

ETHICS, SCIENCE AND SOCIETY is an international project of academic research, scientific dissemination, and social and political responsibility, sponsored by the Luso-American Development Foundation. Its main objective is to stress the importance of this triumvirate approach – ethics, science, society – to address some of the current major challenges facing humanity. The balance we achieve today between these three concepts strongly defines our present and will have a decisive impact upon our common future: scientific progress shapes our modern societies which, from an ethical perspective, should always be acknowledged as being the ultimate goal for science and one which, by contributing to a common good, corroborates its ethical dimension.

This requires us to enhance the dialogue between scientists and ethicists, under a mutual recognition that both work towards a common good. It is indeed the outcome of this joint endeavour, and one in which citizen participation should be encouraged, which should determine public policies that truly foster both scientific progress and social development.

{ *glaciar* }

ISBN 978-989-8950-14-7



9 789898 950147



ETHICS,
SCIENCE
& SOCIETY

Challenges for BioPolitics

Coordinator

Maria do Céu Patrão Neves

fundação

LUSO-AMERICANA
PARA O DESENVOLVIMENTO

(Bio)Ethics, Science and Society: Challenges for BioPolitics

Coordinator
Maria do Céu Patrão Neves

CONTENTS

Foreword by Maria do Céu Patrão Neves	9
On Ethics, Science and Society MARIA DO CÉU PATRÃO NEVES	11
1. Science and Technology – <i>shaping the future</i>	17
Ethics, science and society in the context of the scientific revolution ANTÓNIO M. CUNHA	21
Genetics developments: new opportunities, new challenges SÍLVIA CURADO	29
A door is open? Genome editing, algorithms and the wish to control CHRISTIANE DRUML	41
Artificial Intelligence: challenges and ethical issues ARLINDO OLIVEIRA	47
New horizon on robotics: ethics challenges ANTÓNIO BRANDÃO MONIZ	57
How are biotechnologies shaping society? HALLAM STEVENS	69
Scientific research and social responsibility PEARL DYKSTRA	83
2. From Science to Society – <i>strengthening citizenship</i>	93
Science, ethics and science communication CARLOS FIOLHAIS and DAVID MARÇAL	97
From science to society: strengthening scientific citizenship CARLOS CATALÃO ALVES	107

3. Ethics of Science and Technology – <i>enhancing dialogue</i>	125
Science and technology shaping the future: challenges and responsibilities RODRIGO MARTINS and ELVIRA FORTUNATO	129
Respect and protection, the community of researchers, and the good of humanity STEFANO SEMPLICI	145
4. Public Policies – <i>fostering scientific progress and social development</i>	159
The European Commission's research ethics and research integrity policies JOHANNES KLUMPERS	163
The knowledge society as Europe's answer to globalisation MARIA HELENA NAZARÉ	173
Are we prepared for the speed of the future? ANA COSTA FREITAS	185
5. Challenges for BioPolitics – <i>towards a declaration on BioPolitics</i>	191
Ethics in and for BioPolitics CHRISTIANE WOOPEN	195
The impact of (bio)ethics on public policies GÖRAN HERMERÉN	205

Foreword

Ethics, Science and Society: Challenges for BioPolitics is an international project of academic research, scientific dissemination, and social and political responsibility, sponsored by the Luso-American Development Foundation. Its main objective is to stress the importance of this triptych-style approach – ethics, science, society – to address some of the current and major challenges facing humanity. The balance we achieve today between these three realities strongly defines our present and will have a decisive impact upon our common future: scientific progress shapes our modern societies which, from an ethical perspective, should always be acknowledged as being the ultimate goal for science and one which, by contributing to a common good, corroborates its ethical dimension.

Therefore, we wanted to highlight some of the most groundbreaking developments in scientific knowledge and technological innovation, also identifying major trends and upcoming advances. We focus first on life sciences and biotechnologies, mostly in genetics, as one of the most innovative fields for more than a half century; and proceed to computer sciences and digital technologies, highlighting the importance of Artificial Intelligence and robotics as today's most important areas of impact.

We also wanted to outline the impact of scientific and technological advances in shaping societies, both at the structural level – drawn by the network of institutions that organize our collective lives – and at the personal level – through the relationships fostered by individuals. Pursuing this path, from science to society, facilitates strengthening citizenship, and guarantees the ethical nature of these advances, so that they acknowledge humankind as the ultimate beneficiary of scientific achievements, whilst fostering a wider participation in the decision-making process.

This requires us to enhance the dialogue between scientists and ethicists, under a mutual recognition that both groups are working towards a common good. It is the outcome of this joint endeavour, and one in which citizen participation should be particularly encouraged, which should determine public policies that truly promote both scientific progress and social development.

The equilibrium reached between ethical concerns, scientific advances and societal well-being could be enshrined in a consensual and minimalist document, with a global reach, to help politicians and law makers in their decisions relating to scientific

policies. The opportunity to promote a Declaration on BioPolitics, to elaborate ethical guidelines for the worldwide management of the new powers, largely represented by the advancements in life sciences, was conveyed as a most desirable outcome. Some major considerations are elaborated around this issue, and stand as core concerns to be acknowledged. But it has not been considered advisable to proceed immediately, in a very short period of time and without a wider representation, to the formal proposal of a Declaration of BioPolitics.

This project, *Ethics, Science and Society: Challenges for BioPolitics*, also organized two international Symposia (Ponta Delgada, 2017, and Lisbon, 2018), which presented high level lectures – and these are now available to a wider public audience. They combine the deepening awareness of the impact of scientific and technological advancements in current and future societies, and stress the need for ethics to manage these new powers on behalf of humankind.

Maria do Céu Patrão Neves

(BIO)ETHICS, SCIENCE AND SOCIETY:
CHALLENGES FOR BIOPOLITICS

COORDINATOR: Maria do Céu Patrão Neves

PROOF-READING: Jayne Wilkinson
DESIGN: Magda M. Coelho
PRINTER: Rainho & Neves

TEXT @ Maria do Céu Patrão Neves and authors, 2019

FIRST EDITION, JUNE 2019
ISBN: 978-989-8950-14-7
DEPÓSITO LEGAL: 457071/19

A Glaciar production to
Fundação Luso-Americana para o Desenvolvimento

fundação
LUSO-AMERICANA
PARA O DESENVOLVIMENTO

Rua Sacramento à Lapa, 21
1249-090 Lisboa
Portugal
Tel.: (+351) 213 935 800
Fax.: (+351) 213 963 358
www.flad.pt

www.glaciar.com.pt | glaciar@glaciar.com.pt