

# 3TU Center for Ethics and Technology

Joint Center of the three Dutch Universities of Technology

Business plan for the period 2007-2011

Date: October 2006

## 1 Mission of the Center

The Center aims at bringing together the expertise of the three philosophy departments of the three technical universities in the Netherlands (Delft, Eindhoven, Twente) in the field of ethics of science, technology and engineering. The Center has the ambition to build upon the excellent international reputation of the three technical universities in this field. The joint venture of the three groups will allow for close collaboration in research as well as teaching, outreach and contract research in both the private and public sector. The participating universities will be represented on an equal basis in the Center.

More specifically the mission of the Center is:

- To stimulate and undertake interdisciplinary and applied research in the field of ethics and technology;
- To stimulate and undertake fundamental research in ethics relevant for the field of ethics and technology;
- To stimulate and undertake activities in the field of teaching in ethics and technology;
- To act as an intermediary between the philosophy departments involved in the Center on the one hand and public debates and the media on the other.

## 2 Motivation

Science and technology are of paramount social, political and economic importance in the 21<sup>st</sup> century. They are not only drivers of economic and social developments; they shape our societies, practices and institutions. In order to come to grips with science and technology and to make adequate and appropriate political and policy decisions regarding them, we need to reflect on the ethical aspects of their development, the moral acceptability of their application, and their contribution to the quality of life and well-being. It is now widely recognized that technologies must be developed and used responsibly, as many choices are involved with major implications for health and safety, environmental quality, civil liberties, social justice, and the quality of life.

It is relatively easy to embark on unfettered technological development. Many of the Asian new economies do so, but it is much harder to incorporate our considered moral values in research, design, development and production. Nevertheless the ability and knowledge to do so may be an important differentiator between mere clever technology and engineering and smart and responsible innovations. It is fitting for the three technical universities of the Netherlands, who are at the forefront of these developments internationally, to take up this responsibility by investing in research in the field of ethics of technology.

Education is important as well. Engineers and scientists are often confronted with ethical questions in their professional life. The knowledge and the technology they produce directly influence the well-being of individuals. This raises serious questions with regard to the responsibility, accountability and liability of engineers. The education of engineers

should prepare them thoroughly and systematically for dealing with such ethical questions. This is reflected in the American ABET criteria for engineering curricula, as well as in the 3TU criteria for academic bachelor and master curricula.

The bundling of forces in the field of ethics and technology in this joint Center accommodates the increasing need for balanced and high quality and comprehensive reflection and judgment on moral, political and policy issues associated with science and technology.

### 3 Research

The research programs of the three participating departments of philosophy are all focused on research in the philosophy of science, technology and engineering and are recognized in the field as internationally leading programs. The research evaluation organized by the Association of Dutch Universities (VSNU) over the period 2001-2005 has confirmed the international excellence in research of the three groups. Moreover the research evaluation committee acknowledged that the philosophy of technology is one of the very few topics in philosophy in which The Netherlands holds a unique and leading position in the world. The research proposed here builds on existing strengths of the three departments, and proposes new directions as well.

#### 3.1 General characterization

The Center will study ethical issues in the development, use and regulation of technology. Some of the central questions of the research program are: how can we see to it that new emerging and converging technologies, smart artifacts, next generation infrastructures, information systems and architectures express our considered moral judgments and widely endorsed public values? How can we make sure that they inherit our good intentions? How can we assess our technology in the light of a set of public moral values; e.g. sustainability, user autonomy, safety, privacy, accountability, transparency and democracy, quality of life? How can public values be accommodated in the design process? What role should public actors play in decision making about technological risks in the design process? And how do we take into account that our norms and values are affected themselves by technological development?

An important notion will be that of *value-sensitive design*. This is an approach to the study of ethics and technology that assumes that the outcome of design processes is not neutral but ethically laden and that morally relevant considerations inform the shaping of the world of artifacts. A value-sensitive design approach situates moral questions early on in the process of design, development of technologies, systems and research. It proposes rational procedures for designing artifacts under the guidance of moral values.

The Netherlands Organization for Scientific Research (NWO/STW) model of ethical parallel research in which ethical investigations are closely connected to programs of technological development is a source of inspiration for the Center. A main aim of the ethical parallel research is to uncover the ethical issues potentially raised by new technological developments. Such results will also be fed back to the technological researchers involved, for example by workshops and seminars. The philosophy departments participating in the Center have gathered ample experience in carrying out such research during the last few years. In the coming years, special attention will be given to technologies developed at the five other centers of excellence of the three collaborating technical universities, i.e. nanotechnology, sustainable energy, information and communication technology (ICT), high tech systems and fluid and solid mechanics.

## **Examples of ethical parallel research projects currently carried out at the 3TU Ethics Centre**

### *Normative implications of non-invasive instruments to analyze blood and tissue*

This research project aims at answering two questions: 1) What are the moral and social consequences of non-invasive measurement in human blood and tissue? 2) How can the awareness of the moral aspects of engineering design be enlarged, maintained and institutionalized?

### *Ethical aspects of the upscaling of an innovative wastewater treatment technology*

This project aimed at answering the question: How can research choices regarding the transition from a lab-scale model to a full-size open biotechnological process plant be improved with regard to the acceptability of the risks and hazards resulting from the uncertainties and incompleteness of knowledge about the process to be upscaled?

### *Medical Images in the Health Care Process*

Who should have access to enhanced medical images and their quantitative interpretations, why, where and when, on which conditions, and with which responsibilities? The research-project has two deliverables: (i) a proposal for an ethically sound information architecture, and (ii) a methodological characterisation of how in general ethically sound information architectures should be developed.

## **3.2 Specific themes and research questions**

Research will focus on three areas:

### **Moral issues in engineering design and R&D**

One of the key questions here is: In what ways are (moral) values embedded in engineering design and in R&D and how can design and R&D (both processes and outcomes) be made more accommodating and sensitive with regard to accepted moral values? This raises the further question which methodologies and institutional safeguards exist or can be developed for value-sensitive design and R&D.

An important focus will be on technological risks. One of the issues here is how risks, e.g. regarding health and safety, are dealt with in engineering design and R&D. Relevant questions are: How could technological risks be better addressed from a moral point of view? When are they (morally) acceptable? How could technological risks best be regulated?

A second issue concerns conflicting values in engineering design and in R&D. Engineers are usually confronted with a multiplicity of values, which are in turn translated into design requirements or design criteria. These multiple values often conflict, and trade-offs have to be made among the different values. Proposals will be developed for better procedures of dealing with conflicting values in engineering.

A third issue is the distribution of moral responsibilities for potential societal consequences of technology. Design and R&D projects increasingly take place in networks, which involve different kinds of actors. These networks often lack a strict hierarchy and a clear task division, and in these networks decisions are subject to negotiation. This increases the likelihood of the problem of many hands, which is the

difficulty to identify, even in principle, the person responsible for some outcome, if a large number of people is involved in an activity. Research will aim at developing a notion of moral responsibility and at the designs of network structures that help to overcome the problem of many hands in design and R&D networks.

### **Moral issues in the use and regulation of technology**

This theme focuses on ethical issues regarding the use of technology and regarding technology policy and regulation. Once developed, technical artifacts and systems are used by consumers, professionals and organizations to a variety of ends and in a variety of settings. Such uses may violate ethical standards. For example, the use of computer systems to access personal data may violate standards of privacy, and the use of engineered tissues to replace healthy tissues may violate principles of non-maleficence. The aim of this research theme is to analyze and propose morally adequate standards and principles for the use of particular technologies. It will also be studied how particular uses of technologies cohere with, or emerge, from cultural and institutional values and beliefs. The focus will be on new and emerging technologies.

The regulation of technology will be studied within this theme. Regulation relates to technology development, technology transfer and technology use. It will be studied which technology policies and laws ought to be adopted in order to implement accepted moral standards for the development of specific technologies and for their uses. Also procedures with respect to collective decision-making about technology will be studied as part of this theme, and it will be studied how uncertainties created by new and emerging technologies can be dealt with.

As part of this theme, public debates about moral issues in technology will also be analyzed. What arguments are put forward in these debates? How can arguments be reconstructed philosophically? How can public debates be improved? It will also be considered how public perceptions and debates play a role in regulation and how they should be accounted for in policy.

### **Values in engineering and society**

This research theme focuses on foundational research, including research on central concepts like values, rationality and moral knowledge, foundational research on how to ground values, and research on shifts in societal values resulting from technological change. Its aim is to provide tools for the two more practice-oriented research themes described above. A range of more concrete topics will be investigated in this theme.

## **3.3 Research initiatives**

### **Ethical parallel research with the technical centers of excellence**

The aim is to fund six (PhD or postdoc) research projects, two at each participating institution. Each project will be carried out in close collaboration with one of the five technical centers of excellence:

- High tech systems
- Sustainable energy
- NIRICT – CeDAS: Netherlands Institute for Research on ICT; Center for Design, Analysis and Synthesis of Dependable Systems
- Fluid & Solid mechanics
- BioNanoApplications

We aim at ethical parallel research with at least four of these five centers of excellence. The following table shows the areas of competence of the three philosophy departments:

Area	Center of Excellence	Universiteit Twente	TU Eindhoven	TU Delft
High tech systems	High tech systems	•	•	
Sustainable energy	Sustainable energy		•	•
ICT	NIRICT – CeDAS	•		•
Fluid & Solid mechanics	Fluid & Solid mechanics			
Nanotechnology	BioNanoApplications	•	•	•

### Examples of possible research projects

#### *The development of ethical-technical scenarios for bionanotechnology*

The goal of this research is to improve the anticipation of possible moral controversies around new technologies like applications of bionanotechnology in the medical domain. A method for the development of scenarios of the future, which takes into account the interaction between technology and morality, will be developed and be applied to development in bionanotechnology.

#### *RFID*

Radio Frequency Identity Chips and smart tags of objects will be widely used in the near future. Because of the submicron scale of chip production the RFID's of the future will be practically invisible. This is expected to have serious implications for privacy and data protection. The EU is already preparing for a next generation of data protection which explicitly addresses the availability of large amounts of additional data which can be associated with individuals.

Each philosophy department is responsible for formulating at least two PhD or postdoc projects to be funded by the Center. The aim is to get matching funding for the projects from the five centers of excellence. Another funding option that will be used is submission of research proposals to Netherlands Organization for Scientific Research (NWO) or European Framework Programs on the basis of the projects, preferably in cooperation with the other centers of excellence.

Ethical parallel research will also have to contribute to the general, thematic research agenda. Therefore proposals of ethical parallel research have to be linked to the research themes and questions mentioned in section 3.2. Apart from that, initiatives will be taken to develop a general methodology for ethical parallel research.

Although the philosophy departments are primarily responsible for carrying out the project, including supervision and quality control, each project will first have to be approved by the management team of the Center before funding becomes available. The management team will review the proposals, paying attention to the following aspects:

- The quality of the proposal
- A check whether the proposal indeed is carried out in close collaboration with one of the five other centers of excellence. Considerations with respect to the spreading of the proposals over the five mentioned engineering areas may also play a role here.
- A check whether the proposal is connected with one or more of the general research themes mentioned in section 3.2.

The aim is to start at least three projects in the beginning of 2007 (one at each institution) and the others in the course of 2007. The PhD students will follow a common training trajectory (see heading PhD program).

### **Basic research projects**

Apart from six ethical parallel research projects, the Center will fund three research projects based on the themes mentioned in section 3.2, preferably one for each of the themes. At each of the institutions, one project will be carried out. The procedure for approval of these projects by the management team is similar to that for the ethical parallel research projects.

Since the funding of these projects will depend on the acquisition of additional funds, for example through matching of the ethical parallel research projects, the aim is to start with these projects in the course of 2008.

### **Work groups**

Work groups will be established for the following themes:

- High tech systems
- Sustainable energy
- ICT
- Nanotechnology
- Theory and methods of ethical parallel research and value-sensitive design

The work groups will consist of researchers of the three participating organizations that are interested in that particular theme, including PhD students. Each group will meet at least twice a year and appoint a coordinator who is responsible for the activities of the thematic group and reports to the management team of the Center. The aim of the work groups is to:

- deepen the understanding of the ethical aspects of the particular theme or engineering area;
- further develop (common) methodology, approaches and theories;
- contribute to the PhD training program;
- organize meetings, seminars, workshops, conferences etc, also with the technological researchers in the particular area and ethical experts from the Netherlands and elsewhere; and
- write common research proposals for NWO and European research programs.

### **International workshop or conference**

The Center will organize an international workshop or conference once every two years, i.e. three times during the first five years. Preferably, such a workshop or conference would be organized by representatives of all three participating philosophy departments and focus on a common theme that is central to the research program.

### **Subsidy for research meetings**

The Center will make available limited funds for initiatives for other research-related activities like the organization of workshops. Members of the Center can apply for funds for such activities. The management team of the Center will decide about which activities are funded.

## 4 PhD program

The Center aims at a joint PhD program in “Ethics and Technology” in cooperation with internationally esteemed research groups. To this end, contacts have already been established with large centers of applied ethics in science and technology in the world (University of Virginia, Australian National University, Oxford University, Royal Institute of Technology in Stockholm) to explore possibilities for such a PhD program and for staff and student mobility.

The PhD program will train the PhD students of the participating institutes and aims at an additional influx of five international PhD students each year. Selection of the participating PhD students will take place on basis of quality criteria and motivation. The PhD program will consist of three elements:

- Course work
- Stay at one of the participating international partners
- PhD graduation at one of the three technical universities in the Netherlands.

The PhD students will be awarded a master degree after completion of the course work. To this end, we aim at establishing a research master track within the existing master ‘Philosophy of Science Technology and Society’ of the University of Twente, in addition to the already existing tracks ‘Philosophy of technology’ and ‘Science and technology studies’.

Each PhD student will have two supervisors, one at one of the international partner institutes and one at one of the three participating Dutch universities. The ‘promotor’ is one of the professors of the three philosophy departments in the Netherlands.

A subsidy proposal (450 k€) for the establishment and start phase of such a master and PhD program has been submitted to the Ministry of Education as part of a larger subsidy proposal for the Campus The Hague that is supported by the municipality of The Hague. If the subsidy is awarded, the course work for the research master track of the PhD program will be located at the Campus the Hague.

A coordinator for the PhD Program and the research master will be appointed. This coordinator will be responsible for setting up the PhD program and will draft a business plan for the PhD program and annual working plans. The business plan and annual working plans have to be approved by the management team of the Center. The coordinator will further develop the research master track under the responsibility of the educational director of the existing master program ‘Philosophy of Science Technology and Society’. In 2010, the PhD program will be evaluated.

The aim is to make a start with the PhD program in the fall of 2007 with the PhD students that will be appointed as part of the establishment of the Center (see section 3.3). These students will be offered a pilot version of the course work.

## 5 Outreach and International Collaboration

The Center aims at strong interaction with technical centers and institutes, specifically those of the three technical universities, with technical research organizations, industry, with Dutch ministries and government organizations, as well as with professional organizations like KIVI-NIRIA. The Center will engage in regular joint initiatives with research groups and centers in engineering.

The Center expects to apply for funding in the Netherlands with the Netherlands Organization for Scientific Research (NWO), especially with new programs which have a strong or exclusive focus on ethics and technology (“Maatschappelijk Verantwoord Innoveren” and “Ethiek en beleid” and the program for parallel ethical research with STW). The Center will also form strategic alliances with the Rathenau Institute and with Dutch ministries. In the European context, FP7 will be the main goal of the Center.

In the international context the Center will team up with other centers of excellence in the world, with which close ties of collaboration already exist. The Center will cooperate in particular with:

- Center for Applied Philosophy and Public Ethics at Australian National University (Australia);
- the Institute for Environment, Philosophy and Public Policy at Lancaster University (UK);
- the Nanoscience and Technology Studies Consortium at the University of South Carolina (USA);
- the Engineering Ethics groups at the University of Virginia (USA);
- the Royal Institute of Technology in Stockholm (Sweden);
- the Uehiro Center for Applied Philosophy at the University of Oxford (UK);
- Centre for Environmental Law Decisions and Corporate Ethical Certification, University of Padua (Italy).

## 6 Organization of the Center

During the first three years, the Center will be hosted by the philosophy department of the School of Technology, Policy and Management at Delft University of Technology. Unless the parties involved decide otherwise, the second period of three years it will be hosted by the philosophy department at Twente University and the third period by the philosophy department of Eindhoven University of Technology.

### 6.1 Membership

Membership is open to:

- Staff members of the three philosophy departments of Twente, Eindhoven and Delft who are doing research in the field of ethics of technology and have at least published an average of two publications in the field of ethics of technology per year in peer-reviewed journals over the last three years or the equivalent of that.
- PhD students and postdocs of the three philosophy departments of Twente, Eindhoven and Delft who are doing research in the field of ethics of technology
- The heads of the three involved philosophy departments.

Researchers from other institutes and researchers in neighboring research areas can become associate member. In particular we think of:

- Technological researchers associated with one of the five other centers of excellence of the three technical universities and interests or involved in particular ethical parallel research projects
- Other ethicists of technology from the Netherlands or abroad
- Researchers in neighboring research areas such as Science and Technology Studies (STS) that are directly relevant for the research of the Center

Associate members can participate in the activities of the Center, such as the meetings of the thematic research groups.

The management team of the Center decides about membership and associate membership.

## 6.2 Governance model

The governance model of the Center will follow the general guidelines for the governance of the 3TU centers. This implies:

- Each of the participating institutes retains its autonomy and no significant authorities will be transferred to the Center.
- Each of the participating institutes remains responsible for its own finance
- No additional management levels

In line with the guidelines, each participating philosophy department remains responsible for its personnel and quality policy. In principle, there will be no common research visitation of the Center. All personnel will be employed by the participating institutes; no personnel will be transferred to the Center. The Center has the authority to decide who is member of the Center. The appointment of the new PhD students is the responsibility of the participating institutions, although the Center will review the proposals for the PhD projects and the PhD students to be appointed (see also section 3.3). The yearly personnel assessment ('functioneringsgesprekken') will be the responsibility of the participating institutes. The Center may give input for the assessment talks; the assessment itself, however, remains the responsibility of the participating institutes.

In line with the general governance structure for the 3TU Centers, the Center will have a board, and advisory board and a management team, including the scientific director and the managing director (see figure).

The **board** consists of the deans of the participating faculties. The board will meet once a year and discuss and approve the annual report, the annual budget and the annual plan of the Center. The annual budget and the annual plan will be sent to the IST board for advice and be approved by the 'voorzittersoverleg' of the 3TU federation.

The board will appoint an **advisory board** for the Center, with a broad and international composition, i.e. high level representatives from the international corporate world (e.g. Shell, Philips, Akzo Nobel), government, politics and science.

The **management team** consists of the scientific director, the three heads of the philosophy departments and representatives of the three participating philosophy departments, one of them being the managing director. The management team will meet once every two months. All major decisions with respect to the Center will be made by the management team and will have to fit into the plans approved by the board of the Center. Decisions are preferably made unanimously. The scientific director will chair the meetings of the management team. The meetings of the management team are prepared by the scientific director and the managing director.

The **scientific director** is appointed by the IST board and is accountable to the board of the Center and the IST board. The scientific director is responsible for the quality and productivity of the research carried out by the Center, for the planning of activities, for

meeting the targets set in this document and the annual report and represents the Center externally.

The **managing director** is appointed by the scientific director and is accountable to the scientific director. The managing director is responsible for the day-to-day management of the Center and for the execution of the plans made. In consultation with the scientific director, the managing director writes the annual plan and the annual reports. The managing director is responsible for the financial management of the Center. The managing director is supported by a secretary.

The function of scientific director and managing director cannot be combined by one person. The management team should have at least two representatives from each university.

### 6.3 Funding and finance

For the start-up phase of five years 1500 k€ of funding from the three technical universities is available. In addition we aim at least 600 k€ of additional funds to be acquired by matching and projects subsidies from the Netherlands Organization for Scientific Research (NWO), European Framework Programs, et cetera. After the start up phase, the Center is expected to generate its own funding.

The aim is to fairly distribute additional research funds over the three participating philosophy departments.

The budget will be spent as follows:

Funding of six ethical parallel research projects (2 for each of the 3 philosophy departments): 6 * 185 keuro	1.110
Funding of three thematic research projects (one at each of the 3 philosophy departments): 3 * 185 keuro	555
Funding of the scientific and managing director in total 0,4 fte for 5 years	140
Organizational support director 0,4 fte for 5 years	100
Staff exchange	45
Meetings and other activities thematic groups	50
International workshop or conference 3 * 7500 euro	23
Annual research day 5 * 1000 euro	5
Subsidies for activities	17
Website (design and maintenance)	15
Publications	20
Operational budget (meetings management team, travel)	20
<b>Total</b>	<b>2.100</b>

In the appendix, the budget is split up per year, per institution and per source.

The managing director is responsible for the financial management of the Center. The managing director will draft an annual financial report that has to be approved by the management team and the board.

The institute employing the scientific and managing director will receive annually 28 k€ as compensation for the salary costs of the scientific and the managing director and 20 k€ as compensation for the organizational support for the managing director.

The money for the PhD students and postdocs will be transferred to the participating institutes after the project proposals have been approved by the management team. The money will be paid in annual tranches. The institute employing the PhD student or postdoc is responsible for a brief annual report reporting the progress made. This annual report is to be approved by the management team. The tranche for the next year will not be paid to the institute until the annual report is approved.

The premiums that the participating institutions receive for the PhD students financed by the Center will be refunded to the Center and be used for the funding of future activities of the Center.

All other expenses will be paid on a declaration basis. Financial decisions and payments can only be made by the managing director. If the management director is unable to act, the scientific director replaces him during this period. Expenses above 5000 Euros first have to be approved by the management team.

The way the funding from the three technical universities is transferred to the Center has not been decided upon yet. It is the preference of the Center that the funding is each year transferred to the philosophy department hosting the Center from where it is distributed over the participants according to the budget.

#### **6.4 Launch of the Center**

The launch of the Center is scheduled for January 2007. A launching activity will be organized for all members participating in the Center. During the launch, the website and a booklet about the activities of the Center will be presented. In the summer of 2007, a first international conference will be organized to present the Center internationally.

## Appendix: budget

### 3 TU Centre for Ethics and Technology (all amounts in keuro)

<b>Benefits</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Total</b>
1e geldstroom	300	300	300	300	300	1500
2e en 3e geldstroom	30	142,5	142,5	142,5	142,5	600
<b>Total</b>	<b>330</b>	<b>442,5</b>	<b>442,5</b>	<b>442,5</b>	<b>442,5</b>	<b>2100</b>
<b>Costs</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Total</b>
1e geldstroom						
Ethical parallel research projects (2 at each university)*	208,125	277,5	277,5	277,5	69,375	1110
Scientific director 0,1 fte	7	7	7	7	7	35
Managing director 0,3 ft	21	21	21	21	21	105
Organizational support 0,4 fte	20	20	20	20	20	100
Thematic groups	10	10	10	10	10	50
International workshop or conference	7,5		7,5		8	23
Annual research day	1	1	1	1	1	5
Subsidies for activities	3,4	3,4	3,4	3,4	3,4	17
Website (design)	11	1	1	1	1	15
Publications	4	4	4	4	4	20
Operational budget	4	4	4	4	4	20
<i>Total 1e geldstroom</i>	<i>297,025</i>	<i>348,9</i>	<i>356,4</i>	<i>348,9</i>	<i>148,775</i>	<i>1500</i>
2e en 3e geldstroom						
Three thematic research projects (one at each university)		138,75	138,75	138,75	138,75	555
Staff exchange	9	9	9	9	9	45
<i>Total 2e en 3e geldstroom</i>	<i>9</i>	<i>147,75</i>	<i>147,75</i>	<i>147,75</i>	<i>147,75</i>	<i>600</i>
<b>Total costs</b>	<b>306,025</b>	<b>496,65</b>	<b>504,15</b>	<b>496,65</b>	<b>296,525</b>	<b>2100</b>
Balance	23,975	-54,15	-61,65	-54,15	145,975	0

\* three projects start in January 2007 and three in July 2007

### 3 TU Centre for Ethics and Technology: TU Delft

<b>Benefits</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Total</b>
1e geldstroom	100	100	100	100	100	500
2e en 3e geldstroom	10	47,5	47,5	47,5	47,5	200
<b>Total</b>	<b>110</b>	<b>147,5</b>	<b>147,5</b>	<b>147,5</b>	<b>147,5</b>	<b>700</b>
<b>Costs</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Total</b>
1e geldstroom						
Ethical parallel research projects (2 at each university)	69,375	92,5	92,5	92,5	23,125	370
Scientific director 0,1 fte	7	7	7			21
Managing director 0,3 ft	21	21	21			63
Organizational support 0,4 fte	20	20	20			60
Thematic groups	10	10	10			30
International workshop or conference	7,5		7,5			15
Annual research day	1	1	1			3
Subsidies for activities	3,4	3,4	3,4			10,2
Website (design)	11	1	1			13
Publications	4	4	4			12
Operational budget	4	4	4			12
<i>Total 1e geldstroom</i>	<i>158,275</i>	<i>163,9</i>	<i>171,4</i>	<i>92,5</i>	<i>23,125</i>	<i>609,2</i>
2e en 3e geldstroom						
Three thematic research projects (one at each university)		46,25	46,25	46,25	46,25	185
Staff exchange	3	3	3	3	3	15
<i>Total 2e en 3e geldstroom</i>	<i>3</i>	<i>49,25</i>	<i>49,25</i>	<i>49,25</i>	<i>49,25</i>	<i>200</i>
<b>Total costs</b>	<b>161,275</b>	<b>213,15</b>	<b>220,65</b>	<b>141,75</b>	<b>72,375</b>	<b>809,2</b>
Balance	-51,275	-65,65	-73,15	5,75	75,125	-109,2

NB The balance amounts have to be compensated between the universities so that each university has a total balance of 0

### 3 TU Centre for Ethics and Technology: UT

<b>Benefits</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Total</b>
1e geldstroom	100	100	100	100	100	500
2e en 3e geldstroom	10	47,5	47,5	47,5	47,5	200
<b>Total</b>	<b>110</b>	<b>147,5</b>	<b>147,5</b>	<b>147,5</b>	<b>147,5</b>	<b>700</b>
<b>Costs</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Total</b>
1e geldstroom						
Ethical parallel research projects (2 at each university)	69,375	92,5	92,5	92,5	23,125	370
Scientific director 0,1 fte				7	7	14
Managing director 0,3 ft				21	21	42
Organizational support 0,4 fte				20	20	40
Thematic groups				10	10	20
International workshop or conference					8	8
Annual research day				1	1	2
Subsidies for activities				3,4	3,4	6,8
Website (design)				1	1	2
Publications				4	4	8
Operational budget				4	4	8
<b>Total 1e geldstroom</b>	<b>69,375</b>	<b>92,5</b>	<b>92,5</b>	<b>163,9</b>	<b>102,525</b>	<b>520,8</b>
2e en 3e geldstroom						
Three thematic research projects (one at each university)		46,25	46,25	46,25	46,25	185
Staff exchange	3	3	3	3	3	15
<b>Total 2e en 3e geldstroom</b>	<b>3</b>	<b>49,25</b>	<b>49,25</b>	<b>49,25</b>	<b>49,25</b>	<b>200</b>
<b>Total costs</b>	<b>72,375</b>	<b>141,75</b>	<b>141,75</b>	<b>213,15</b>	<b>151,775</b>	<b>720,8</b>
Balance	37,625	5,75	5,75	-65,65	-4,275	-20,8

NB The balance amounts have to be compensated between the universities so that each university has a total balance of 0

### 3 TU Centre for Ethics and Technology: TU Eindhoven

<b>Benefits</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Total</b>
1e geldstroom	100	100	100	100	100	500
2e en 3e geldstroom	10	47,5	47,5	47,5	47,5	200
<b>Total</b>	<b>110</b>	<b>147,5</b>	<b>147,5</b>	<b>147,5</b>	<b>147,5</b>	<b>700</b>
<b>Lasten</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Total</b>
1e geldstroom						
Ethical parallel research projects (2 at each university)	69,375	92,5	92,5	92,5	23,125	370
Scientific director 0,1 fte						0
Managing director 0,3 ft						0
Organizational support 0,4 fte						0
Thematic groups						0
International workshop or conference						0
Annual research day						0
Subsidies for activities						0
Website (design)						0
Publications						0
Operational budget						0
<i>Totaa 1e geldstroom</i>	<i>69,375</i>	<i>92,5</i>	<i>92,5</i>	<i>92,5</i>	<i>23,125</i>	<i>370</i>
2e en 3e geldstroom						
Three thematic research projects (one at each university)		46,25	46,25	46,25	46,25	185
Staff exchange	3	3	3	3	3	15
<i>Total 2e en 3e geldstroom</i>	<i>3</i>	<i>49,25</i>	<i>49,25</i>	<i>49,25</i>	<i>49,25</i>	<i>200</i>
<b>Total costs</b>	<b>72,375</b>	<b>141,75</b>	<b>141,75</b>	<b>141,75</b>	<b>72,375</b>	<b>570</b>
Balance	37,625	5,75	5,75	5,75	75,125	130

NB The balance amounts have to be compensated between the universities so that each university has a total balance of 0