

Proposal EUROCORES theme

1. Title of the proposal

Title: Inventing Europe. Technology and the Making of Europe, 1850 to the Present

Acronym: Inventing Europe

2. List of proposers

Coordinating proposer

Schot, Johan, Professor, Eindhoven University of Technology

Department of Technology Management

C/o IPO, room 2.25

P.O. Box 513

5600 MB Eindhoven

The Netherlands

Phone: +31 40 247 5763

Fax: +31 40 244 4602

Email: j.w.schot@tm.tue.nl

Co-proposers

Andersen, Håkon With, Professor, Norwegian University of Science and Technology

Faculty of Arts

Department of History

Avh Dragvoll, kontorsted 6*6426

7491 Trondheim

Norway

Phone: +47 73 596 439

Fax: +47 73 596 441

Email: hakon.andersen@hf.ntnu.no

Bud, Robert, Dr., The Science Museum

Exhibition Rd, South Kensington

SW7 2DD London

United Kingdom

Phone: +44 207 942 4200

Fax: +44 207 942 4202

Email: r.bud@nmsi.ac.uk

Carreras, Albert, Professor, Universitat Pompeu Fabra

Department of Economics and Business

Ramon Trias Fargas 25-27

E-08005 Barcelona

Spain

Phone: +34 935421761

Fax: +34 935421746

Email: albert.carreras@upf.es

Daunton, Martin, Professor, University of Cambridge

Faculty of History

West Road

Cambridge CB3 9EF

United Kingdom

Phone: +44 1223 332540

Email: mjd42@cam.ac.uk

- Griset, Pascal, Professor, Université Paris Sorbonne
Centre de Recherche en Histoire de l'Innovation
1, rue Victor Cousin
75005 Paris
France
Phone: +33 618 942 757
Email: pascalgriset@yahoo.fr
- Fridenson, Patrick, Professor, Ecole des Haute Etudes en Sciences Sociales
Centre de recherches historiques
54, Boulevard Raspail,
75006 Paris
France
Phone: +33 1 49 54 25 60
Fax: +33 1 49 54 23 99
Email: Patrick.Fridenson@ehess.fr
- Grazia, Victoria de, Professor, Columbia University and European University Institute
Department of History and Civilization
Columbia University
Department of History
New York, New York, 10027
+1-212 932-0602 (fax)
+1-212-854-3667 (tel)
vd19@columbia.edu
- Kaelbe, Hartmut, Professor, Humboldt-Universität Berlin
Phil. Fak. I, Institut für Geschichtswissenschaften
Unter den Linden 6
10099 Berlin
Germany
Phone: +49 30 2093 2236
Fax: +49 30 2093 2797
Email: KaelbleH@Geschichte.HU-Berlin.de
- Kaijser, Arne, Professor, Royal Institute of Technology
Department of History of Science and Technology
S-100 44 Stockholm
Sweden
Phone: +46 8 790 8599
Email: arne.k@tekhist.kth.se
- Klusakova, Luda, Associate Professor, Charles University in Prague
Faculty of Arts and Philosophy Institute of World History
nám. Jana Palacha 2
11638 Prague
Czech Republic
Phone: +420 221 619 254
Email: luda.klusakova@ff.cuni.cz
- Oldenziel, Ruth, Professor, University of Amsterdam/Eindhoven University of Technology
C/o SiSWO
Plantage Muidersgracht 4
1018 TV Amsterdam
The Netherlands
Phone: +31 206923042
Email: ruth@oldenziel.com
- Trischler, Helmut, Professor, Munich Center for the History of Science and Technology
C/o Deutsches Museum
80306 München
Germany
Phone: +49 89 2179 209
Fax: +49 89 2179 239
Email: h.trischler@deutsches-museum.de

3. Abstract

This EUROCORES theme proposes to examine how technology has operated as an agent through which the contested processes of European integration may be viewed over the last century and a half. It focuses on how technical communities, social groups, and citizens have contested, projected, performed, and reproduced 'Europe' in constructing and using a range of technologies. In particular, three categories of technology will be examined: 1) transnational infrastructures such as railways, roads and electricity networks; 2) knowledge networks and large-scale technological European project; 3) consumer products. In addition, it is proposed to examine how the construction of Europe has been shaped by interactions with its colonies, ex-colonies, the United States, and Soviet Union. Finally, it is suggested to bring the separate studies of these technologies and Europe's global encounters together in a new synthesis.

The EUROCORES theme will integrate the history of technology into a broader European historiography, and it will provide a novel perspective on the debates about European integration. It is anticipated that also a range of other kind of historians and social scientist interested in developing a transnational perspective on European integration will benefit from and contribute to the proposed theme. The research results of the EUROCORES theme are expected to be presented in a coherent fashion through an edited and published book series. We also propose to explore the potential of web products that would provide wide access to relevant materials available on European cultural heritage sites.

4. Keywords:

European history, European integration, European Infrastructures, Colonisation, Decolonisation, Transatlantic Crossings, Big Technological Projects, Knowledge Networks, European Consumption.

5. Details of the Scientific Program

The main scientific goal of *Inventing Europe* is to develop an alternative understanding of the process of European integration. Such an interpretation will result from introducing two new analytical frames: 1) a broader definition of European integration and 2) a focus on the construction and use of technologies as pivotal research sites for studying the creation and experience of European integration.

In this proposal, European integration is more broadly conceived than it is commonly used in academic literature and public discourse. It neither focuses exclusively on the top-down formal process of integration as represented by institution building and policy coordination among nation-states in Europe (the super state) nor on the process of the creation of an integrated market (the common market). Instead, it focuses on how technical communities, social groups, and citizens have projected, performed, and reproduced 'Europe', and why certain projections have proved to be more effective than others. 'European Integration' is not only understood as an overt political and economic process, but also as a hidden bottom-up and contested process operating through relations of power that are historically contingent. Such an approach brings out competing visions about Europe that gave rise to tensions *in* Europe and *about* Europe. It also examines the currents of disintegration, fragmentation, and segregation that may have countered Europe's integration. It will invite projects to take into account how a host of social actors (defined by region, class, gender, ethnicity or sectors in society including industry, NGO, and universities) appropriated and/or

subverted specific building visions and practices in Europe. Research efforts will need to examine how such processes of integration from below shaped the more formal—and well-documented—process of European integration.

Visions of Europe are not only produced within countries in the European Union (and its predecessors), but also across the globe. Thus, a story of the hidden integration of Europe needs to address the ways in which Europe's identities and material practices were shaped outside the EU and the geographical borders of what is now considered Europe. Europe's colonies formed a constituent element in the definitional politics of 'Europe'. How crucial the colonies have been is signaled by the disregard of national identities by European nationals living outside Europe when they employed the term 'European' to designate all people of European origin. For these nationals, the term 'European' became a powerful rhetorical strategy for distinguishing themselves from people of other races and cultures.

This is certainly also true for Europe's encounters with the United States and Russia where Europeans learned to distinguish themselves from the new superpowers. Equally important for a proper understanding of Europe in the twentieth century, therefore, is a focus on these relationships with the two new superpowers that emerged during the twentieth century. Significantly, Europe often mobilized 'Europe' as an intellectual construct and material practice in the comparison to and competition with others, particularly the US and Russia.

Finally, the importance of the two World Wars and the Cold War needs to be taken into account. These 'big events' have dominated history writing and the research on which it has been based. The emphasis of the proposed research agenda here will be on how both hot and cold wars influenced the struggle for competing visions of Europe, and consequently how the outcomes became embedded in specific ways of constructing and using a wide range of technologies.

The EUROCORES theme proposal takes technological change as the second analytical frame through which the bottom-up and hidden process of European integration may be studied.

Technology is defined not only as machines, products, systems, and infrastructures but also as skills and knowledge that make them work. In addition, technological change is understood as a deeply political and social process involving people and institutions. This insight will facilitate research into how the construction and use of a range of new technologies have been crucial research sites for articulating European integration in material, institutional, and discursive ways. These include infrastructures, large-scale technological systems, and consumer products. The identification of these research sites has been the outcome of the work completed in the ESF Network called 'Tensions of Europe: Technology and the Making of 20th Century Europe' (a special issue of *History and Technology*, vol. 21, no.1, 2005).

Transnational infrastructures, such as railroads, highways, energy systems, and telecommunication networks, are the material and transnational links between nation-states. In the past two centuries countries constructed and used these networks to build nations, states, and overseas empires that integrated and rearranged Europe in specific ways. The proposed research includes both the building of the (trans) national networks and the design of standards and regulations needed to make such networks operational. Research explicitly includes the social actors who – with many different purposes in mind and often projecting different images about Europe – helped construct these infrastructures. These differences might be expressed in preferences for specific nodes, centres, and connections that would include certain regions, users, or nation-states, but exclude others.

An exclusive focus on the construction phase is too limited to provide a complete picture of the bottom-up integration process. The meaning and construction of infrastructures depend on how a range of users, be they state agencies, professionals, consumer advocates, or ordinary citizens, mediated and appropriated these infrastructures. 'Europe' is also made within these user groups.

Therefore, research will need to explore questions about how users signified, explored, integrated, modified, or undermined these infrastructures into their daily routines and practices. To explore these issues, research projects might look at trade, tourism, and migration – all crucial social phenomena that depend on the building and particular use of infrastructures.

Another important set of issues in Europe's bottom-up integration process may focus on the creation, transfer, standardization, and appropriation of scientific and technical knowledge in European networks and in large-scale military and civil projects. Many national technicians and scientists working on large-scale projects experienced Europe through their participation in these technical networks. The networks of professional organizations of European traffic engineers, agricultural scientists, civil engineers, urban planners, or the networks of technical universities and technical museums offer excellent research sites that may illustrate how, via artefacts and people, both formal and tacit knowledge circulates. Such a line of research will illuminate what it meant to produce European standards and ways of thinking, and how they fit or did not fit into existing national frames. Transnational projects like the Airbus and Eurofighter planes, the European agency for Nuclear Power (EURATOM), and the space-exploration projects connected to European organisations such as the European Space Research Organization (ESRO) offer another site to examine the technological routes towards European integration. Importantly, these technological projects generated highly visible stages and products that served as the commanding symbols for European power in transatlantic competition.

Consumer products provide a third promising research site in mapping Europe's more hidden integration process. It is impossible to examine the formation of European identities without considering the everyday processes of consumption. With the domestication of new technologies and systems, citizens and organisations shape Europe in a myriad of ways, as they design and appropriate, for example, cars, refrigerators, washing machines, and food. After all, the purchase and use of material objects is more than an economic activity – they also help to establish identities. Although literature on the history of consumers is abundant, scholars have paid surprisingly little attention to European consumption and rather have focused on national histories. How various actors in Europe have creatively adapted consumer products to fit local uses, at times defying and at other times reinforcing Europe's national and regional boundaries, needs further study. From the late nineteenth century onwards, multinational corporations and a host of European women's, labour, cooperative, consumer, and engineering organizations engaged actively in the politics and ideology of consumption, accumulating knowledge and expertise, launching campaigns, and building networks. How did these groups try to shape the novel products that entered the market or the technological systems that were designed? What meanings did they assign to them? Did a European consumer regime emerge and, if so, how did it interact with national and regional ones? Food offers a particular clear window on the complexity of producing specific national and/or European identities in the process of designing or domesticating products. For example, Parma ham marketed as an authentic Italian delicacy is produced from Dutch pigs transported daily across various European borders. New research should shed light on these complex processes.

These examples of technological areas indicate that the story of Europe's hidden integration, as defined in this proposal, significantly predates the formal political processes of European integration. Integration and technological change, therefore, need to be studied in a long-term historical perspective, going back in some cases to the middle of the nineteenth century. Furthermore, European integration should not be understood as an inevitable result of a unidirectional process. Research should examine it as a historically contingent process with certain, but not inevitable, outcomes.

The scientific aims may be summarized as follows:

- 1) To conduct empirical research on how the introduction and use of a wide range of technologies have shaped and represented the contested process of European integration, focusing, in particular, on three areas of technological change: a) development and use of infrastructures; b) the making of knowledge networks and large technological projects; and c) the designing and domestication of consumer products;
- 2) To analyse how the European integration was shaped by encounters with the colonies, the ex-colonies, the USA, and the Soviet Union;
- 3) To synthesise these results into a new interpretation of the European integration process, including a view on the role of both World Wars and the Cold War.

The proposal also seeks to create a tangible legacy beyond the direct objectives of the EUROCORES theme proposal. The long-term scientific goal of this proposal incorporates two key elements:

- 1) Joining the intellectual agenda of the history of technology with a broader transnational and European perspective. History of technology is in the position to ask questions about the technological shaping of society by using the methods, concepts, and insights developed in recent decades about the social nature of technology, without falling into simplistic technological determinist accounts as if technology rolls in from the outside and has one-way impacts on society.
- 2) Stimulating historians and social scientists working in European integration and European history to recognise the importance of technical change and encouraging them to include it in their accounts.

Finally we propose the EUROCORES theme should have an explicit publication and communication policy, which seeks to reach out beyond the academic audience to the larger community. The aim of the fifth element of the theme is to insure that the insights generated by the research reach a wider public through a book series about the new European history. In addition, the theme could develop a website linked to the resources available through science museums and perhaps also the Museum of Europe that will open its doors in 2007.

The structure of the proposed EUROCORES theme

The three technological areas identified in the proposed EUROCORES theme could be perceived as separate research sub themes. In addition, we propose to have a fourth sub theme focusing on the process of global encounters. Finally, we proposed to have a fifth overarching and synthetic theme of research aimed at writing a new history of Europe through the lens of technology. This implies integrating research results of the four sub themes. It would also serve as an opportunity to analyse how bottom-up integration processes have interacted with or run counter to the more formal top-down process of European integration.

Accordingly, the proposed EUROCORES theme could consist of the following five research sub themes:

I. Building Europe on Infrastructures

This research sub theme examines how transnational infrastructures – the material links between nation-states and regions including railroads, highways, and energy and communication networks – shaped Europe. Research questions include:

- What specific European ideas and identities have either explicitly or implicitly been embedded in the construction of transnational material infrastructures -- the wires, pipes, canals, cables, highways, railroads, and information networks that span political borders and connect nation states? Which tensions developed and how have they shaped the nature of Europe's diverse process of identity formation?

- How have nation states sought to regulate the transnational connections and the tensions that arise from them?
- How did a range of users signify, reproduce, communicate, explore, and resist these infrastructures in their daily routines? How did they create living communities of trading and travelling while building new identities, experiences, and relationships across Europe?

II. The European Knowledge Society

This research sub theme examines the ways in which Europe became articulated through large-scale European projects and international networks. Among the networks to be studied are professional associations of European traffic engineers, agricultural scientists, civil engineers, and urban planners as well as knowledge institutions such as universities and technical museums. Another focus will be explicit European projects such as the creation of EURATOM, the development of the European airplane Airbus, and the European space efforts. Research questions include:

- What did it mean to “think European” in a context of international collaboration and networking? How was the European perspective negotiated against national and other regional perspectives?
- How did these collaborations and networks shape existing political economic institutions and create news ones?

III. Technology and the European Citizen-Consumer

The third sub theme explores how a range of social actors, including businessmen, professionals, and citizen-consumer groups, creatively reworked material artefacts for specific local, regional, and national contexts, at times defying and at other times reinforcing European identity. Research questions include:

- How have firms, which had a vested interest in a common European market, tried to build national as well as European experiences into their products? How did they negotiate this relationship? How have they helped create ‘authentic’ national identities and distinct European responses?
- How have users and their representative organisations signified, appropriated, modified or redesigned these products? What kind of counter-narratives did they develop?

IV. Europe through Global Crossings

A fourth sub theme explores the making of Europe through colonial and trans-Atlantic exchanges. Research questions include:

- How was what we think of as innately ‘European’ to varying degrees made in, or shaped by, interactions with the world beyond the European continent, in particular, the exchanges with the colonies and former colonies?
- How did the dense communication and fierce scientific, technical, and economic competition between European nations and the two superpowers (US and SU) shape Europe as a transnational entity?

V. Synthesis: Writing a New History of Europe

The synthesis could address the following questions:

- How have the various bottom-up processes influenced each other? How can we describe and analyse their culminate effect in terms of European integration and fragmentation?
- What has been the influence of the World Wars and the Cold War on the European integration process as understood in this theme proposal? May we develop an alternate interpretation of the role of these wars based on this research?

- How may we analyse the relationship between the bottom-up perspective on European integration and fragmentation developed in this research EUROCORES theme and the formal process of European policy coordination and institution building?

Coherence

To achieve maximum possible coherence it is proposed to:

- Develop the synthesis research sub theme as a meta-collaborative research project or as a set of collaborative research projects; the synthesis collaborative research project(s) will act as platform(s) on which to bring together research from other projects. This implies that project leaders of collaborative research projects or other selected researchers will form a team to work together on the synthesis.
- Develop a collaborative and coordinated output through establishing a book series. We propose that the book series will be edited volumes to ensure that individual projects may contribute separate chapters while a process of intensive interaction will ensure substantial coherence between them. The nature, scope, and aims of the book series should be decided jointly by the project leaders and discussed early in the process. Please note that the proposed coordinated book series will not replace publication efforts of researchers working in a project. Scholars are expected to publish their research results in single monographs and articles.
- In tandem with the results published through the book series, it is proposed that the project leaders will explore how to present research results for a general audience through a website. Since a complete, interactive, new site would be expensive to create, hard to maintain technically, and difficult to keep up-to-date intellectually, the project leaders will need to explore how information may be conveyed on existing websites or on new ones. The project leaders would therefore explore the best way to present their findings and to help users find gateways to relevant material on museum and other heritage websites across Europe. They will need to consider the constraints of international property rights and local strategies.

Key Milestones

It is proposed to establish a EUROCORES theme, which will run for four years to allow enough in-depth (archival) research and synergy within the research framework. Each year we propose to organize an annual 2-3 day conference to allow the various teams to meet and discuss the results of their research. At such a conference, researchers working on each theme may gather, but the purpose of the conference is also to organize horizontal activities between the themes. Conferences will be meeting places for all researchers involved, from senior researchers to PhD students. Such venues would also be open to outside scholars not directly involved in the EUROCORES funded research, who would be invited to contribute as commentators. Such a set-up will help disseminate research results more broadly.

In addition, 2-3 day smaller workshops could be organised involving project leaders from all funded collaborative research projects (project leaders, principal investigators, researchers, including PhD students) combined with outside experts for the benefit of discussing the synthesis, outlines, and contents of the book series and virtual exhibitions.

Furthermore, since we anticipate a fair number of PhD research projects, the proposal also includes the institution of graduate Summer Schools allowing graduate students to share their work and discuss new insights with senior scholars involved in the process. These Summer Schools would be open to PhD students doing relevant, though not necessarily EUROCORES funded, research.

Finally, we anticipate the development of a project website and newsletter following the practice of other EUROCORES themes

The above principles could result in a following (very rough) planning

First Year:

- Conference to bring together all awarded project teams;
- Workshops in which project leaders and others discuss synthesis and content of book series and virtual exhibition for the first time; this should lead to a decision on the nature of book series and virtual exhibition(s).

Second Year:

- Annual conference;
- Workshops planning for book series, assigning chapter authors, and discussing the first scripts for virtual exhibitions; separate workshop discussing the content of the synthesis;
- Summer School I.

Third Year:

- Annual conference;
- Workshops discussing first draft chapters for book series and designs for virtual exhibition;
- Summer School II.

Fourth Year:

- Closing conference; presentation of virtual exhibition;
- Workshops discussing chapters for book series;
- Summer School III.

6. European added value

By its very character, the *Inventing Europe* project may only be accomplished through European funding like EUROCORES. The research questions in the program are best addressed in a pan-European research environment. This will bring to bear the variety of perspectives, language skills, experience, and empirical research needed. We surmise that the questions raised in this proposal have never been fully researched because of the lack of funding opportunities and necessary institutional structure. Traditionally, funding has been on the national level, as has the focus of research on, for example, how technologies have influenced the rise of individual nation-states. It is precisely the emergent internationalisation of the funding structures in the humanities that will offer a much-needed opportunity for entertaining questions on the role of technology in the making of Europe.

The development of this theme is extremely timely. The further course of the European integration process depends on the development of new views on the way people (and citizens) oppose and relate to Europe outside the area of formal state building.

What is called the EU's democratic deficit is related to a much deeper cultural deficit, the absence of a sense of belonging to a new European state. Yet, such an absence does not imply that people in and outside of Europe do not relate to Europe somehow. The proposed EUROCORE theme aims at mapping the rich and varied ways in which people have built, explored, and opposed Europe over the past century and a half.

7. Relationship to ongoing/planned research initiatives

The present network has been developed through an ESF Network grant and consists of some 200 scholars that have participated to (parts of) the networking activities. The projects of many participating scholars in this ESF Network mainly addressed national research agenda's without reflecting fully the transnational agenda developed in this proposal. This is not surprising since the networking focused on reviewing existing research and could not create a basis for collaborative international research. In a meeting in Eindhoven, April 22-24, 2005 forty principle researchers involved in the network decided that they will continue the networking, mainly through organizing a summer school (possibly in Budapest) and a conference in Spring 2006 in Finland, using a fee structure and some ad-hoc fundraising. It was also concluded that such networking will be important for the emerging new field, but will never lead to the establishment of a firm basis for starting genuine international collaborative research projects. This conclusion led to the decision to submit this EUROCORES program.

In the present network, the core group consists of historians of technology, although this is a highly multidisciplinary field. It includes scholars with backgrounds in science, engineering, history, and the social sciences. Moreover, the present network involves three types of institutions: general universities, in particular history or social science departments; technical universities, in particular the humanities departments; and/or science museums with public outreach capacity and research function. However, the EUROCORES theme, once established, will bring in many new disciplines and colleagues interested in the intellectual agenda developed in the EUROCORES theme proposal. We may think of historians of migration, tourism, and trade; cultural historians, historians working on consumption and on history of Europe and European integration, but the list can be made longer. Social scientists working on these subjects and interested in taking a historical approach could also be invited to submit a proposal.

8. Level of funding required

Following this proposal two types of funding are necessary for a 4 year period for a total amount in round figures of Euro 10 million, divided in 8,94 million Euro for research and 1 million Euro for dissemination:

- As specified in the table below the calculated research funding for the five research clusters is 8,94 million Euro, divided in 6,6 million Euro for the four thematic research programs and 2,34 million Euro for the synthetic research program. The Ph.D. and post-doc projects take 189 man-years. University funding is no part of this calculation. It is to be expected that senior researchers that will participate in the synthetic program will be financed through university funding.
- Funding for publications – including picture editing, subventions to keep prices low, copy-editing costs, etc. – ,websites and virtual exhibition and digital learning environments 1 million Euro.

| | <i>description projects</i> | <i>estimated average cost per project</i> | <i>total</i> |
|-------------------------------------|-------------------------------------|---|--------------|
| 4 thematic research programs | | | |
| | 30 Ph.D. projects (4 years each) | € 160.000 | € 4.800.000 |
| | 10 post-doc projects (3 years each) | € 180.000 | € 1.800.000 |
| 1 synthetic research program | | | |
| | 13 post-doc projects (3 years each) | € 180.000 | € 2.340.000 |
| <i>Total research programs</i> | | | € 8.940.000 |
| Publications etc. | | | € 1.000.000 |
| <i>Total for proposal</i> | | | € 9.940.000 |

In addition we refer to the Eurocores networking activities for securing basic funding for the scientific meetings. We also envisage that it might be possible to find money from private foundations and international corporations in Europe to fund additional dissemination activities directed to schools and for translations of the book series in several European languages.

9. Ethical and legal issues

No specific ethical and legal issues to be mentioned, except for copyright issues which will arise with the development of websites.

Appendix 1: CVs and publication list of proposers (only the 10 most relevant publications)

Håkon With Andersen (NO)

Håkon With Andersen is Professor in Modern History at the University of Trondheim. He is a member of the Royal Norwegian Society for Science and Letters, The Norwegian Academy of Science and Letters and The Norwegian Academy of Technological Science. He was a member of the Executive Council of the Society for History of Technology (SHOT) and is associate editor of *History and Technology*. He was also chair of the program committee for the Norwegian Research Council's research program on cultural studies. From 1997 he is a deputy member of the executive Board of the Norwegian Research Council and from 1999 full member of The Norwegian Technology Council (Teknologirådet). The Norwegian government made appointments to the two last positions. His publications include: *From the British to the American ideal of production* (in Norwegian; Trondheim: Senter for Vitenskap, Teknologi og Samfun, 1989), *Anchor and Balance: Det norske Veritas 1864-1989* with J. P. Collett, (Hovik: Norske Veritas, 1989) and *Where Frankenstein went wrong. Technology, environment and values* in Norwegian, with K. H. Sørensen (1992). He has also edited several books and written articles about technology and history, methodological, and theoretical problems in history and economic and social history.

Robert Bud (UK)

Robert Bud is responsible for Electronic Content at the Science Museum, London where he has worked since 1978. He was project director of the award-winning *Making the modern world online* and *Ingenious projects*. He holds a PhD in the History and Sociology of Science from the University of Pennsylvania and is a Fellow of the Royal Historical Society. He works on the history of applied science. He has published books on the history of biotechnology [*The Uses of Life* (Cambridge: Cambridge University Press, 1993) and *Wie wir das Leben nutzbar machten* (Vieweg Verlag, 1997)]. Books on military research in the cold war *Cold War Hot Science*, edited by Robert Bud and Philip Gummett (London: Harwood, 1999), he co-edited the prize-winning encyclopaedia *Instruments of Science* (Garland, 1998) and has co-authored a general illustrated history of technology from 1750 to the present with colleagues at the Science Museum. A history of penicillin is currently in press.

Albert Carreras (Spain)

Albert Carreras (PhD, Universitat Autònoma de Barcelona, 1983) is Professor of Economic History and Institutions at the Department of Economics and Business of the Universitat Pompeu Fabra (Barcelona) and has been a Professor at the Department of History and Civilization of the European University Institute (Florence). He has authored *Industrialización española* (Madrid: Espase Calpe 1990) and *Historia Económica de la España Contemporánea* with Xavier Tafunell (2004). He edited *Estadísticas históricas de España, Siglos XIX-XX* (Madrid: Fundación Banco Exterior, 1989; enlarged edition is under press) and co-edited *Les Réseaux Européens Transnationaux* (Nanten: Ouest Éditions, 1995) with Andrea Giuntini and Michèle Merger. His recent writings center on on economic and business history issues such as ports, trade fairs, big firms, transborder railway crossings, historical national accounting, money demand and investment fluctuations, form local, regional, national (Spanish and Italian), Mediterranean and European perspectives. He leads a research project on 'Imports and Economic Modernisation in Latin America and the Caribbean', and participates in 'The Performance of the European Enterprise in the twentieth century' organised by the London School of Economics, as well as in a Research and Training Network on 'Unifying the European Experience' and in the COST action 'Towards a European Intermodal Transport Network: Lessons from History'.

Martin Daunton (UK)

Martin Daunton has been professor of economic history at the University of Cambridge since 1997. He was formerly professor of British history at University College London. He is also President of the Royal Historical Society. He is currently supervising PhD students working on the history of higher education, on intellectual property rights in telecommunications in Britain and the USA, on government policy towards motorisation in Germany, Sweden and Britain, and attitudes to risk in modern technology in Britain, Italy and Germany. His most recent publications have dealt with the politics of taxation in Britain, in two books: *Trusting Leviathan* (Cambridge: Cambridge University Press, 2001) and *Just Taxes* (Cambridge: Cambridge University Press, 2002). He is currently completing the second volume of a two volume history of the British economy between 1700 and 1950, to be published by Oxford University Press. He has also worked on the history of cities and housing, most recently editing the Cambridge *Urban History of Britain* (Cambridge: Cambridge University Press, 2000). His new project is an overview of international economic policies since 1944, dealing with trade, capital flows, monetary policy and development, and their relationship with domestic policies; he is also continuing to work on the organisation of knowledge in Britain, on which he recently edited a book for the British Academy.

Patrick Fridenson (France)

Patrick Fridenson is professor of economic history and scientific director of the Centre de Recherches Historiques of the Ecoles des Hautes Etudes et des Sciences Sociales. He is the editor of *Entreprises et Histoire*. His research interests focus on business history, labour history, and contemporary world history, including the nineteenth and century. He is past president of the Business History Conference and the French Economic History Association. He is author of books on history of Renault Company (Paris: Le Seuil, 1972 and 1998), of the Thomson Company (1995), of French capitalism (Paris: Fayard, 1987), of the First World War (Paris: Les éditions ouvrières, 1977/Providence: Berg, 1992), and on the history of working time in France (2004), and of numerous scholarly articles.

Pascal Griset (France)

Pascal Griset is professor in modern history at the Sorbonne University in Paris and he is director of the Centre de Recherche en Histoire de l'Innovation. He is also vice-president of the French Association for the history of telecommunication and information science (l'Association d'Histoire des Télécommunications et de l'Informatique). He is member of the editorial staff of *Hermès* (CNRS), *Flux* and *Le temps des Media*, serves on several committees on the history of French postal services, of armaments. and of CNET. Furthermore, he serves as advisor of the telecommunications museum (France Telecom). His research work and publications range from the development of telecommunications, the history of the electric car to policy studies issues. His book publications include with Georges Pébereau and Thierry Breton, *L'industrie: une passion française* (Paris: Presses Universitaires de France, 2005) and with Dominique Larroque and Jean-Louis Loubet, *Electricité, électronique: un siècle de développement automobile* (Paris, PSA, 2003) and articles in international journals and edited volumes including 'The Beginnings of the Radio Communications Industry', in *Entrepreneurship and Organization*, edited by Michael J. Lynskey and Seiichiro Yonekura, (Oxford: OUP 2000).

Victoria de Grazia (Italy and USA)

Professor Victoria de Grazia affiliated with at European Union's Graduate faculty, the European University Institute at Fiesole, Italy and professor of history at Columbia University (USA) after having taught at Rutgers University for many years. Her research includes European consumer, gender, and labour culture and politics. She has received numerous awards including Rome Prize Fellow, Joan Kelly Prize, Jean Monnet and Guggenheim Fellowships. Translated in numerous languages, her publications include *The Culture of Consent: Mass Organization of Leisure in Fascist Italy*, (Cambridge, Cambridge University Press, 1981); *The Sex of Things: Gender and Consumption in Historical Perspective* (University of California Press, 1996). with Sergio Luzzatto editor of *Dizionario del Fascismo; Irresistible Empire* (Harvard University Press, 2005). She has been a founding member of *Radical History Review*, served on board of editors of numerous journals including the *Journal of Modern History*, *Geneses*, *Contemporary European History*, and the *Journal of Consumer Culture*. From 1997 to 2002, she was National Chair of the Council for European Studies and has taught at the Ecole des Hautes Etudes en Sciences Sociales and various other European universities.

Hartmut Kaelble

Hartmut Kaelble is professor for social and economic history at the Free University Berlin. He is a member of the board of directions of the Berlin college for Comparative European History (Berliner Kolleg für vergleichende Geschichte Europas), president of the German-French committee of historians (Deutsch-Französisches Historikerkomitee), member of the International evaluation committee of the Maison des Sciences de l'homme in Paris and member of several other German and international committees. His research work and publications range from comparative social European history and the history of European integration of Europe to European identity and European public sphere. His book publications include *A Social History of Western Europe, 1880-1981* (Dublin: Gill & MacMillan, 1990), also published in German, French, Italian and Japanese; *Europäer über Europa. Das europäische Selbstverständnis im 19. und 20. Jahrhundert* (Frankfurt: Campus, 2001); *Wege zur Demokratie. Von der französischen Revolution zur Europäischen Union* (München: DVA, 2001), also published in English and Spanish; *Der historische Vergleich. Eine Einführung zum 19. und 20. Jahrhundert* (Frankfurt: Campus, 1999). He also participated in several edited volumes like *The European way* (New York, Oxford: Berghahn, 2004).

Arne Kaijser (Sweden)

Arne Kaijser is Professor of History of Technology at the Department of History of Science and Technology, Royal Institute of Technology in Stockholm. He holds a M.Sc.Eng (technical physics) from the University of Lund (1973) and a PhD in technology and social change from the University of Linköping (1987). Apart from his academic career, he worked seven years as a civil servant in various government agencies (SIDA, FOA, NE, IVA) primarily working with energy related issues. He was a visiting scholar at the Technical University of Delft in 1993-1994. His main research interest is in comparative studies of the historical development of large technical systems. He has published five books and more than 30 articles.

Luda Klusakova (Czech Republic)

Luda Klusáková is associate professor in history at the Faculty of Philosophy and Arts of Charles University in Prague. From 1999 until 2004 she coordinated the research project 'We and the others'. At the moment she is responsible for the project 'European cultural identities from the 18th – 20th century.' (2005-2009). Within the European Union 6th Framework Program, she is building a CLIOHRES research network and is leading the working group 'Frontiers and Identities'. Her current research activities focus on the role of towns in rural internal peripheries of East-, Central-, and South-Western Europe. Furthermore she is member of the international committee of EAUH (European Association for Urban History), member of the Council of Europaeum (an association of Universities), coordinator of CLIOHnet (the Erasmus thematic network of historians) and departmental coordinator of the Erasmus program. Her publications include *The Road to Constantinople: The Sixteenth-Century Ottoman Towns Through Christian Eyes* (Prague, ISV, 2002) and *Evropská města na prahu kapitalismu* (European Cities at the Treshold of Capitalism) (Prague: Univerzita Karlova, 1986). She was editor of *We and the Others: European Societies in Search of Identity* (The Karolinum Press, Prague 2004) and coeditor of *Peripheries or Crossroads of Cultures? Towns of East-Central and South-Eastern Europe* (Warsaw 2000).

Ruth Oldenziel (The Netherlands)

Ruth Oldenziel has been an Associate Professor at the University of Amsterdam since 1992. In 2003 she was appointed professor of the history of technology at Technical University of Eindhoven and received a Senior Fulbright Fellow at Georgetown University and the Smithsonian. Oldenziel earned her Ph.D. from Yale University in American History in 1992. She was the co-chair of the European Science Foundation Network "Tensions of Europe" with Johan Schot and acted as the Consumption theme coordinator together with Ulrich Wengenroth. Her research focuses on American-European exchange and the role of gender in the history of technology. She has an extensive international network and chaired (with Johan Schot) the European Science Foundation Network *Tensions of Europe, Technology in the Making of Twentieth Century Europe*. Her publications in English include books and articles in the area of American, gender, and technology studies: *Making Technology Masculine: Women, Men, and the Machine in America, 1880-1945* (Amsterdam: Amsterdam University Press, 1999); with co-editors Nina Lerman and Arwen Mohun, *Gender and Technology. A Reader* (Baltimore: Johns Hopkins University, 2003) and co-editors Annie Canel and Karin Zachmann, *Building Bridges, Crossing Boundaries. Comparing the History of Women Engineers, 1870s-1990s* (London: Harwood Academic Publishers/Routledge, 2000).

Johan Schot (The Netherlands)

Johan Schot is professor in social history of technology at Eindhoven University of Technology and University of Twente. He is scientific director of the Foundation for the History of Technology. He has been program leader of the National Research Program on the *History of Technology in the Netherlands in the 20th century*. This program included the publication of a series of seven volumes, Ph. D. theses, monographs, and scientific and popular articles, and contributions to exhibitions, policy workshops and websites for teaching and the publication. He is co-founder (together with Kurt Fischer) of the *Greening of Industry Network* and project leader of several EU funded international projects. He chaired (with Ruth Oldenziel) the European Science Foundation Network *Tensions of Europe, Technology in the Making of Twentieth Century Europe*. He present research interest in the role of transnational infrastructures in the making of 20th century Europe. His research work and publications range from history of technology, science and technology studies, innovation and diffusion theory, constructive technology assessment, environmental management, and policy studies. His book publications include 'A Dutch History of Transport' in: *Techniek in Nederland in de twintigste eeuw*, volume V (Zutphen: Walburg Pers 2002); with co-editors Tom Misa and Arie Rip, *Managing Technology in Society. The Approach of Constructive Technology Assessment* (London: Pinter Publisher 1995) and wrote

with Remco Hoogma, René Kemp and Bernhard Truffer, *Experimenting for Sustainable Transport*. (London: SPON Publishers 2002).

Helmuth Trischler (Germany)

Helmuth Trischler has served as Head of Research of the Deutsches Museum since 1993. He also holds a professorship for Modern History and History of Technology at the University of Munich and is a member of the steering board of the “Münchner Zentrum für Wissenschafts- und Technikgeschichte” (Munich Centre for the History of Science and Technology). His research group at the museum’s institute consists of about 15 researchers, and he is also responsible for the overall research program of the museum, which employs about 50 scientific staff members. He has long-standing expertise in steering large research projects, currently including the research group (Forschergruppe) of the German Research Foundation on “Interrelations between Science and Technology” which consists of 7 sub projects (2001-2007). He co-coordinates the research program (Schwerpunktprogramm) on “Science in the 20th Century” with 25 sub projects (2002-2009) and the research group on the history of the German Research Foundation, 1920-1970 with 18 sub projects (2001-2007). He was theme coordinator of “Engineering Big Civilian Programmes and Military Projects” together with Hans Weinberger, Stockholm, and John Krige, Atlanta, in the European network “Tensions of Europe”. His most recent publications include: with co-editor Zeilinger (eds.), *Tackling Transport*, (London: Science Museum, 2003); with co-editor Peter Lyth, *Wiring Prometheus. History, Technology and Globalisation*, (Aarhus University Press, 2003); *The „Triple Helix“ of Space. German Space Activities in a European Perspective* (Paris: ESA, 2002).

Appendix 2: list of potentially interested scientist and institutes

The scholars listed below have submitted letters of interest in 2004 as the conclusion of the ESF Network *Tensions of Europe*. Their letters express their interest in being integrated in a pan-European research project developed through the Tensions of Europe Network. We anticipate, however, that a range of other scholars who were not involved in the ESF network will also be interested in the themes proposed here. This is reflected in the list of co-proposors that extends beyond the original Tensions of Europe Network and also beyond history of technology.

| | | | |
|------------------|-------------|-----|---|
| Alexandrov | Daniel | RU | European University at St. Petersburg, Department of History |
| Assimakopoulos | Michalis | GR | National Technical University of Athens, Department Humanities |
| Bervoets | Liesbeth | NL | University of Amsterdam, Management and Public Policy Studies |
| Bhimull | Chandra D. | USA | University of Michigan, Department of History |
| Bijsterveld | Karin | NL | Maastricht University, Technology & Society Studies Department |
| Björck | Henrik | SE | Goteborgs University, History of Ideas and Theory of Science |
| Bogaard, van den | Adrienne | NL | TU Delft, History of Technology |
| Bonhage | Barbara | CH | ETH (Swiss Federal Institute of Technology), History of Technology |
| Bosch | Mineke | NL | University Maastricht, Centre for Gender and Diversity |
| Bruhèze de la | Adri Albert | NL | University of Twente, Department of Philosophy of Science and Technology |
| Bührer | Werner | DE | Munich University of Technology, Institute for Social Sciences |
| Calvo | Angel | ES | University of Barcelona, Department of Economic History |
| Chessel | Marie | FR | Centre de Recherches Historiques (CRH), Chargée de recherche CNRS |
| Cieraad | Irene | NL | Delft University of Technology, Faculty of Architecture |
| Dierikx | Marc | NL | Institute for Netherlands History |
| Dinhobl | Gunter | AT | University of Vienna, Faculty for Interdisciplinary Research |
| Diogo | Maria Paula | PT | Universidade nova de Lisboa, Faculty of Sciences and Technology |
| Disco | Cornelis | NL | University of Twente, Department of Philosophy of Science and Technology |
| Downey | Gary | USA | Virginia Tech, Science & Technology in Society |
| Edwards | Paul H. | USA | University of Michigan, School of Information |
| Fava | Valentina | IT | Bocconi University, Istituto di storia Sociale e Economica |
| Fickers | Andreas | NL | University of Utrecht, Institute for Media and Re/presentation |
| Freeze | Karen J. | USA | University of Washington, Jackson School of International Studies |
| Germuska | Pal | HU | Institute for the History of the 1956 Revolution |
| Gerovitch | Viacheslav | USA | Dibner Institute/Massachusetts Institute of Technology, Science, Technology and Society Program |
| Girschik | Katja | CH | ETH (Swiss Federal Institute of Technology), History of Technology |
| Gugerli | David | CH | ETH (Swiss Federal Institute of Technology), History of Technology |

| | | | |
|-----------------|---------------|-----|--|
| Hacker | Barton | USA | Smithsonian Institution, Armed Forces History |
| Hall | Karl | HU | Central European University, History Department |
| Hård | Mikael | DE | TU Darmstadt, History Department |
| Hauben | Ronda | USA | Columbia University, Lehman Library |
| Hecht | Gabrielle | USA | University of Michigan, History Department |
| Heide | Lars | DK | Copenhagen Business School, Centre for Business History |
| Hilton | Matthew | UK | University of Birmingham, Department of Modern History |
| Hrzonsky | Imre | HU | Budapest University of Technology and Economics, Innovation Studies and History of Technology |
| Hughes | Jeff | UK | University of Manchester, Department of History of Science and Technology |
| Hurliman | Gisela | CH | Universitat Zurich, Research Centre for Social and Economic History |
| Ischer | Philipp | CH | ETH (Swiss Federal Institute of Technology), Forschungsstelle Sozial- und Wirtschaftsgeschichte |
| Jajesniak-Quast | Dagmara | DE | Europa-Universität Viadrina, Forschungsstelle Wirtschafts- und Sozialgeschichte Ostmitteleuropas |
| Johnsson | Jenny | SE | Linköping University, Department of food Studies |
| Josephson | Paul | USA | Colby College, Department of History |
| Kammerer | Patrick | CH | ETH (Swiss Federal Institute of Technology), History and Technology |
| Kaufmann | Stefan | CH | ETH (Swiss Federal Institute of Technology), History and Technology |
| Kerr | Ian | CA | University of Manitoba, University College, Department of History |
| Kipping | Matthias | ES | Universitat Pompeu Fabra, Department of Economics and Business |
| Kostov | Alexander | BG | Bulgarian Academy of Sciences, Institute of Balkan Studies |
| Kranakis | Eda | CA | University of Ottawa, Department of History |
| Krige | John | USA | Georgia Institute of Technology, School of History, Technology and Society |
| Laak | Dirk van | DE | Friedrich Schiller-Universität Jena, Historisches Institut |
| Laer | Arthe van | BE | Université Catholique de Louvain, Fonds national de la recherche scientifique |
| Landuyt | Ariane | IT | Universita degli Studi di Siena, Centro di Ricerca sull'Integrazione Europea |
| Levin | Miriam | USA | Case Western Reserve University, History Department |
| Maat | Harro | NL | Wageningen University, Technology and Agrarian Development |
| Mali | Franc | SI | University of Ljubljana, Faculty of Social Sciences |
| Mavhunga | Clapperton | USA | University of Michigan, Department of History |
| Meer | Elisabeth van | USA | University of Minnesota, History of Science and Technology |
| Mehos | Donna | NL | Eindhoven University of Technology, History, Philosophy and Technology studies |
| Michelsen | Karl-Erik | FI | South Karelian Institute, Lappeenranta University of Technology |
| Misa | Tom | USA | Illinois Institute of Technology, Department of Humanities |

| | | | |
|----------------|------------|-----|--|
| Mitrea | Oana | DE | Technical University Darmstadt, History Department |
| Molle | Leen van | BE | Catholic University Leuven, History Department |
| Mom | Gijs | NL | Eindhoven University of Technology, History, Philosophy and Technology studies |
| Nikova | Ekaterina | BG | Bulgarian Academy of Sciences, Institute of Balkan Studies |
| Nykänen | Panu | FI | Helsinki University of Technology, Personnel Management and Legal Affairs |
| Oldenziel | Ruth | NL | University of Amsterdam/Eindhoven University of Technology, History, Philosophy and Technology studies |
| Otterloo | Anneke van | NL | University of Amsterdam, Faculty of Social and Behavioural Sciences, Sociology Department |
| Parusheva | Dobrinka | BG | Bulgarian Academy of Sciences, Institute of Balkan Studies |
| Phalkey | Jahnavi | USA | Georgia Institute of Technology, Department of History and Classics |
| Power | Margaret | USA | Illinois Institute of Technology, Department of Humanities |
| Pujol Andreu | Josep | ES | Universitat Autònoma de Barcelona, Economy and Economic History Department |
| Randall | Amy | USA | University of Mississippi, Department of History |
| Ravesteijn | Wim | NL | TU Delft, Faculty of Technology, Policy and Management |
| Redfield | Peter | USA | UNC Chapel Hill, Department of Anthropology |
| Reid | Susan | UK | University of Sheffield, Department of Russian and Slavonic Studies |
| Rentetzi | Maria | GR | Technical University Athens, School of Applied Mathematics and Physics |
| Salmi | Hannu | FI | University of Turku, Department of Cultural History |
| Sarasúa García | Carmen | ES | Universitat Autònoma de Barcelona, Department of Economic History |
| Schmidt | Gert | DE | Friedrich-Alexander Universität Erlangen, Department of Science & Technology Studies |
| Schott | Dieter | UK | University of Leicester, Department of Economic and Social History |
| Scranton | Phil | USA | Rutgers University, History Faculty |
| Sebesta | Lorenza | IT | University of Bologna, Political Sciences Department |
| Sekyrková | Milada | CZ | National Technical Museum |
| Shah | Esha | IN | ISEC Campus and Development, Centre for Interdisciplinary Studies in Environment |
| Shpotov | Boris | RU | Russian Academy of Sciences, Institute of World History |
| Štrbáňová | Soňa | CZ | Czech Academy of Sciences, Research Centre for History of Sciences and Humanities |
| Tchalakov | Ivan | BG | Bulgarian Academy of Sciences, Institute of Sociology |
| Thoms | Ulrike | DE | Freie Universität Berlin, Institut für Geschichte der Medizin |
| Tilley | Helen | USA | Princeton University, History Department |
| Turk | Jeffrey | SL | Research Centre of the Slovenian Academy of Sciences and Arts |
| Tympas | Aristotle | GR | National and Kapodistrian University of Athens, Political Science and History Department |

| | | | |
|------------------|-----------|-----|--|
| Valuch | Tibor | HU | Eotvos Loránd University, Department of Social History |
| Vámos | Éva | HU | Hungarian Museum for Science and Technology |
| Varga | Zsuzsanna | HU | Eötvös Lóránd University, Department of Social History |
| Vining | Margaret | USA | Smithsonian Institution, Armed Forces History Collections |
| Vleuten, van der | Eric | NL | Eindhoven University of Technology, History, Philosophy and Technology studies |
| Vodichev | Evgeny | RU | Russian Academy of Sciences, Siberian Division, Institute of History |
| Volti | Rudi | USA | Pitzer College, Sociology Department |
| Walsh | Margaret | UK | University of Nottingham, American & Canadian Studies |
| Weinberger | Hans | SE | Royal Institute of Technology, Department of History of Science and Technology |
| Wilding | Peter | AT | IFZ - Inter-University Research Centre for Technology, Work and Culture |
| Wintle | M.J | NL | University of Amsterdam, European Studies |
| Wit | Martijn | NL | University of Twente, Department of Philosophy of Science and Technology |
| Wit | Onno de | NL | Museum for Communication |
| Zachmann | Karin | DE | Munich University of Technology Munich, Centre for the History of Science and Technology |
| Zarecor | Kimberly | USA | Columbia University, Department of Architecture |
| Zeller | Thomas | USA | University of Maryland, Department of History |
| Zellmeyer | Stephan | CH | University of Basel, History Department |

Appendix 3: List of the 15 most important scientists and institutes in the field

This list contains the researchers who are active within the history of technology (as a field) and are included in appendix 2. So it is first and foremost a selection out of this list. As a consequence several of the co-proposors are also not included. Finally we have mentioned in many cases only the person who is the main chair holder, so the indicated institute contains many more important scientists.

| | |
|----------------------|---|
| Andersen, Håkon With | Norwegian University of Science and Technology, Department of History, Trondheim, NO |
| Bijsterveld, Karin | Maastricht University, Technology & Society Studies Department, Maastricht, NL |
| Bud, Robert | Science Museum, Science and Culture Multimedia Project, London, UK |
| Diogo, Maria Paula | Universidade nova de Lisboa, Faculty of Sciences and Technology, Caparica, PT |
| Griset, Pascal | Université Paris Sorbonne, Centre de Recherche en Histoire de l'Innovation, Paris, FR |
| Gugerli, David | ETH (Swiss Federal Institute of Technology), History of Technology, Zürich, CH |
| Hård, Mikael | TU Darmstadt, History Department, Darmstadt, DE |
| Hecht, Gabrielle | University of Michigan, History Department, Ann Arbor, USA |
| Kaijser, Arne | Royal Institute of Technology, Department of History of Science and Technology, Stockholm, SE |
| Krige, John | Georgia Institute of Technology, School of History, Technology and Society, Atlanta, USA |

Michelsen, Karl-Erik
Misa, Tom
Schot, Johan
Scranton, Phil
Wengenroth, Ulrich

South Karelian Institute, Lappeenranta University of Technology, Lappeenranta, FI
Illinois Institute of Technology, Department of Humanities, Chicago, USA
Eindhoven University of Technology, History, Philosophy and Technology studies, Eindhoven, NL
Rutgers University, History Faculty, Philadelphia, USA
Deutsches Museum, München, GE