De maatschappelijke component van het genomics-onderzoek

AANVRAAGFORMULIER PROJECTSUBSIDIE

N.B. Raadpleeg de toelichting bij dit formulier Dossiernummer: VMCG-A02-07

1. Aanvrager

Naam: dr. J.A. Harbers

Functie: Associate Professor in Philosophy of Science, Technology and Society
Faculteit: Philosophy
Vakgroep: Practical Philosophy
Universiteit: Groningen University *Telefoon:* [31] 50 3636155 / 6161

Adres: A-Weg 30 *Fax:* [31] 50 3636160
Postcode: 9718 CW *E-mail:* j.a.harbers@philos.rug.nl
Plaats: Groningen

2. Titel van het onderzoek

GENE-TIME
Genomics and the Construction of Time

3. Institutionele omgeving

- Practical Philosophy, Dep. of Philosophy, Groningen University
- Netherlands Graduate School of Science, Technology and Modern Culture (WTMC)
- Groningen Genomics, Society and Philosophy (GESP), working group of Groningen Genomics Centre (GGC), Groningen University

4. Samenvatting van de probleem- en doelstelling

This project aims at an historical, theoretical and partly futuristic analysis of the relation between genomics and time. What are the possible implications of genomics – as scientific theory and as technological practice – for our (more or less theoretical) conception of time and for practical time-regimes? And what might be the cultural and normative effects of such changes in time concepts and –regimes on individual level (self-image, autonomy, responsibility) and on societal level (institutional distributions of tasks and responsibilities)?

5. Groep betrokken bij uitvoering van het onderzoek

	Naam en titels	*Afstudeerrichting/ specialisatie*	*Instelling*
Medeaanvrager(s)	a.		
Uitvoerder(s)	b. dr. J.A. Harbers	Philosophy of STS	Philosophy Univ. Groningen
	NN AIO	Philosophy / Social Theory	Philosophy Univ. Groningen

Anderen	c. prof. dr. H. Achterhuis	Philosophy of Technology	Philosophy Univ. Twente
	dr. D. Draaisma	History of Psychology and Time	Psychology Univ. Groningen
	dr. M. Huijer	Medical and Political Philosophy	Philosophy Univ. Groningen co-chair GESP
	prof.dr. M. Verkerk	Medical Ethics	Medicine Univ. Groningen chair GESP

6. Subsidie-periode

Totale subsidieduur: 4 years *Aanvangsdatum:* sept. 2002

7. Beoogde Resultaten

Presentations at national and international conferences, resulting into publications in national and international scientific journals, and essayistic contributions to public media. Dissertation by AIO.

8. Nadere uitwerking

a. Uitwerking van de probleem-, vraag- en doelstelling

The basic hypothesis of this researchproject is that developments in the field of genomics contribute to the 'compression of time' (see b.). For example, by investigating identities and lineages along genetic lines, the human genome diversity project transforms the link with our ancestors from a historical, time and place bounded cultural path into a compressed DNA-print. Thus, the past is moved to the present, mediated by technology instead of cultural traditions. The same holds for the use of genetic techniques in the field of law and jurisdiction. DNA fingerprinting avoids fading away crucial evidence; crimes of over a century old can be solved after all. The past is re-*present*-ed once more, devoid of disputable mediations like memory. Similarly, also the future is 'pulled' into the present by genetic knowledge and techniques. Predictive genetic tests, for example, translate possible future health problems into *present*-day dispositions. Such technologically instead of historically and culturally mediated displacements of both the past and the future into the present will inevitably have normative implications. Contextual responsibilities for choices and actions will progressively be stretched over time (and place). The dismissed legal case can be opened again, putting pressure on current limitation periods. And the just born baby, branded with a risk-rate for future diseases and disabilities, from the very beginning onwards is responsible for his/her medical career, on penalty of possible exclusion and denial (insurances, jobs, associations, etc.).

These examples indicate a shift, induced by genetic insights and practices, from a conception of time as *temporality* and *historicity* towards time as *simultaneity* and *contemporaneity*: past, present and future not taken as sequences on a straight line (linear time), neither as separated stages in a recurrent process (circular time), but past and future as being *folded into* the present. This new 'ontology of time' is on bad terms both with our common-sense way of speaking and with our (political and ethical) theories of (rational) action and (human) agency. Current thoughts about rationality, intentionality and choices are formulated within a temporal conception of time, *i.e.* a differentiation between past, present and future: ends are followed by means; action comes after the thinking; feedback mechanisms bringing us back to the starting point. The present actor learns from the past to improve future life. Meanwhile, decisions can only be made within the perspective of a more or less homogeneous 'lifeworld'. Past, present and future are reconnected in a coherent framework of meanings, reflecting our (necessarily limited) horizon of experience (*Erfahrungshorizont)*. Historicity and historical consciousness presuppose such a framework of meaning – individually and/or collectively. As soon as we switch from temporality to simultaneity, the heuristics of this framework seems to falter. Not only the past and the future 'collapse' into the present, undoing their differentiation, but this new unity of past, present and

future also exceeds our restricted context of experience. Gene-technological artefacts like DNA-prints or statistical databases embody information about long ago pasts and far away futures, relevant for the present, but beyond daily lifeworlds and frames of meaning – sometimes even beyond reasonable imagination. This ontological change, from differentiation and reconnection to compressed time-scales which exceed current lifeworlds, raises new questions – *e.g.*, how much do we want to know about the (who's?) future, and how long we want to be kept responsible for the (who's) past? Moreover, dealing with such questions might require new vocabularies and new institutional arrangements. What, for example, would be the consequences for legal discourse and for juridical practices of stretching the current limitation period? And how to deal, personally as well as institutionally, with genetically based predictions of the future?

In summary, this project aims at an historical, theoretical and partly futuristic analysis of such relations between genomics and time. What are the possible implications of genomics – as scientific theory and as technological practice – for our (more or less theoretical) conception of time and for practical time-regimes? How plausible in this context is the distinction between temporality and simultaneity? And what might be the cultural and normative effects of such transformations in time concepts and –regimes on individual level (self-image, autonomy, responsibility) and on societal level (institutional distributions of tasks and responsibilities)?

b. Wetenschappelijk en maatschappelijk belang van het onderzoeksvoorstel

Genomics might be compared with revolutionary scientific and technological innovations like printing technique, the steam engine, electricity, and, information- and communication technology. In all these cases developments in scientific knowledge and technology have deeply changed the order of society. Accordingly, science and technology are much more than simply neutral instruments by which human beings shape their personal and common life. Along with revolutionary innovations in science and technology human beings and their societies themselves are at stake, *i.e.* the very definitions of humanity and the good life. Science and technology not only improve the means, but also act upon the ends of action.

Within contemporary science and technology studies this basic idea is phrased as the *co-production* (also *co-evolution* or *co-construction*) of science, technology and society (see Harbers, in prep. and Bijker & Law 1992). Accordingly, two widespread, but misleading modes of thinking are avoided: technological determinism and humanistic voluntarism. Within the second framework man is, or at least should be the measure of all things; within the first one man is measured by technology. In contrast with both, the idea of co-production starts from the mutual dependency and reciprocal constitution of technology and society, of nature and culture.

The concept of co-production has far-reaching implications for the conceptualisation of ethical and social components of science and technology, *i.c.* genomics research. Those components not only show up during the implementation and application of scientific knowledge and technological artefacts, like traditional technology assessment asserts. On the contrary, new bodies of knowledge and new technological designs from the very beginning onwards incorporate new forms of social order – *i.e.* new practices, new patterns of action, new networks of human and nonhuman entities, of meanings, references and referees. Reflection upon ethical and social aspects of science and technology, *i.c.* genomics therefore requires an early anticipation of such possible new worlds – for example in terms of perceptions of nature and culture, definitions of health and disease, ideas about fate and free will and their consequences for the distribution of responsibilities and patterns of in- and exclusion.

In this project the notion of co-production will be used for an analysis of the impact of genomics on conceptions of time and practical time-regimes, i.e. the emergence of 'gene-time'. Thus, the project contributes to the philosophical, conceptual and empirical unravelling of our so-called 'technological culture', in itself a necessary condition for any realistic politics of technology, *i.c.* genomics.

Within social theory and philosophy modern societies, in which science and technology play an eminent role, are frequently conceptualised in terms of two axes of social co-ordination: ordering in time and in space. Giddens (1990), for example, speaks about 'time-space distanciation' (the disconnection of time and space) and Harvey (1989) about 'time-space compression' (the thickening of both time and space). In contemporary discussions about globalisation the space-component gets most attention: shortening of distances, increase in scale, separation of locality and geographical place, etc. Compared to this, the compression of time – on individual as well as

on social level – is theoretically and empirically underrepresented. This project will fill this gap by concentrating on that very time-axis.

Within the multidisciplinary (and rather fragmented) field of time-research and –theory it is generally accepted to speak about a "plurality of times" – social time, personal time, natural time, physical time, biological time, evolutionary time, etc. (see Adam 1990 and Nowotny 1994). These different time-perspectives, each generating their own logic and scale of time ('proper time' or *Eigenzeit*, to paraphrase relativity theory), cannot be reduced to one and the same definition of time, *e.g.* clock-time. On the contrary, these different time-regimes often are at odds with each other, and therefore have to be reconciled or co-ordinated, both on individual level (within a person's lifestyle and –trajectory) and on collective level (by cultural meanings and institutional regulations). Thus, 'timing' of actions and choices, one of the crucial mechanisms of social ordering, is not only a matter of one single time-scale, but also of tuning different time-scales and –regimes. This project aims to contribute to this problem of ordering by analysing the impact of genetic theory and technologies on the multiplicity of times: the co-ordination and mutual hierarchy of different time-perspectives.

This is the more relevant since genomics, compared to other scientific and technological developments, in itself seems to combine different time-conceptions and –regimes. Within (social) theories of time science and technology (in as far as considered at all – see Pronovost 1989) are either connected with modernism and clock-time (Newtonian physics, industrial society, machines and mechanisation, Taylorism – to mention only a few key-words) or with postmodernism and the speeding up or even implosion of time (focusing on 'the contemporary', 'the now', and 'the present' – a kind of 'momentism', facilitated by new communication technologies like internet, email, mobile telephone, etc.). Especially within environmentalism ('green thinking') both conceptions of time are challenged: the modernist's artificial, abstract and disciplining clock-time is opposed by natural time and the postmodernist's 'instantaneous time' by the *longue durée* of evolutionary or even glacial time. Remarkably enough, genomics, both as scientific theory and as technological practice, seems to induce a conception of time which combines elements of all the three: the modernist tendency towards linearity, causality and control (genetic engineering), the postmodernist love for here and now (folding past and future into the present), and the naturalist obeisance for the time of nature (evolution and the Book of life). Thus, genomics breaches the boundaries between nature, technology and culture, including their different and often incommensurable time-scales and –conceptions. This heterogeneity of gene-time will be analysed, including its implications for those ordering processes of timing and tuning. How the different aspects of gene-time go together and how to handle those aspects in practice?

c. Vernieuwend karakter van het onderzoeksvoorstel

Research about the social and ethical components of genomics mostly focuses on practical problems in specific contexts of application. Though this project will frequently make use of the results of those inquiries, it aims at a 'deeper', more abstract level: the consequences of genomics for time-orders and time-ordering. For that purpose three intellectual domains will be brought together: 1) theory and practice of genomics, 2) science and technology studies, and 3) philosophy, history and social theory of time. This is new for all the three of them and will require new and unconventional ways of theorising and researching – a few examples of which are available yet within the field of cultural studies (of time), *e.g.* Adam (1995).

d. Methodologie in relatie met onderzoeksopzet

The project will make use of a variety of research methods and techniques. First of all an extensive survey of relevant literature within the three main disciplinary sources of the project: genomics, STS, and time studies, with special focus on the implicit and explicit references to problems of time and time-orders in genomics literature and research projects. In line with this general survey, primarily on the academic level, more public representations of developments within genomics will be analysed on their assumptions about time and timing: from public debates, television programs and documentaries about genomics and genetic technologies up to science-fiction in literature and film (see also Van Dijck 1998). Part of the project will be extensive conversations with researchers in the core of the genomics field: what kind of time-

conceptions they presuppose in their research, how this relates to possibly conflicting time-scales of other relevant actors in future contexts of application, and how they imagine to solve such problems of tuning?

The general problem of the project will be specified and illustrated by focusing on particular research lines and contexts of application: such as 1) the Human Genome Diversity Project and the problem of genetic instead of cultural lineages, 2) the use of genetic technologies in law and the problem of juridical limitation, and 3) predictive, DNA-based medicine and the problem of the future as extended present. For this case studies extensive use will be made of secondary literature and research – national and international. Sometimes these studies themselves explicitly mention the problem of time and time-regimes, but mostly without further elaborating the issue (see for example Horstman et al. 1999). If necessary, more in-depth information and materials about these exemplary contexts for the problem of genomics and time will be acquired by interviews and conversations with relevant key-actors in the field, for example judges in the field of law or physicians and counsellors in the field of predictive medicine.

e. Multidisciplinaire samenwerking

As said (see c.), this project mainly brings together three different fields of research: genomics, STS, and time studies. With regard to genomics there will be support from and close contact with researchers in the 'hard core' of genetic research, organised in the Groningen Genomics Centre (GGC). For the second domain running contacts and close co-operation with members of the Dutch community of science and technology studies (organised in the Netherlands Graduate School of Science, Technology and Modern Culture – WTMC) will be further intensified, especially with the School's research group 'Genetics'. For the history and theory of time, a disciplinary rather unorganised domain, co-operation is sought and will be extended with individual experts in the field. Last but not least, the project is part of the research activities of the Groningen Genomics Ethics, Society and Philosophy (GESP) working group of GGC – an interdisciplinary staffed research group on the social and normative aspects of genomics (see http://www.genomics.rug.nl)
The AIO applied for will participate in the PhD School of WTMC.

f. Internationale positionering

Though the project is new and innovative, and therefore cannot lean on internationally established research programmes, organisations, and communities directly in line with the project's central problem, it will make amply use of the international network of Science, Technology and Society Studies, especially several subgroups working on social and ethical aspects of genomics, as well as the international community of time-researchers, however much diffuse and scattered, to a large extend included now in the increasingly organised field of cultural studies, and gathered around the journal *Time and Society*. Since the applicant is already deeply involved in the international STS-community (directly, and indirectly via the Netherlands Graduate School on Science, Technology and Modern Culture), new connections will be made with time-researchers abroad, either by personal visits or by participating in and possibly the organisation of an international conference on the subject of research.

g. Plaats in en belang voor het programma MCG

This project explicitly focuses on "the interaction between genomics and the foundations and ordering of society" (see call for proposals NWO-programme 'The Social Components of Genomics Research'). In this sense the project aims primarily at fundamental questions: the impact of genomics on time-conceptions and –regimes, crucial for social order and ordering. Though practical applications thus will not be the central target, reflections on the consequences of this time-ordering capacity of genomics for form and content of personal and collective action will be integral part of this project.

b. Communicatie en interactie onderzoek

Results of the project will be presented at national and international conferences and fora in different disciplinary fields: genomics, science and technology studies, social and cultural theory, and philosophy. Furthermore, regular contributions to more public oriented meetings, fora and media will be integral part of the project (see also a.). For further indications of the state of the art, see b.

REFERENCES

Adam, B. (1990), *Time and Social Theory*. Cambridge: Polity Press.
Adam, B. (1995), *Timewatch. The Social Analysis of Time*. Cambridge: Polity Press.
Bijker, W. & J. Law (eds.) (1992), *Shaping Technology / Building Society*. Cambridge Mass: MIT Press.
Dijck, J. van (1998), *Imagenation. Popular Images of Genetics*. Basingstoke & London: MacMillan Press.
Giddens, A. (1990), *The Consequences of Modernity*. Cambridge: Polity Press.
Harvey, D. (1989), *The Condition of Postmodernity*. Oxford: Blackwell.
Horstman, K. et al. (1999), *Gezondheidspolitiek in een risicocultuur*. Den Haag: Rathenau Instituut.
Pronovost, G. (1989), *The Sociology of Time*. In: *Current Sociology*, Vol. 37, nr. 3.

9. Werk-programma

a. Planning van het onderzoek

The project will start with an extensive survey of relevant literature (see 8-d), followed by a reconstruction of public representations of gene-time. Meanwhile the three field studies will be executed: law, HGDP, and predictive medicine – the last one more extensive than the other two, since this case study is the most complicated and interesting one. Each of these components of the project will result into contributions to national and international conferences and in publications – scientific and/or popular. In the last year of the project the AIO will finish his/her dissertation and the applicant will write one or more overarching and concluding articles concerning genomics and time.

b. Taakverdeling en verantwoordelijkheden binnen onderszoeksgroep

Since this project is engaged with and aimed at theoretically rather profound and relatively unelaborated questions and issues it will be executed in close co-operation between the AIO and the senior researcher (= applicant), the latter also supervising (as co-promoter) the AIO, and therefore responsible for the entire project. Within this setting of close co-operation, the senior researcher will concentrate on the exploration of general questions and issues, using the Human Genome Diversity Project as example, while the AIO will focus on the two other case studies: law (about folding past into present) and predictive medicine (folding future into present). The other members of the research group will be mobilised for regular advice, critique and comments on research plans and –results.

10. Financiële bijdragen uit andere bronnen

none

11. Curriculum vitae aanvrager

Personalia:

Naam en voornamen:	dr. J.A. Harbers
Geboortedatum:	17-05-1954
Straat:	Holtstek 24
Woonplaats:	Groningen
Postcode:	9713 DC
Telefoon:	[31] 50 3139158

Doctoraalexamen

Universiteit/Hogeschool:	Groningen University
Datum:	april 1979
Hoofd- en bijvakken:	historical and philosophical sociology, sociology of education; philosophy of science, economy

Promotie

Universiteit/Hogeschool:	Groningen University
Datum:	6 dec. 1986
Promotor:	prof. dr. L.W. Nauta
Titel proefschrift:	Sociale Wetenschappen en hun Speelruimte

Functies na het doctoraalexamen:

1979 – 1981	Research assistant University Utrecht, Institute for Pedagogic Studies
1981 – 1985	PhD-research, NWO-project 'Internal and external factors in the development of social sciences'
1985 – 1986	Lecturer Sociology, University Groningen, Dep. of Sociology
1986 – 1991	Senior Researcher, Dep. of Sociology, University Groningen
1989 – now	Associate Professor in Science, Technology and Science Studies, Dep. of Philosophy, University Groningen
1991 – 1993	Co-ordinator Netherlands Graduate School of Science, Technology and Modern Culture
1996	Guest-researcher University Maastricht, Dep. of Cultural Studies
1998 – 2000	Halftime postdoc University Twente, Dep. of Philosophy and Social Sciences

Kernpublicaties aanvrager:

Hans Harbers, Marcus Popkema and Toine Pieters, 'Technologie en zwangerschap. De politiek van een prenatale screeningstest'. *K&M. Tijdschrift voor empirische filosofie*, XXI(1997)2, 97-123.

Hans Harbers, 'Technologie en politiek. Over ficties van sturing en democratisering in een technologische cultuur'. *Socialisme & Democratie*, 55(1998)1, 3-9.

Hans Harbers, Alice Stollmeyer and Annemarie Mol, 'Food Matters. Arguments for an ethnography of daily care'. *Theory, Culture and Society.* Special Issue edited by D. Pels, K. Hetherington and F. Vandenberghe on *Sociality/Materiality. The Status of the Object in Social Science*, forthcoming 2002.

Hans Harbers, 'Trust in Politics, Science and Technology. Breaching the Modern Constitution'. In F. Ankersmit and H. te Velde (eds.), *Trust: Cement of Democracy?*, forthcoming Peeters, Leuven 2002.

Hans Harbers (ed.), *Inside the Politics of Technology. Agency and Normativity in the Co-Production of Technology and Society.* In preparation for MIT-Press, Series *Inside Technology.*

12. Motivering keuze voorgestelde uitvoerder(s)

Applicant of the project (dr. J.A. Harbers, 1954), originally trained in historical and philosophical sociology, is appointed as Associate Professor in the Philosophy of Science, Technology and Society at the Faculty of Philosophy, University of Groningen. As senior researcher he is firmly embedded in the (inter)national field of science and technology studies, regularly publishing in national and international journals and books – both on theoretical and empirical level, and concerning various fields of science and technology (from sociology of education via feminist studies up to prenatal screening tests). For several years he was co-ordinator of the KNAW-acknowledged and internationally highly esteemed Netherlands Graduate School of Science, Technology and Modern Culture, and was/is supervisor (co-promoter) of four PhD-projects, three of them successfully finished and one still running. He actively participates in the Groningen Genomics Ethics, Society and Philosophy (GESP) working group of the Groningen Genomics Centre, the primary sounding board for this project.

The future AIO for this project will be recruited by an open application procedure in order to meet the highest possible standards of quality.

13. Begroting van de aangevraagde steun

Kostenraming	Personeel in maanden en omvang			Materieel	Reis- en verblijfskosten	
Jaar	uitvoerder		whp		binnenland	buitenland
aanvraag 2002	4x1.0 aio	=	9.380			
	4x0.2 uhd	=	5.240			
aanvraag 2003	12x1.0 aio	=	27.924			2.200
	12x0.2 uhd	=	15.620			
aanvraag 2004	12x1.0 aio	=	27.924			2.200
	12x0.2 uhd	=	15.620			
aanvraag 2005	12x1.0 aio	=	27.924			2.200
	12x0.2 uhd	=	15.620			
aanvraag 2006	8x1.0 aio	=	18.616			
	8x0.2uhd	=	10.480			____
	Subtotal	€	174.384		Subtotal	€ 6.600

TOTAL: € 180.984

14. Toelichting en motivering van

a. materiële steun

b. reiskosten binnenland buitenland

Participation in 2 or 3 international conferences/workshops by aio and/or senior researcher, possibly combined with working visit.

Ondertekening aanvrager(s): dr. J.A. Harbers

Datum: 15 April 2002