Chapman	0	0	0	0	0	0	2	2
Ulrich Beck	0	0	0	0	0	1	0	1
Bartha Knoppers	0	0	1	0	0	0	0	1
Edward Hallett "Ted" Carr	0	0	0	0	0	1	0	1
Hans Morgenthau	0	0	0	0	0	1	0	1
<i>Schools of thought: philosophy</i>								
David Resnik	0	0	7	0	0	0	0	7
Hugo Grotius	0	0	7	0	0	0	0	7
Giorgio Agamben	0	0	0	0	0	6	0	6
Zygmunt Bauman	0	0	0	1	0	2	0	3
Deryck Beyleveld & Roger Brownsword ⁵⁹¹	0	0	2	0	0	0	0	2
Walter Bryce Gallie	0	0	0	0	0	2	0	2
Baruch Spinoza	0	0	0	0	0	2	0	2

⁵⁹⁰ EGE: Opinion no. 20 ICT implants in the human body; Opinion no. 23 animal cloning for food supply; Opinion no. 24 modern agricultural technologies; Opinion no. 25 synthetic biology; Opinion no. 26 information and communication technologies; Opinion no. 27 research, production and use of energy; Opinion no. 28 security and surveillance technologies; Opinion no. 29 NHT and citizen participation.

⁵⁹¹ Treated as a single school of thought as both authors refer to the same philosophical concept.

Max Weber	0	0	0	0	0	2	0	2
<i>Deontology</i>								
John Rawls	0	5	5	0	0	0	0	10
Thomas Hobbes	0	0	0	0	0	5	0	5
Hans Jonas	0	0	2	0	3	0	0	5
Jeremy Waldron	0	0	0	0	0	3	0	3
John Locke	0	0	0	0	0	2	0	2
Immanuel Kant	0	0	1	0	0	0	0	1
Jean-Jacques Rousseau	0	0	0	0	0	1	0	1
Onora O'Neil	0	0	0	0	0	1	0	1
<i>Consequentialism</i>								
Jeremy Bentham	2	0	0	0	0	1	0	3
John Stuart Mill	2	1	0	0	0	0	0	3
Peter Singer	3	0	0	0	0	0	0	3
Niccolò Machiavelli	0	0	0	0	0	1	0	1
<i>Virtue Ethics</i>								
Hannah Arendt	0	0	0	3	0	0	1	4
Michel Foucault	0	0	0	0	0	0	4	4
Aristotle	0	0	1	1	0	1	0	3
Confucius	0	0	0	0	0	1	0	1
SUM	7	7	35	7	3	76	14	149

Appendix 5.2 Schools of thought occurrences: philosophical references

EGE Opinion	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
Name								
John Rawls	0	5	5	0	0	0	0	10
David Resnik	0	0	7	0	0	0	0	7
Hugo Grotius	0	0	7	0	0	0	0	7
Giorgio Agamben	0	0	0	0	0	6	0	6
Thomas Hobbes	0	0	0	0	0	5	0	5
Hans Jonas	0	0	2	0	3	0	0	5
Hannah Arendt	0	0	0	3	0	0	1	4
Michel Foucault	0	0	0	0	0	0	4	4
Zygmunt Bauman	0	0	0	1	0	2	0	3
Jeremy Waldron	0	0	0	0	0	3	0	3
Jeremy Bentham	2	0	0	0	0	1	0	3
John Stuart Mill	2	1	0	0	0	0	0	3
Peter Singer	3	0	0	0	0	0	0	3
Aristotle	0	0	1	1	0	1	0	3
Deryck Beyleveld & Roger Brownsword*	0	0	2	0	0	0	0	2
Walter Bryce Gallie	0	0	0	0	0	2	0	2
Baruch Spinoza	0	0	0	0	0	2	0	2

Max Weber	0	0	0	0	0	2	0	2
John Locke	0	0	0	0	0	2	0	2
Immanuel Kant	0	0	1	0	0	0	0	1
Jean-Jacques Rousseau	0	0	0	0	0	1	0	1
Onora O'Neil	0	0	0	0	0	1	0	1
Niccolò Machiavelli	0	0	0	0	0	1	0	1
Confucius	0	0	0	0	0	1	0	1
SUM	7	6	25	5	3	32	4	81

Appendix 5.3 Schools of thought occurrences: per normative ethical stream

EGE Opinion <small>*no. of hints</small>	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
Name								
<i>Philosopher W/O⁵⁹²:</i>								
David Resnik	0	0	7	0	0	0	0	7
Hugo Grotius	0	0	7	0	0	0	0	7
Giorgio Agamben	0	0	0	0	0	6	0	6
Zygmunt Bauman	0	0	0	1	0	2	0	3
Deryck Beyleveld & Roger Brownsword*	0	0	2	0	0	0	0	2
Walter Bryce Gallie	0	0	0	0	0	2	0	2
Baruch Spinoza	0	0	0	0	0	2	0	2
Max Weber	0	0	0	0	0	2	0	2
SUM	0	0	16	1	0	14	0	31
<i>Deontology:</i>								
John Rawls	0	5	5	0	0	0	0	10
Thomas Hobbes	0	0	0	0	0	5	0	5
Hans Jonas	0	0	2	0	3	0	0	5
Jeremy Waldron	0	0	0	0	0	3	0	3
John Locke	0	0	0	0	0	2	0	2
Immanuel Kant	0	0	1	0	0	0	0	1
Jean-Jacques Rousseau	0	0	0	0	0	1	0	1
Onora O'Neil	0	0	0	0	0	1	0	1
SUM	0	5	8	0	3	12	0	28
<i>Consequentialism:</i>								
Jeremy Bentham	2	0	0	0	0	1	0	3
John Stuart Mill	2	1	0	0	0	0	0	3

⁵⁹² W/O= without direct affiliation

Peter Singer	3	0	0	0	0	0	0	3
Niccolò Machiavelli	0	0	0	0	0	1	0	1
SUM	7	1	0	0	0	2	0	10
Virtue Ethics:								
Hannah Arendt	0	0	0	3	0	0	1	4
Michel Foucault	0	0	0	0	0	0	4	4
Aristotle	0	0	1	1	0	1	0	3
Confucius	0	0	0	0	0	1	0	1
SUM	0	0	1	4	0	2	5	12

Appendix 5.4 Schools of thought occurrences: normative ethics only

EGE Opinion	no. 23	no. 24	no. 25	no. 26	no. 27	no. 28	no. 29	SUM
Name								
<u>Deontology</u>								
<i>Hugo Grotius</i>	0	0	7	0	0	0	0	7
<i>Deryck Beyleveld & Roger Brownsword*</i>	0	0	2	0	0	0	0	2
<i>John Rawls</i>	0	5	5	0	0	0	0	10
<i>Thomas Hobbes</i>	0	0	0	0	0	5	0	5
<i>Hans Jonas</i>	0	0	2	0	3	0	0	5
<i>Jeremy Waldron</i>	0	0	0	0	0	3	0	3
<i>John Locke</i>	0	0	0	0	0	2	0	2
<i>Immanuel Kant</i>	0	0	1	0	0	0	0	1
<i>Jean-Jacques Rousseau</i>	0	0	0	0	0	1	0	1
<i>Onora O'Neil</i>	0	0	0	0	0	1	0	1
<u>Consequentialism</u>								
<i>Jeremy Bentham</i>	2	0	0	0	0	1	0	3
<i>John Stuart Mill</i>	2	1	0	0	0	0	0	3
<i>Peter Singer</i>	3	0	0	0	0	0	0	3
<i>Niccolò Machiavelli</i>	0	0	0	0	0	1	0	1
<u>Virtue Ethics</u>								
<i>Hannah Arendt</i>	0	0	0	3	0	0	1	4
<i>Michel Foucault</i>	0	0	0	0	0	0	4	4
<i>Aristotle</i>	0	0	1	1	0	1	0	3
<i>Confucius</i>	0	0	0	0	0	1	0	1
SUM	7	6	9	4	3	16	5	50 (+9)

Appendix 5.5 Normative ethics: concepts/definition occurrences

EGE Opinion⁵⁹³	no. 12	no. 19	no. 22	no. 23	no. 25	no. 28	SUM
Virtue ethics	0	0	0	0	0	2	2
Consequentialism	1	0	0	1	2	0	4
Deontology	1	1	1	0	0	0	3
SUM	2	1	1	1	2	2	9

Appendix 5.6 Dignity occurrences

EGE Opinion	no. 20	no. 23	no. 24	no. 25	no. 27	no. 26	no. 28	no. 29	SUM
Dignity	48	1	11	32	8	23	47	6	176
SUM	48	1	11	32	8	23	47	6	176

⁵⁹³ EGE: Opinion no. 12 human embryo FP5 research; Opinion no. 19 umbilical cord blood banking; Opinion no. 22 hESC FP7 research projects; Opinion no. 23 animal cloning for food supply; Opinion no. 25 synthetic biology; Opinion no. 28 security and surveillance technologies.

Appendix 6 EGE International Ethical Framework

Appendix 6.1 International Ethical Framework: main references

The following Table 6 provides a brief (non-exhaustive) list of international documents, wherein the EGE, inter alia, grounds its argumentation to derive fundamental ethical principles:⁵⁹⁴

<i>International Ethical Framework</i>
<i>EU Charter of Fundamental Rights (CFR)</i> ⁵⁹⁵
<i>European Convention on Human Rights (ECHR)</i> ⁵⁹⁶
<i>Convention on Human Rights and Biomedicine (Oviedo)</i> ⁵⁹⁷
<i>UN Universal Declaration of Human Rights (UDHR)</i> ⁵⁹⁸
<i>UNESCO Universal Declaration on Bioethics and Human Rights</i> ⁵⁹⁹
<i>UNESCO Universal Declaration on the Genome and Human Rights</i> ⁶⁰⁰
<i>International Covenant on Economic, Social and Cultural Rights (ICESC)</i> ⁶⁰¹
<i>International Covenant on Civil and Political Rights (ICCPR)</i> ⁶⁰²
<i>World Medical Association Declaration of Helsinki</i> ⁶⁰³
<i>Convention for the Protection of Automatic Processing</i> ⁶⁰⁴
<i>International Declaration on Human Genetic Data</i> ⁶⁰⁵

Table 9: International Ethical Framework⁶⁰⁶

⁵⁹⁴ Appendix: International Ethical Framework – EGE References.

⁵⁹⁵ Consolidated Version of the Charter of Fundamental Rights of the European Union [2016] OJ C 202/02

⁵⁹⁶ Council of Europe, Convention for the Protection of Human Rights and Fundamental Freedoms (European Convention on Human Rights, as amended) (ECHR).

⁵⁹⁷ Council of Europe, Convention for the Protection of Human Rights and of the Human Being with regard to the Application of Biology and Medicine (Convention on Human Rights and Biomedicine or the Oviedo Convention) (CETS n. 164) (adopted in Oviedo on April 4 1997).

⁵⁹⁸ Universal Declaration of Human Rights (adopted 10 December 1948 UNGA Res 217 A(III) (UDHR).

⁵⁹⁹ United Nations Educational, Scientific and Cultural Organisation (UNESCO), Universal Declaration on the Human Bioethics and Human Rights (adopted 19 October 20015).

⁶⁰⁰ United Nations Educational, Scientific and Cultural Organisation (UNESCO), Universal Declaration on the Human Genome and Human Rights (adopted 11 November 1997).

⁶⁰¹ International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) 993 UNTS 3 (ICESC).

⁶⁰² International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR).

⁶⁰³ World Medical Association, 'WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subject' <<https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/>> accessed on June 20, 2017.

⁶⁰⁴ Council of Europe, Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (ETS No. 108) (adopted in Strasbourg 28 January 1981).

⁶⁰⁵ United Nations Educational, Scientific and Cultural Organisation (UNESCO), International Human Genetic Data (adopted 16 October 2013).

⁶⁰⁶ Own Illustration.

Appendix 6.1.2 International Ethical Framework: main references per EGE

opinion

International Ethical Framework - main references												
	Charter of Fundamental Rights (CFR)	European Convention on Human Rights (ECHR)	Convention on Human Rights and Biomedicine (Oviedo)	Universal Declaration on the Human Genome and Human Rights	International Covenant on Economic, Social and Cultural Rights (ICESC)	WMA Declaration of Helsinki	Universal Declaration on Bioethics and Human Rights	Convention for the Protection of Automatic Processing 1981	Universal Declaration of Human Rights	International Declaration on Genetic Data	International Covenant on Human Rights	SUM
Opinion no. 01 performance enhancers in agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Opinion no. 02 human blood or human plasma products	0	0	0	0	0	0	0	0	0	0	0	0
Opinion no. 03 biotechnology directive	0	1	0	0	0	0	0	0	0	0	0	1
Opinion no. 04 gene therapy	0	0	0	0	0	0	0	0	0	0	0	0
Opinion no. 05 food labelling modern biotechnology	0	0	0	0	0	0	0	0	0	0	0	0
Opinion no. 06 prenatal diagnosis	0	0	0	0	0	0	0	0	0	0	0	0
Opinion no. 07 genetic modification of animals	0	0	0	0	0	0	0	0	0	0	0	0
Opinion no. 08 patenting human origin inventions	0	0	0	0	0	0	0	0	0	0	0	0
Opinion no. 09 cloning techniques	0	0	0	1	0	0	0	0	0	0	0	1
Opinion no. 10 5th research framework programme	0	0	1	1	0	1	0	0	0	0	0	3
Opinion no. 11 human tissue banking	0	0	1	1	0	0	0	0	0	0	0	2
Opinion no. 12 human embryo FP5 research	0	0	3	1	0	0	0	0	0	0	0	4
Opinion no. 13 healthcare in the information society	0	2	1	1	0	0	0	3	0	0	0	7
Opinion no. 14 from doping in sport	0	0	0	1	0	0	0	0	0	0	0	1
Opinion no. 15 human stem cell research and use	3	0	2	1	0	0	0	0	0	0	0	6
Opinion no. 16 patenting human stem cells inventions	5	1	1	2	0	0	0	0	0	0	0	9
Opinion no. 17 clinical research in developing countries	2	1	2	0	0	9	0	0	0	0	0	14
Opinion no. 18 genetic testing in the workplace	1	0	1	0	0	0	0	0	0	0	0	2
Opinion no. 19 umbilical cord blood banking	1	0	3	1	0	0	0	0	0	0	0	5
Opinion no. 20 ICT implants in the human body	15	0	5	4	0	1	1	1	1	0	0	28
Opinion no. 21 nanomedicine 2007	12	3	9	8	0	2	4	1	0	1	0	40
Opinion no. 22 hESC FP7 research projects	2	0	13	2	0	1	2	2	0	2	0	24
Opinion no. 23 animal doning for food supply	2	0	0	0	0	0	0	0	0	0	0	2
Opinion no. 24 modern agricultural technologies	7	0	0	0	3	0	0	0	2	0	0	12
Opinion no. 25 synthetic biology	16	2	11	16	0	5	3	0	0	1	0	54
Opinion no. 26 information and communication technologies	19	0	1	1	0	0	1	1	0	1	0	24
Opinion no. 27 research, production and use of energy	24	2	0	0	6	0	0	0	0	0	0	32
Opinion no. 28 security and surveillance technologies	28	44	1	0	2	0	0	0	3	0	2	80
Opinion no. 29 NHT and citizen participation	5	23	6	0	17	2	1	0	1	0	1	56
SUM	142	79	61	41	28	21	12	8	7	5	3	407

Appendix 6.1.2 International Ethical Framework: additional references per EGE opinion

International Ethical Framework - additional references								
	WHO FAO Codex Alimentarius	COIMS Ethical Guidelines	Rio Declaration on Environment and Development	Declaration of the World Summit on the Information Society WSIS	Nuremberg Code 1947	Belmont Report 1979	Declaration no. 24 on the Protection of Animals	SUM
Opinion no. 01 performance enhancers in agriculture	0	0	0	0	0	0	0	0
Opinion no. 02 human blood or human plasma products	0	0	0	0	0	0	0	0
Opinion no. 03 biotechnology directive	0	0	0	0	0	0	0	0
Opinion no. 04 gene therapy	0	0	0	0	0	0	0	0
Opinion no. 05 food labelling modern biotechnology	0	0	0	0	0	0	0	0
Opinion no. 06 prenatal diagnosis	0	0	0	0	0	0	0	0
Opinion no. 07 genetic modification of animals	0	0	0	0	0	0	0	0
Opinion no. 08 patenting human origin inventions	0	0	0	0	0	0	0	0
Opinion no. 09 cloning techniques	0	0	0	0	0	0	1	1
Opinion no. 10 5th research framework programme	0	0	0	0	0	0	0	0
Opinion no. 11 human tissue banking	0	0	0	0	0	0	0	0
Opinion no. 12 human embryo FP5 research	0	0	0	0	0	0	0	0
Opinion no. 13 healthcare in the information society	0	0	0	0	0	0	0	0
Opinion no. 14 from doping in sport	0	0	0	0	0	0	0	0
Opinion no. 15 human stem cell research and use	0	0	0	0	0	0	0	0
Opinion no. 16 patenting human stem cells inventions	0	0	0	0	0	0	0	0
Opinion no. 17 clinical research in developing countries	0	6	0	0	0	0	0	6
Opinion no. 18 genetic testing in the workplace	0	0	0	0	0	0	0	0
Opinion no. 19 umbilical cord blood banking	0	0	0	0	0	0	0	0
Opinion no. 20 ICT implants in the human body	0	0	1	3	0	0	0	4
Opinion no. 21 nanomedicine 2007	0	1	0	0	0	0	0	1
Opinion no. 22 hESC FP7 research projects	0	2	0	0	2	2	0	6
Opinion no. 23 animal cloning for food supply	9	0	0	0	0	0	1	10
Opinion no. 24 modern agricultural technologies	2	0	1	0	0	0	0	3
Opinion no. 25 synthetic biology	0	0	1	0	0	0	0	1
Opinion no. 26 information and communication technologies	0	0	0	0	0	0	0	0
Opinion no. 27 research, production and use of energy	0	0	0	0	0	0	0	0
Opinion no. 28 security and surveillance technologies	0	0	0	0	0	0	0	0
Opinion no. 29 NHT and citizen participation	0	0	0	0	0	0	0	0
SUM	11	9	3	3	2	2	2	32

Overview of additional references

- World Health Organization (WHO) Food and Agriculture Organization of the United Nations (FAO), 'Codex Alimentarius' < <http://www.fao.org/fao-who-codexalimentarius/en/>> accessed on June 20, 2017
- Declaration of the World Summit on the Information Society (WSIS) in 2003
- Rio Declaration on Environment and Development
- COIMS Ethical Guidelines
- Nuremberg Code 1947
- Belmont Report 1979
- Declaration no. 24 on the Protection of Animals

Declaration of Oath

I hereby declare, under oath, that this master thesis has been my independent work and has not been aided with any prohibited means. I declare, to the best of my knowledge and belief, that all passages taken from published and unpublished sources or documents have been reproduced whether as original, slightly altered or in thought, have been declared as such at the corresponding places of the thesis, by citation, where the extent of the original quotes is indicated. The paper has not been published in this form or another.

Innsbruck, 28/09/2017

Matthias Pirs, BA